



Water Resources LICENCE TO

ABSTRACT

WATER

Environment Act 1995
Water Resources Act 1991 as amended
by the Water Act 2003
Water Resources (Abstraction and
Impounding) Regulations 2006
Natural Resources Body for Wales (Functions)
Order 2012
Water Abstraction (Transitional Provisions)
Regulations 2017

IMPORTANT NOTES

Need for safekeeping

This licence is an important document. The permission or right to abstract water may be valuable to your landholding. So -

- **Keep the licence safe, preferably with your deeds etc.**
- **Take careful note of the comments below about "transfer and apportionment" and "death and bankruptcy".**

This is to ensure that the permission and any rights granted by the licence continue if you need to pass it on to someone else.

If you want to:

- **revoke (cancel) the licence;**
- **vary (change/amend) the licence in any way or**
- **change your contact address (but you continue to hold the licence).**

Please write to us at your local Natural Resources Wales office.

Details of this licence are placed on a register, kept by Natural Resources Wales and open for inspection by the public. The public may also obtain further details about it by virtue of the Environmental Information Regulations 2004 (see also Disclosure of Information) except in special cases (for advice please contact us at the address shown on the front page of the licence).

Transfer and apportionment

If you need to pass this licence or any part of it to someone else, you must contact Natural Resources Wales and obtain the appropriate application forms. Temporary licences cannot be transferred or apportioned. The licence holder remains responsible for compliance with the terms of the licence and any charges payable until the licence has been transferred or apportioned.

Death or bankruptcy of the licence holder

If a licence has been 'vested' in you, as a result of the death or bankruptcy of the licence holder, please contact Natural Resources Wales in writing, telling us the licence number(s) and the date that the licence vested in you as a personal representative or trustee of the licence holder. This is necessary in order to enable you to subsequently transfer the licence.

'Vesting' is the transfer of responsibility and ownership of a licence when an existing licence holder is no longer able to hold the licence either through death or bankruptcy.

You do not have to complete a form, but you must notify us in writing within 15 months of the date of vesting, giving the full names of all personal representatives or trustees and a contact address.

Time limits

Your licence may be subject to a time limit (stated on the front of your licence). All new abstraction licences are legally required to include a time limit. For variations to licences, time limits are added in accordance with our policy.

The duration of a time limit is determined in accordance with our time limiting policy. The time limit is linked to the next or subsequent review of water resources within a Catchment Abstraction Management Strategy (CAMS).

There will be a presumption of renewal providing three tests are met: environmental sustainability is not in question; there is continued justification of need; and water is being used efficiently. Any application for renewal will still be subject to the normal statutory considerations.

If your licence is time limited and you wish to renew it when it expires, you will need to apply for a new licence to replace the existing one. You are advised to submit this application at least three months before it expires. To allow you to give early consideration to this, we will send you a reminder approximately 18 months before the expiry date.

If your licence cannot be renewed, we will endeavour to give at least six years notice. We will also endeavour to give at least six years notice where the licence is likely to be renewed on different terms and will significantly impact upon the use of the licence.

In exceptional circumstances, for example where there are other overriding statutory duties such as the Habitats Regulations, it may not be possible to provide six years notice.

Charges

Unless specifically exempted, we may levy an annual CHARGE for water AUTHORISED to be abstracted by this licence, in accordance with our abstraction charges scheme in force at the time.

The licence may be revoked if charges are not paid.

Quantity and quality of water

You must not abstract more than the quantity specified in the licence.

Natural Resources Wales does not, by issue of this licence or otherwise, in any way guarantee that the source of supply will produce the quantity of water authorised to be abstracted by this licence, nor that the water is fit for its intended use.

The quantity of water authorised for abstraction is given in cubic metres. One cubic metre is approximately 220 gallons.

(The precise conversion is 1 cubic metres = 219.969 gallons).

Source of supply and authorised point of abstraction

You may abstract from the point(s) specified in the licence and from no other points. If you want to add or change the authorised point(s) of abstraction, you must apply to us to vary the licence.

Land on which water is authorised to be used

Where this condition applies, you may only use the water you abstract on the area specified in the licence. You must apply to us to vary the licence if you wish to extend or alter this area or remove it.

Purpose for which water is authorised to be used

You may only use the water for the purpose(s) specified in the licence. You must apply to us to vary the licence if you wish to add to or change the purpose(s).

Offences

Under the Water Resources Act 1991 it is an offence:-

- to abstract water, or cause or permit any other person to abstract water, unless the abstraction is authorised by and in accordance with an abstraction licence, or is subject to an exemption;
- to do anything to enable abstraction, or to increase abstraction, except in accordance with an abstraction licence or exemption;
- to fail to comply with the conditions of an abstraction licence.
Note in particular that it may be a condition of the licence to maintain the meter or other measuring device etc. and failure to do so will be an offence;
- to interfere with a meter or other device which measures quantities of water abstracted so as to prevent it from measuring correctly;
- to fail to provide information which we have reasonably required for the purpose of carrying out any of the Natural Resources Wales water resources functions;
- to knowingly make false statements for the purpose of obtaining a licence or consent or in giving required information.

The requirement for a licence is subject to some exemptions, set out in the Water Resources Act 1991 as amended. If in any doubt as to whether you need a licence, contact us at the address shown at the bottom of the front page of the licence.

Right of appeal

If you are dissatisfied with our decision on your licence application, you may appeal.

If you are in England, you should write to the Secretary of State for the Environment, Food and Rural Affairs, care of The Planning Inspectorate at: Room 4/19 Eagle Wing, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6PN.

If you are in Wales, you should write to Welsh Government care of The Planning Inspectorate at: Crown Buildings, Cathays Park, Cardiff, CF10 3NQ.

You must serve notice of appeal within 28 days of the date of receipt of this licence (although the Secretary of State and The Welsh Government have power to allow a longer period for serving notice of appeal). See Water Resources Act 1991, section 43.

Disclosure of information

Information about this licence is available in the public Register held by Natural Resources Wales. Members of the public are also entitled to ask us for other "environmental information" it holds, including any activities likely to affect "the state of any water" or any "activities or other measures designed to protect it". That would include the information additional to the licence document e.g. any related agreement or abstraction returns. In certain restricted circumstances it is possible to claim that information should be kept confidential. If you require more information about keeping this information off the public register because it is confidential, please contact us by writing to the address shown on the front page of the licence within 28 days of receiving this licence.



TRANSFER LICENCE TO ABSTRACT WATER

The Natural Resources Body for Wales (hereafter referred to as "NRW") grants this licence to:-

Canal & River Trust ("the Licence Holder")
National Waterways Museum Ellesmere Port
South Pier Road
Ellesmere Port
Cheshire
England
CH65 4FW

Company Registration Number: 07807276

This licence authorises the Licence Holder to abstract water from the source of supply described in the Schedule of Conditions to this licence and subject to the provisions of that Schedule. The licence commences from the effective date shown below and shall remain in force until the date of expiry shown below.

Signed:

Permitting Team Leader
Permitting Service
Natural Resources Wales
Cambria House
29 Newport Road
Cardiff
CF24 0TP

Date of issue.....19 December 2022

Date effective.....19 December 2022

Date of expiry.....31 March 2029

This licence should be kept safe and its existence disclosed on any sale of the property to which it relates. Please read the 'important notes' on the cover to this licence.

Note: References to "the map" are to the map which forms part of this licence.
References to "NRW" are to the Natural Resources Body for Wales or any successor body.

SCHEDULE OF CONDITIONS

1. SOURCE OF SUPPLY

- 1.1 Inland water (spring) known as Trosnant Spring at Pontypool.

2. POINT OF ABSTRACTION

- 2.1 At National Grid Reference SO 28420 00498 marked 'Point A' on the map.

3. MEANS OF ABSTRACTION

- 3.1 A chamber and gravity feed pipe of an internal diameter not exceeding 153 millimeters.

4. PURPOSE OF ABSTRACTION

- 4.1 Transfer for the purpose of operations in the course of carrying out functions as a navigation authority.

5. PERIOD OF ABSTRACTION

- 5.1 All year.

6. MAXIMUM QUANTITIES OF WATER TO BE ABSTRACTED

- 6.1 2,000 cubic metres per day
87,230 cubic metres per year

A day means any period of 24 consecutive hours and a year means the 12 month period beginning on 1 April and ending on 31 March.

7. MEANS OF MEASUREMENT OF WATER ABSTRACTED

- 7.1
- (i) No abstraction shall take place unless the Licence Holder has installed a measuring device to measure quantities of water abstracted.
 - (ii) The Licence Holder shall position and install the measuring device in accordance with any written directions given by NRW.
 - (iii) The Licence Holder shall maintain, repair or replace the measuring device to ensure that accurate measurements are recorded at all times.
 - (iv) The Licence Holder shall keep all records of measuring device repair or replacement including evidence of current certification for a period of 6 years.

8. RECORDS

- 8.1 The Licence Holder shall take and record readings of the measuring device specified in condition 7.1 at the same time each day during the whole of the period during which abstraction is authorised or as otherwise approved in writing by NRW.

- 8.2 The Licence Holder shall send to NRW a copy of the record required by condition 8.1 or summary data to NRW within 28 days after 31 March in each year and also within 28 days of being so requested in writing by NRW.
- 8.3 Each record shall be kept and be made available during all reasonable hours for inspection by NRW for at least 6 years.

9. FURTHER CONDITIONS

- 9.1 No abstraction shall take place when the flow in the River Ebbw as gauged by NRW at its flow gauging station at Rhiwderin is equal to or less than 220,000 cubic metres per day.
- 9.2 The Licence Holder shall discharge all of the water abstracted in pursuance of this licence to the Monmouthshire & Brecon Canal at National Grid Reference SO 29405 00307 marked 'Point Q' on the map.

ADDITIONAL INFORMATION

Note: the following information is provided for information only. It does not form part of the licence.

REASONS FOR CONDITIONS

The licence is time-limited to a date to reflect the timing of a future review of the catchment resources availability.

Conditions 7 and 8: The abstraction is required to be measured to demonstrate compliance with the terms of the licence and to provide information on actual water usage for water planning purposes.

Conditions 9.1: The licence includes a hands off flow condition to ensure no adverse impact on the River Usk and Severn Estuary Special Areas of Conservation in accordance with the Habitats Regulations 2017.

Condition 9.2: To ensure the abstraction can be classed as a transfer of water from one source of supply to another.

IMPORTANT NOTES

This licence has been issued under the Water Abstraction (Transitional Provisions) Regulations 2017, which requires previously exempt abstractions to become regulated.

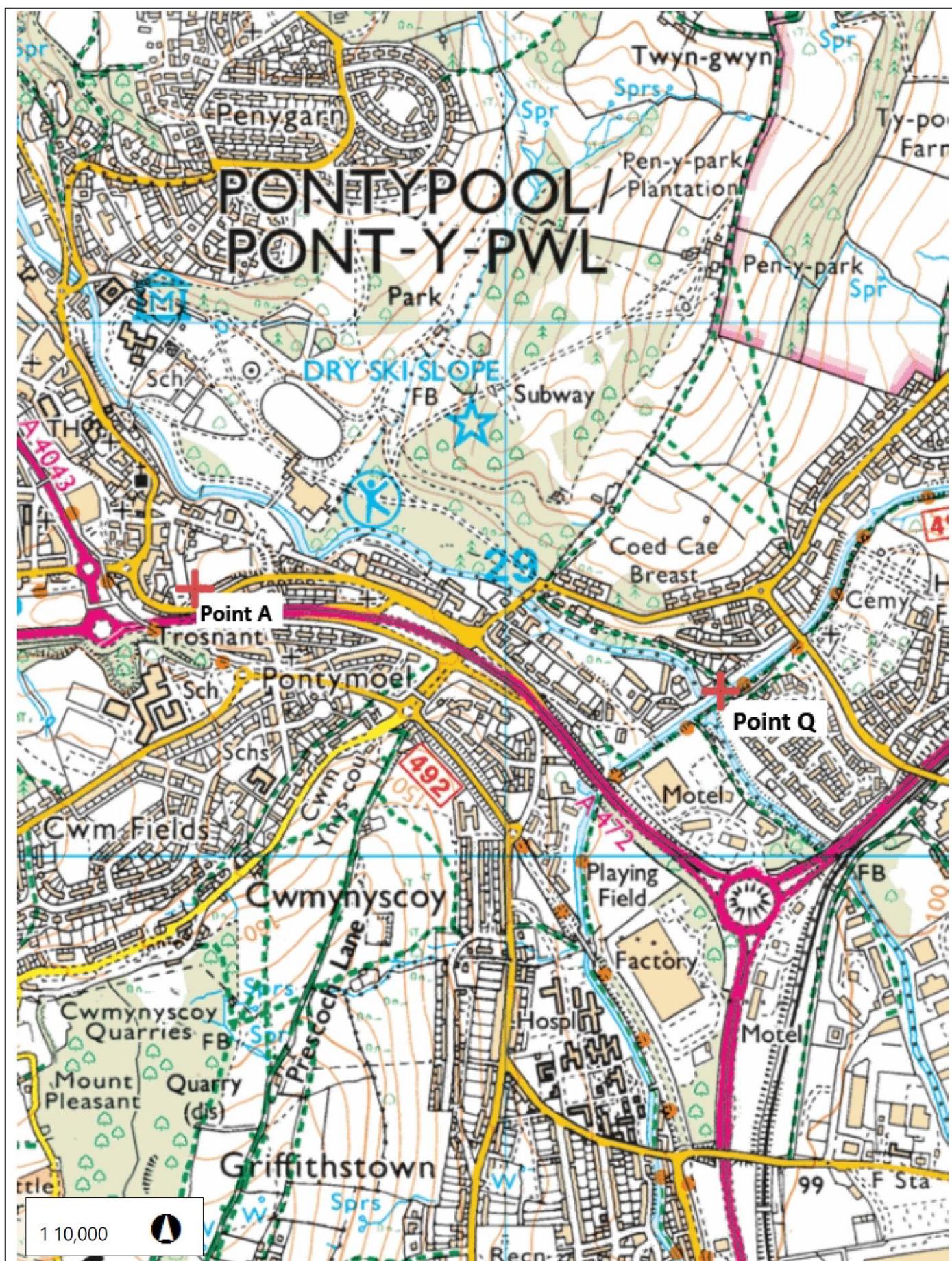
Abstraction licence serial numbers WA/056/0044/0004, WA/056/0038/0005, WA/056/0035/0011, WA/056/0032/0006, WA/056/0032/0007 and WA/056/0032/0008 have also been issued authorising the transfer of water into the Monmouthshire & Brecon canal.

Water efficiency note

The Licence Holder should use water abstracted under the terms of this licence in an efficient manner. NRW may refer to its guidance on water efficiency (or equivalent guidance) in determining whether water is being used efficiently and may offer advice on any measures considered necessary to meet particular recommendations.

Metering

NRW will have regard to its Abstraction Metering Good Practice Manual (or equivalent guidance) in directing any of the following: where the meter should be located or how it should be installed; whether the meter measures accurately, and/or is properly maintained; whether it is necessary to require repair or replacement of the meter.



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MAP ACCOMPANYING LICENCE NUMBER / MAP I GYFELIO TRWYDDED RHIF

WA/056/0012/0004

Scale I Graddfa 1:10,000

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**email
enquiries@naturalresourceswales.gov.uk**

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**incident hotline 0300 065 3000 (24hrs)
floodline 0345 988 1188**



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Allcorn, Emma

From: Nicholas Saiz <Nicholas.Saiz@canalrivertrust.org.uk>
Sent: 30 May 2022 14:40
To: Allcorn, Emma; WA 2003 New Authorisations
Cc: Kathryn Maye; Adam Comerford; Sheppard, Owain
Subject: Trosnant Spring Feeder

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Emma,

I would like to update our information on the Trosnant Spring feeder. Please let me know if there is any other information you need, or better still we can talk about the site in a meeting as suggested below.

As mentioned before the actual source of supply is in an access chamber at **SO 28420 00498**.

We also have the following evidence that the source is entirely spring water:

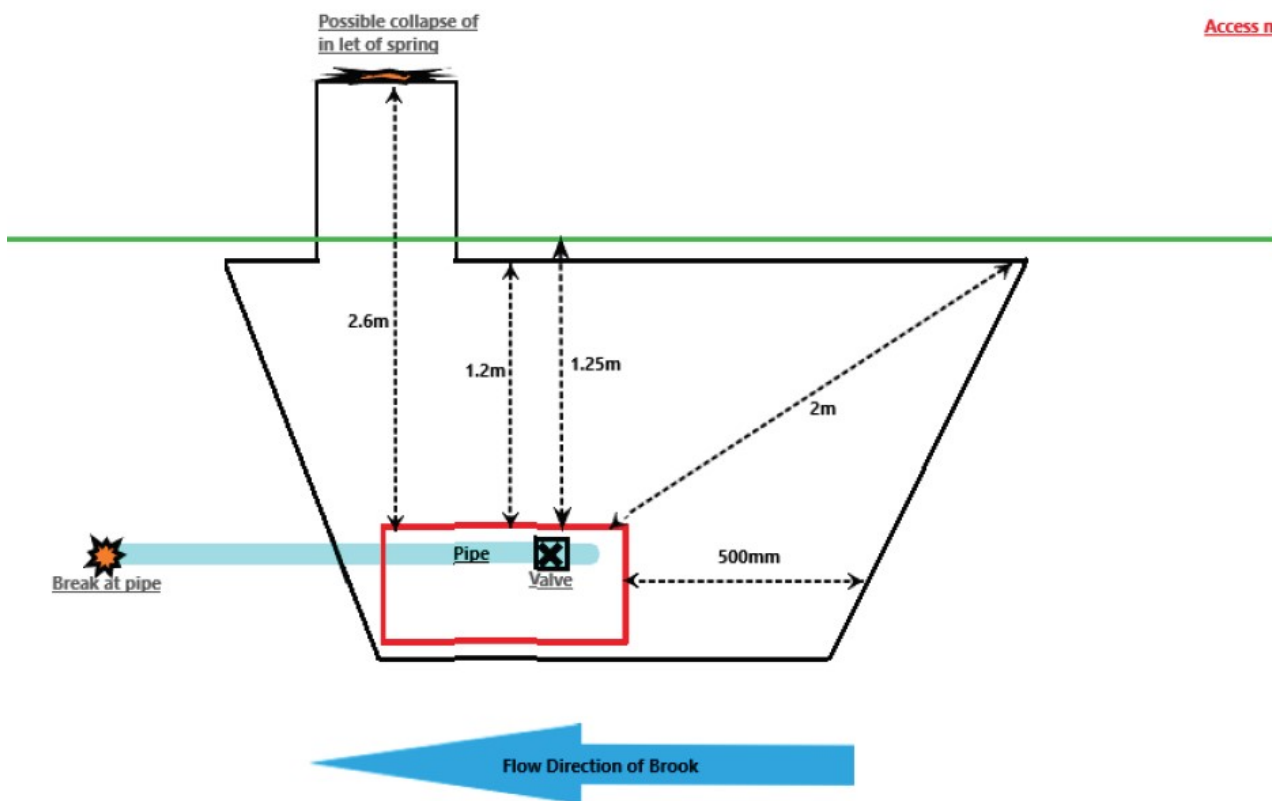
1. We have been to the Trosnant Spring and we have used CCTV to get good pictures of the chamber and rough measurements. See diagram below. The chamber is trapezoid back to the retaining wall, then there is a 1m cubed alcove stretching beyond the retaining wall and then at the back of this there is a 50cm wide by 30cm high by 30cm deep alcove further into the retaining wall/hillside. The whole structure is brick until the back wall of the very deepest part which is broken stone and could be a collapsed stone structure or the natural bed rock.
2. The chamber has a constant flow out through it's overspill letterbox.
3. When the silt was disturbed in the chamber it clears from the wall side only with no visible inflow from the stream side to suggest brook water entering.
4. The brook water was 11.0C and the chamber water was 10.5C indicating a separate water body.
5. The brook is entirely covered in orange tinted slime whereas the chamber has none at all, again suggesting no backflow into the overspill letterbox.
6. Our staff say that in winter water can overtop the chamber from within.

Bank Wall

Spring chamber wall

Pipe

Access manhole



I think it would be best to have regular meetings between NRW and CRT on the progress of the licencing in Wales. We are also working with 2 other officers and it would make sense to have some discussion on the more general form of the licences together, for example we have already requested wording on the purpose of the abstraction to match our wording in England.

Shall I set up a monthly meeting between you three and myself, Kathryn Maye and Adam?

The other permitting officers we are working with are:

Lillywhite, Charlotte Charlotte.Lillywhite@cyfoethnaturiolcymru.gov.uk – Penarth & Tanat

Beckett, Mary Mary.Beckett@cyfoethnaturiolcymru.gov.uk – Llantysilio & maybe Ystalyfera

All the best,

Nicholas Saiz

Project Manager

M 07584 543214

E nicholas.saiz@canalrivertrust.org.uk

Canal & River Trust

The Toll House, Delamere Terrace, Little Venice, London, W2 6ND



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Canal & River Trust is a charitable company limited by guarantee registered in England & Wales with company number 7807276 and charity number 1146792. Registered office address National Waterways Museum Ellesmere Port, South Pier Road, Ellesmere Port, Cheshire CH65 4FW.

Cadw mewn cysylltiad

Cofrestrwch i dderbyn e-gylchlythyr Glandŵr Cymru <https://canalrivertrust.org.uk/newsletter>

Cefnogwch ni ar <https://www.facebook.com/canalrivertrust>

Dilynwch ni ar <https://twitter.com/canalrivertrust> ac <https://www.instagram.com/canalrivertrust>

Mae'r e-bost hwn a'i atodiadau ar gyfer defnydd y derbynnydd bwriedig yn unig. Os nad chi yw derbynnydd bwriedig yr e-bost hwn a'i atodiadau, ni ddylech gymryd unrhyw gamau ar sail y cynnwys, ond yn hytrach dylech eu dileu heb eu copïo na'u hanfon ymlaen a rhoi gwybod i'r anfonwr eich bod wedi eu derbyn ar ddamwain. Mae unrhyw farn neu safbwynt a fynegir yn eiddo i'r awdur yn unig ac nid ydynt o reidrwydd yn cynrychioli barn a safbwyntiau Glandŵr Cymru.

Mae Glandŵr Cymru yn gwmni cyfyngedig drwy warant a gofrestrwyd yng Nghymru a Lloegr gyda rhif cwmni 7807276 a rhif elusen gofrestredig 1146792. Swyddfa gofrestredig: National Waterways Museum Ellesmere Port, South Pier Road, Ellesmere Port, Cheshire CH65 4FW.



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Our regulatory approach to deliver
sustainable management of
natural resources

Our Regulatory Principles

Version 2
April 2016

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Executive Summary

Our purpose is to ensure that the natural resources of Wales are sustainably maintained, enhanced and used, now and in the future. Our approach is about how we will secure the long term well-being of Wales, working with those we have direct contact, using new ways of working.

We have set out how we define regulation in the context of the sustainable management of natural resources and our regulatory principles to help the delivery of this.

We define the role of regulation and how this fits in with our purpose and the legislation being put in place by Welsh Government and builds on our already established regulatory principles.

Our regulatory principles are:

- **Deliver outcomes**
- **Be intelligent**
- **Prepared to challenge**
- **Use the full range of tools available**
- **Be flexible**
- **Bring the right skills / expertise together**
- **Be efficient and effective**
- **Be clear on what we do and why**

We explain how our regulatory principles define the themes for our delivery, which are:

- **Outcomes** – We show how effective delivery of regulation and legislation provides a vital foundation for the sustainable management of natural resources, and how long term resilience depends on raising standards by orders of magnitude;
- **Evidence** - We state that we will use regulatory evidence to drive our interventions and innovation, using European Networks and links with other regulators. We set out our position regards data requests from operators;
- **Understanding others** – We set out our commitment to work with and engage with others, through our established stakeholder groups and working with them on future policy changes;
- **Understanding ourselves** – We show the link between our approach and our core organisational values;
- **Tools** – We show how we will use the right regulatory intervention according to the circumstance.
 - We will work from the assumption that those we regulate want to comply with the law and that the responsibility rests on applicants and operators to demonstrate their compliance.
 - We will look to secure a body of clear, accessible and concise guidance materials and work with others to develop this.

- We will be clear on what compliance means and we want to discuss with operators any problems that they may have in achieving this.
- We will encourage and support improvement, and recognise those who are compliant.
- We will be clear on our enforcement and prosecution policy and be tough on those that simply ignore the law or take chances by avoiding compliance.
- We will work with the compliant operators to help us deal with the criminals and provide a level playing field;
- **Organisation** – We set out our commitment to have the right skills in place and that our staff understand the Regulators Code. We will work with others to access the right skills as we need them. We will fully recover our costs and ensure that the income from fees and charges is used only to fund formal regulatory activities. We will continue to work on our efficiency and effectiveness, and where possible we will minimise formal regulatory burdens and encourage compliance and growth;
- **Communication** - We state that we will be open and transparent, and use our Regulatory Service Standards. We are committed to develop our website as part of our wider development of our communications strategy;
- We will deliver the principles of good regulation.

Introduction

Our purpose is to ensure that the natural resources of Wales are sustainably maintained, enhanced and used, now and in the future. Our current responsibilities provide us direct contact with some 1,700 industrial, waste and water sites across Wales. We also grant over 10,000 permits, 65,000 fishing rod licences, 480 tree felling licences and 100 marine licences a year.

Our approach is about how we will secure the long term well-being of Wales, working with those we have direct contact, using new ways of working. These new ways of working reflect the wide range of roles and responsibilities of Natural Resources Wales, and also the new legislative framework put in place by Welsh Government to deliver the long term well-being of Wales. Not only does this mean new ways of working and a flexible approach, but new ways of describing and looking at the challenges to deliver this in Wales.

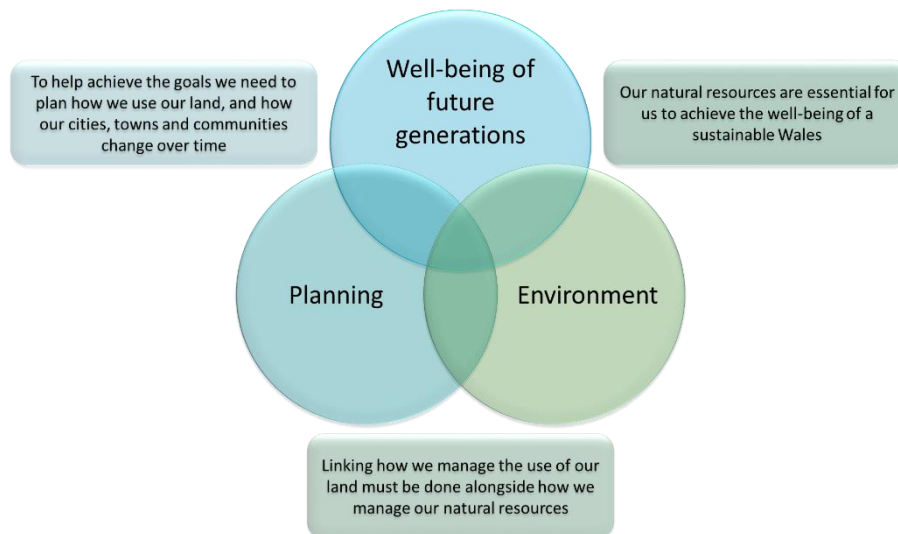
One of the key challenges we seek to address is what is actually meant by regulation. We recognise that this means different things to different groups, but we believe that regulation is about doing something that makes a difference. This is not just about the law, it is broader than this and can include economic and voluntary tools, and the use of information and knowledge sharing. However, we recognise that we must be clear about where things are legally required, and where things are just a good, or the right, thing to do. This is something we aim to do, to help those we are involved with stay the right side of the law.

We must be clear, however, that where legal requirements exist, we are required to apply them. Complementary approaches are simply that – complementary. They cannot simply act as a replacement, where legal provision exist. We will continue to apply the requirements of the law.

Here, we set out, both for those we come into contact with, and for ourselves, how we look to define regulation in the context of the sustainable management of natural resources and our regulatory principles to help the delivery of this.

The sustainable management of natural resources

The new overarching legislative framework being put in place in Wales seeks to deliver the long term well-being of Wales. This framework comprises three main components around the well-being of future generations, the environment and planning.



Primary legislative landscape in Wales

The Well-being of Future Generations (Wales) Act places us under a duty to apply the sustainable development¹ principles in our work. This means acting in a manner which seeks to ensure that the needs of the present are met without compromising the ability of future generations to meet their own needs. This is reinforced by the Environment (Wales) Act that states that we must:

- (a) pursue sustainable management of natural resources in relation to Wales, and
- (b) apply the principles of sustainable management of natural resources, in the exercise of its functions, so far as consistent with their proper exercise.

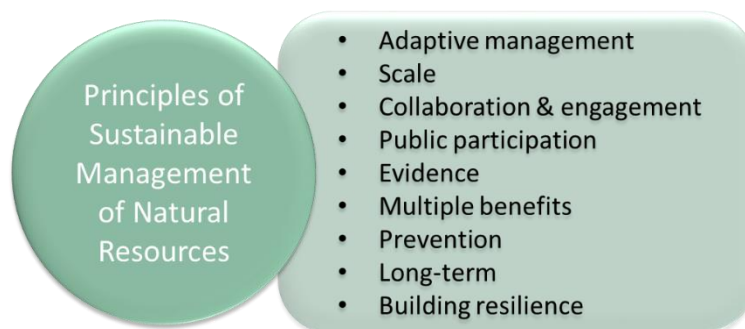
Therefore, we have a key role in the delivery of the long term well-being of Wales and the sustainable management of natural resources. This includes understanding the evidence around the state and resilience of natural resources, how this can then inform national policy and through to what does this mean locally.



Delivering the long term well-being of Wales

¹ The Well-being of Future Generations (Wales) Act defines sustainable development as “the process of improving the economic, social, environmental and cultural well-being of Wales, by taking action in accordance with the sustainable development principle aimed at achieving the well-being goals”.

The sustainable management of natural resources is not a prescriptive approach, but provides some guiding principles² about working with nature for a healthy and resilient environment, for people and nature alike. It is a way of considering the environment – and its health – as a whole, rather than dealing with individual aspects separately. It will enable our projects and programmes to deliver as many benefits as possible for the people, environment and businesses in Wales.



Sustainable management of natural resources principles

The aim is to work with other colleagues, communities, industry and Government from the start in order to establish common aims and objectives for a given activity or location. It is a way of helping us all find multiple wins in everything we do, and will enable us to take a more integrated approach across all of our work.

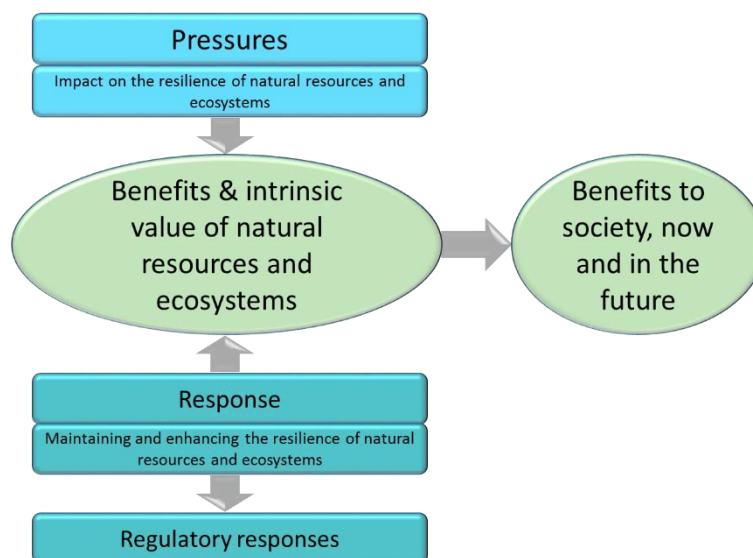
This can make use of our traditional range of tools to protect the environment, but will also require us to build in new ones which will help us achieve even more. This also encourages us to consider the spatial scale and timescale for our actions, managing our approach at the most appropriate level, to help achieve common outcomes. This will also encourage us to think about when to act and look at where early intervention or prevention may deliver better outcomes.

What is the role of regulation?

When considering the role of regulation in the context of sustainable management of natural resources, we need to consider how our current, and future, society benefits from natural resources and ecosystems. These benefits can include things like water, food and fuel, access to green and blue space, and the natural role that the environment takes in regulating things we benefit from, such as pollination or the water cycle. However, these may be subject to pressures, such as new activities or pollutants, and/or the concentration or localisation of these pressures in the environment. These may compromise or reduce the resilience of these natural resources and ecosystems to provide the range of benefits to society.

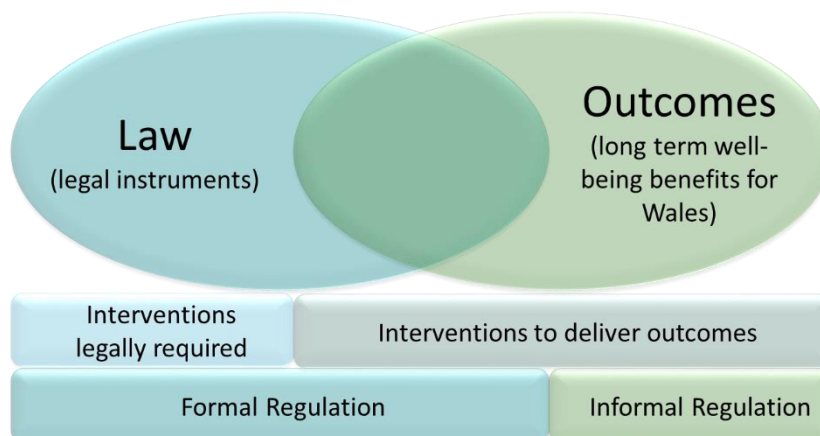
The pressure on the resilience of natural resources and ecosystems, and the threat this may pose, needs a response. The sustainable management of natural resources is this response, and can protect or enhance the resilience and capacity of natural resources and ecosystems, to deal with these man-made or natural pressures.

² The nine principles of sustainable management of natural resources are expressed in the Environment (Wales) Act.



Response to pressures on the natural resources and ecosystems

We believe that regulation is about doing something that makes a difference. This is not just about the law, it is broader than this. However, we recognise that we must be clear about where things are legally required, and where things are just a good, or the right, thing to do. To provide this clarity, we refer to formal regulation and informal regulation, reflecting where interventions may or may not be underpinned by the law.



Defining formal and informal regulation³

This will require a change in perspective and examination of the way we have worked previously in our legacy organisations. We will look at what has worked well, what hasn't, and develop new ways of approaching the challenges we, people, businesses, and the natural resources face in Wales.

The nature of the interventions, how these can be delivered, what evidence underpins this, and where this fits with the delivery of national policy are pulled together in the Area Statements. This reflects the need for tailored approaches, respecting the spatial scale of the challenges.

The delivery of this framework will not be achieved overnight. We will need to pull together a range of skills, experience and links to many other organisations. This presents us with a

³ Some may refer to these as direct and indirect regulation.

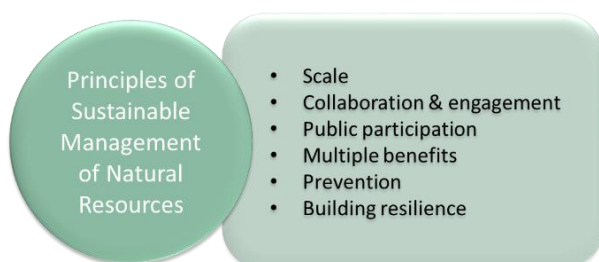
unique opportunity to re-appraise approaches and look at how to effectively deliver our shared outcomes.

Our Regulatory Principles

Given this broad context for regulation, not all possible approaches can be defined for all circumstances. We have therefore looked to adopt a principles approach, and have defined a set of eight regulatory principles, which also reflect on the principles of sustainable management of natural resources and the ecosystem approach.

1. Deliver outcomes

We will deliver outcomes, not just deliver regulation, seeking to deliver shared outcomes where we can.

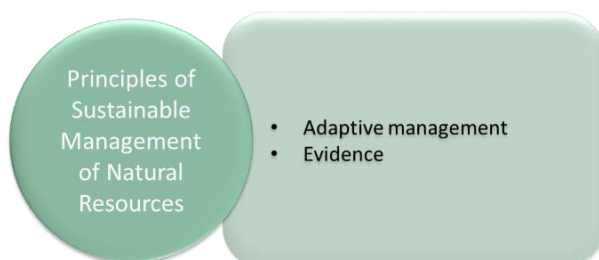


This ensures that the work we do is rooted in the delivery of outcomes. This clarifies the role of regulation as a tool in the delivery. This allows us to consider outcomes reflecting on societal choice and how we all would want our natural resources and ecosystems to function and be resilient.

For example, by looking at area-based approaches (Area Statements) to deliver the outcome of sustainable management of natural resources, we can through trials understand the most effective way to utilise our and others skills and knowledge. The delivery of such an outcome would provide benefits for the people, environment and businesses of Wales.

2. Be intelligent

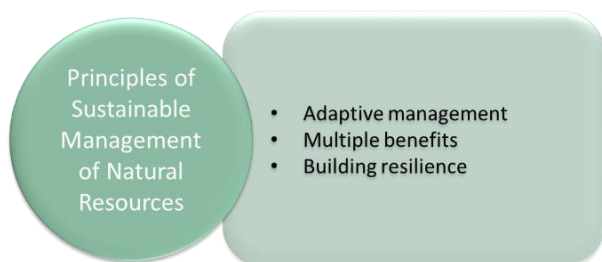
We will use all available evidence and will ensure the data we collect contributes to the evidence to inform action to deliver outcomes.



We will ensure that we collect and use data efficiently, seeking this only once wherever possible. We will apply where possible Geographical Information Systems (GIS) principles and use the data collected to deliver action informed by intelligence. This will encourage the use of new types and sources of data, using it with problem solving techniques to create knowledge. Using broad evidence (knowledge, information and data), including that in the State of Natural Resources Report (SoNaRR), will help inform risk based approaches, and highlight the priority areas for action.

3. Prepared to challenge

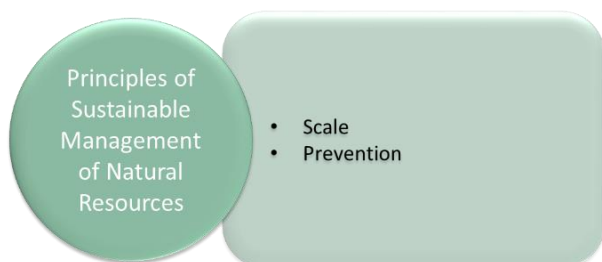
We will challenge and address barriers where they don't contribute to the outcome.



By reviewing the effectiveness of the delivery of outcomes, we will be encouraged to challenge the way we work and how we deliver. This also looks to encourage us to identify and highlight potential barriers to delivering outcomes, and look for ways to remove these.

4. Use the full range of tools available

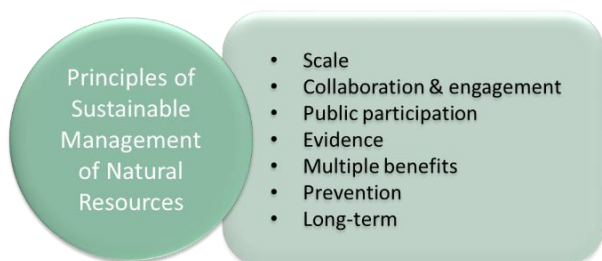
We will apply a wide range of tools, including the law to deal with those who act illegally, to protect honest business, society and the environment.



We will access an extensive toolkit. We will understand the effectiveness of the tools and in what context and when they are best applied. Such tools won't necessarily be limited to legal (formal regulatory) approaches. We will use specific legal tools where the circumstances justify, and where this is the right thing to do.

5. Be flexible

We will be flexible and tailor the approach to the needs of the recipient.



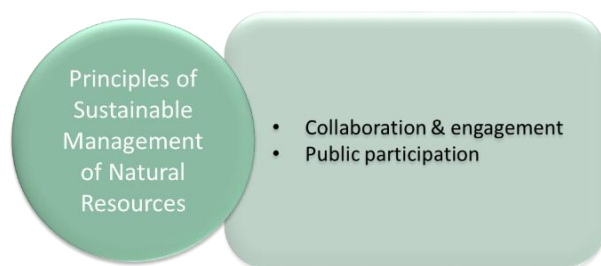
This encourages us to engage and collaborate, and seek to achieve a common understanding of what needs to be done using a wide range of tools, including the use of market mechanisms. Continued and prolonged engagement may instil commitment from those involved to make things happen for wider benefit. We will therefore need to understand the interests and motivations of those we meet. We will engage in conversation, develop mature relations, and avoid simply instructing.

We will however still need to recognise that for some, there will be a need for more help and support than for others. We will tailor appropriately, giving thought to those we engage with, considering factors such as behaviours and knowledge, and for businesses we will need to understand their size, skills and capacity. We will look to foster innovation and novelty and be less bound by historical process or old geographical boundaries.

We will think about the spatial scale and timescale for our actions, and what the most appropriate level and time to do things might be. This will encourage us to think about when to act and look at where early intervention or prevention may deliver better outcomes. Being flexible will also allow us to manage and recognise the inevitability of change.

6. Bring the right skills / expertise together

We will ensure we have the skills to use the right tools or work with those who do.



We will work with others when their skills and tools will deliver the best outcome. This includes looking at the tools others possess and assessing if they would enable us to be more flexible and effective. When using our own tools, we must ensure that our teams have the right skills to apply them efficiently and effectively. We will also ensure that we have access to the right skills and knowledge so we can understand others and engage with them effectively.

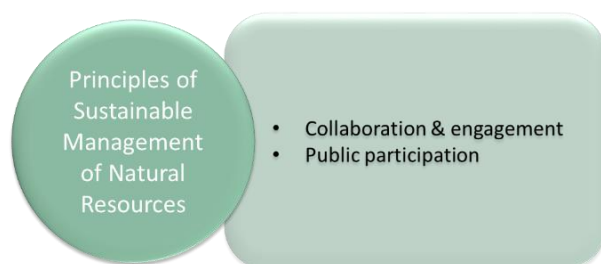
7. Be efficient and effective

We will deliver in an efficient and effective way, working with others where we can, and where this is a good thing to do.

We will clearly explain what our standards of service are, and how we will measure our effectiveness and efficiency. We will be clear as to how and where we spend our income, and ensure there is the correct balance between costs to business and costs to the tax payer.

8. Be clear on what we do and why

We will ensure everyone understands our role in such a way that it is easy to see the link between what we are doing and why.

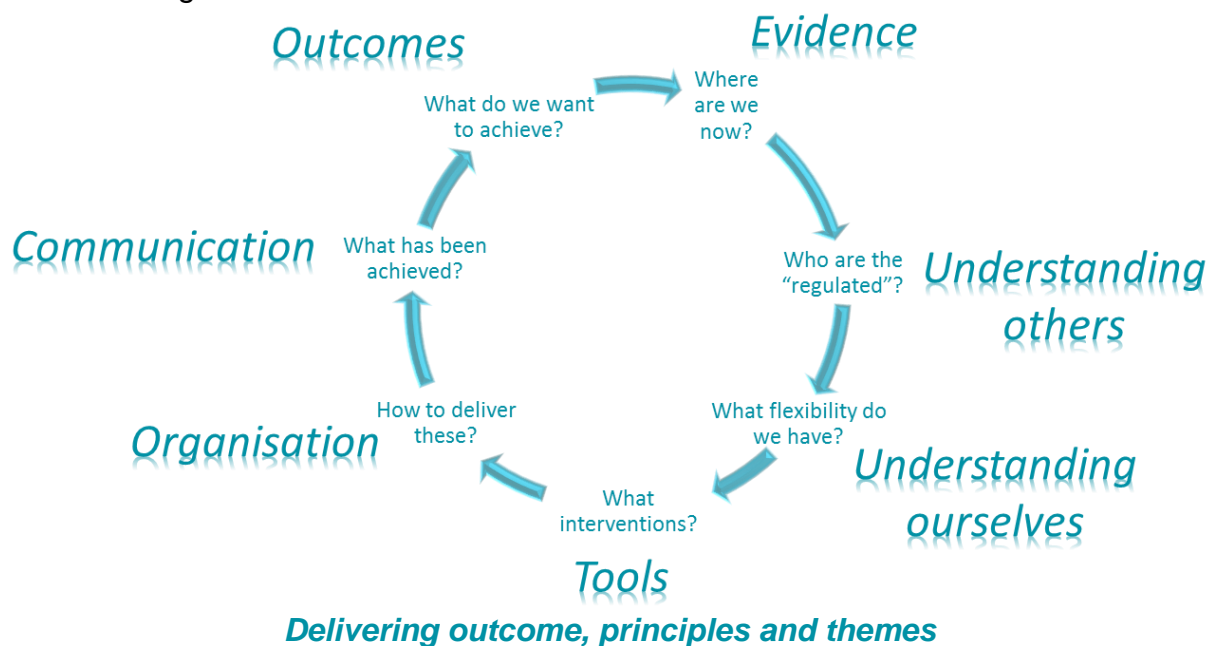


We will clearly explain what we do, and why, in a language and style that means something. This will provide for openness and transparency and, where we consult, clarity on how this can inform our decision making.

What we will do, and how we will do it

Our Regulatory Principles highlight seven main themes. These are:

- **Outcomes** - ensuring that the outcomes are defined so as to secure optimum benefits and communicated in a way to secure “buy-in” both externally and internally;
- **Evidence** - utilising evidence to inform actions;
- **Understanding others** – understanding how others work, their outcomes, their challenges, and what skills they may have;
- **Understanding ourselves** – understanding our skills, looking at our behaviours and culture, and what changes we need to make;
- **Tools** – understanding the tools that we and other possess, how to properly access and use these, and understand which are the most effective;
- **Organisation** - how best to organise ourselves to deliver in a flexible, effective and efficient way;
- **Communication** - how do we best communicate what we do, why, what has been achieved as a consequence, and how to provide feedback on what we, and others, are doing.



Our seven themes

By looking at these seven themes, we can define how we will look to deliver our Regulatory Principles.

Outcomes (Principle 1)

The high level outcomes are currently expressed in Welsh Governments Natural Resources Policy Statement and will be described in the National Natural Resource Policy.



Key challenges for the sustainable management of natural resources⁴

These challenges manifest themselves in different ways in the physical environment, and have many root causes, and therefore there are a wide range of actions capable of addressing these root causes. Understanding these root causes requires problem solving techniques and evidence.

One of the tools identified to deliver these governmental outcomes is legislation, and it is this that defines formal regulation. The legislation may include specific standards, or define how particular activities need to be controlled, in order to protect people or the environment. Many of these standards arise through European legislation, which is created as instruments to implement and deliver European Union policy objectives.

There are also other outcomes that business and people would expect, that are not necessarily underpinned by legislation. These could be a supportive environment to promote business growth, or reducing the impact of activities that have a negative impact on communities.

Evidence (Principle 2)

To manage our evidence needs, we will develop a Regulatory Evidence Action Plan. This will not only define our own regulatory evidence work, but will show the links to the work of others through programmes such as the Shared Agency Regulatory Evidence Programme (ShARE), IMPEL, and the Welsh Government's evidence programmes (alongside Defra) (Annex 1). This is essential to ensure that we undertake evidence work in the most efficient and effective way possible, using evidence already available, and working with others where new evidence work is required. This Regulatory Evidence Action Plan will be part of the delivery of our broader Evidence Strategy⁵.

⁴ These challenges may change, depending on a better understanding of the evidence.

⁵ Good Evidence - Our Evidence Management Strategy and Delivery Plan 2014-2017, July 2014

Data and information – what we request from others

Part of our evidence base is derived from those we formally regulate. Much of this will be related to the process of demonstrating compliance, including information needed to report to Government or the European Commission under a range of legal obligations.

Although there are certain obligatory reporting requirements, we will ensure that formal regulatory reporting to us is:

- Simple;
- Only requested once;
- Requested in a way that it is clear what is needed.

Our development of new systems will ensure this is what we do in relation to information we ask for.

We will also continue to work with those we regulate to understand if there is evidence that can be informative to the State of Natural Resources Report (SoNaRR), beyond obligatory requirements. Any provision of this information will be on a collaborative basis as this would be outside of any formal regulatory framework, but may be useful to inform policy and actions more generally in Wales.

Understanding others

To deliver effectively, we need wider business (from small and new businesses to large and well established organisations) and societal “buy-in”, recognising that shared outcomes greatly increase the likelihood for success. We need to recognise that business itself also needs buy-in from its customers, shareholders, local community and others who may have an influence on the decisions made by the business. It is a combination of all these that provides business with its “licence to operate”, which is likely to be broader than meeting its legal obligations, and this balance may be different depending on the nature and size of the business.

By understanding those we work with through formal regulation, we will be able to get a better understanding as to whether other informal regulatory approaches can achieve the same, or better outcomes. We also need to understand behaviours and the nature of those we work with in relation to their size, location, sector and risk potential. We will engage in conversation, develop mature relations, and avoid simply instructing.

We will engage with these organisations and groups. We already do this through a number of business fora, and trade associations. This also provides a mechanism to ensure better delivery of formal regulation, examine new approaches, and gain a proper understanding of where formal regulation simply does not work, either for business or for society as a whole.

Understanding ourselves

We also recognise that our behaviours will be important in delivering outcomes. We will ensure we embed our values and behaviours and be seen as **passionate** and **ambitious**, **disciplined** and **focused**, **trusted** and **professional**, **responsible** and **accountable** and applying **common sense**. In addition, we will be impartial and independent in our decision making around formal regulation.

The way we behave, and the limits and constraints we have, gives us an understanding of the flexibilities available to us. We will need to address those areas where our behaviours

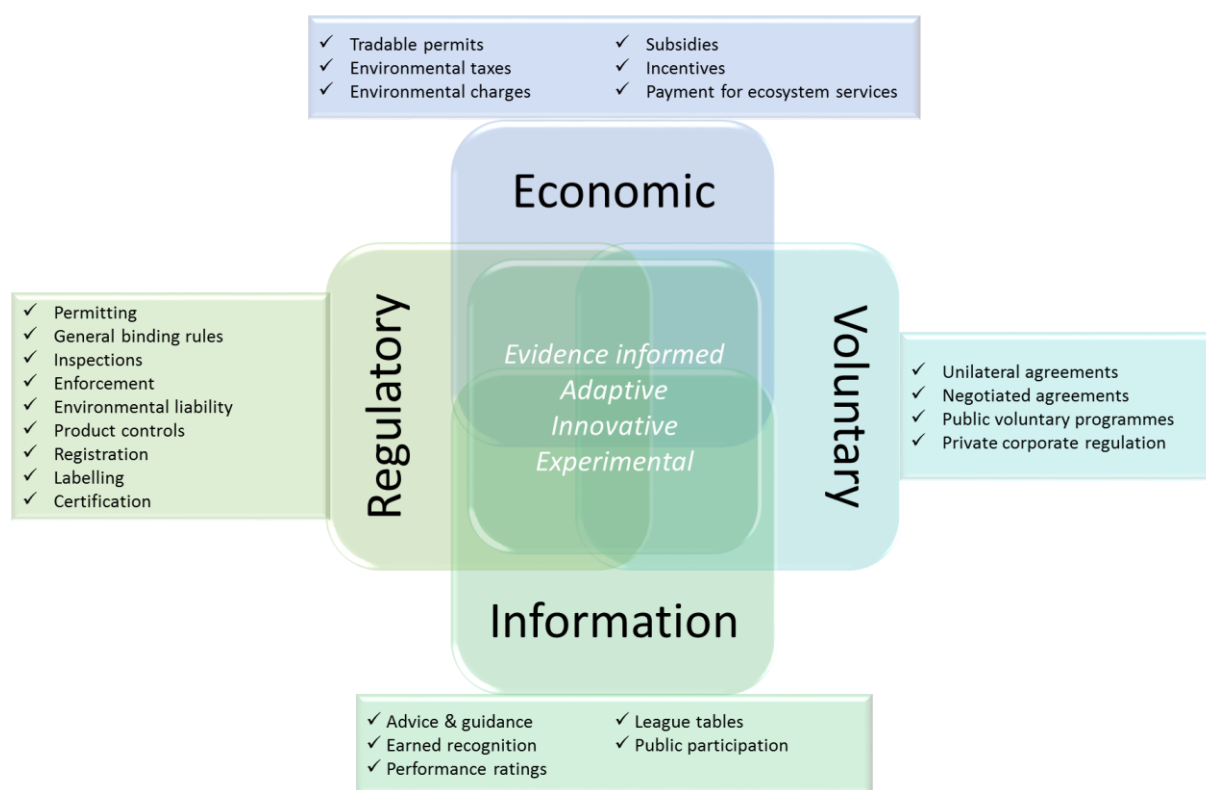
inhibit the flexible and tailored responses we need to make to deliver the sustainable management of natural resources.

Tools (Principles 3 & 4)

By understanding others and ourselves, and understanding the interests and motivations of those we meet, we will tailor our approach appropriately, giving thought to those we engage with.

We already possess a wide range of tools that provide us some ability to do this, many of which are based around the legal powers and duties we have around formal regulation. There are other tools available including environmental charges, and advice and guidance, amongst others.

This “toolkit” extends beyond what some would consider regulation⁶, and can be grouped into various types. There are a number of typologies for these tools, but we are adopting a simple version⁷.



Types of formal and informal regulatory types. Some approaches may involve more than one type

Regulatory (formal)

Given the historical focus on the use of formal regulatory interventions, most of the current ways of working are built around the delivery of these. These are around permitting,

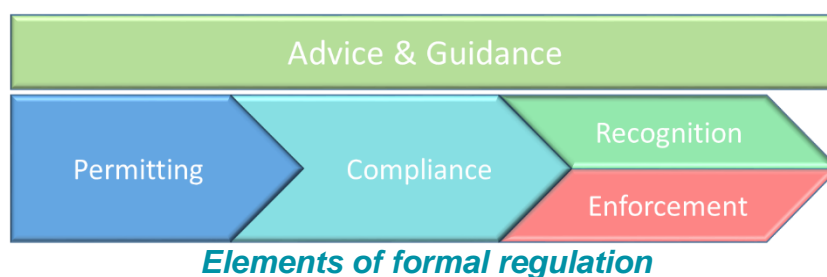
⁶ Regulators’ Code principle 1 – Regulators should carry out their activities in a way that supports those they regulate to comply and grow.

⁷ This typology is defined in the SNIFFER work, “Better Regulation Evidence: Topic Area 2 – Choose and design interventions – ER30 Final Summary Report” from April 2013. There are other groupings, including those arising from work involving Defra & Cranfield University Centre for Environmental Risk and Futures. These are grouped as: Direct Regulation, Economic Instruments, Co-Regulation, Information Based Instruments, Civic and Self Regulation and Support and Capacity Building.

compliance, and enforcement. In recent years, with the broader consideration of what is available in the regulatory toolkit, this has also included advice and guidance as an informal regulatory approach to support the more formal methods.

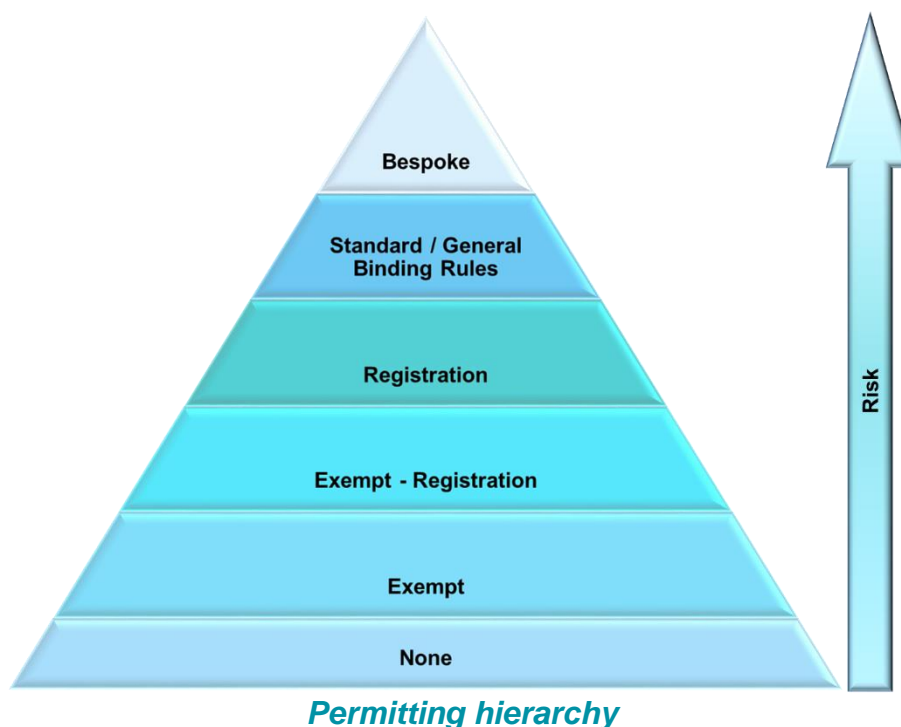
We work from the basic assumption that those we regulate want to comply with the law, and that their applications for permits and subsequent actions responding to permit conditions are intended to achieve this. This places responsibility on applicants and operators to demonstrate their compliance. Some may need help with this, and we have an important role in helping applicants and operators secure compliance. However, there will also be those who will simply not try to comply with their legal obligations.

There are a number of elements to formal regulation, which can be used to deliver outcomes through compliance with legal frameworks.



Permitting – many of the formal regulatory approaches state the requirement for some form of permit within the legislation. The precise form may not necessarily be specified, so the implementation of permitting approaches can become burdensome, not only on those applying for permissions, but for us to deliver them.

We will, as allowed by the legislation, use the permitting approach that appropriately reflects the risk associated with the activity. We will drive permits down the hierarchy as appropriate.



Where this isn't possible, for example where the legal requirements specify the nature of the permit more prescriptively, we will examine how we will drive elements of the permits down

the hierarchy. This will include using standardised or general rule sets within bespoke permits, leaving the bespoke element to reflect site specific needs or requirements.

We will also provide help to operators or applicants to identify where, by doing things differently, their activities may not necessarily require legal controls, as the potential harm the activities may cause are reduced or eliminated.

Where we permit, we will undertake compliance work and potential enforcement. This will be risk-based but the holder of a permit must ensure that they comply with their conditions. Where there is evidence that a permitting approach is not the best way to deliver policy outcomes, then we will seek to improve the legislation underpinning this through discussion with Government.

We will ensure that those who have legal obligations, are helped to ensure they comply with them. This requires clear and effective guidance for those who are applying for permissions. Therefore we will ensure we have clear and accurate guidance on what kind of permit is most appropriate, and how to properly apply for this. This will include an explanation as to why the information requested is needed and important. This will be available alongside clear application forms, which require the minimum use of consultants to complete. We will be flexible around the use of application forms, where the information submitted clearly delivers the information we require (as explained in our advice and guidance).

Many of the legislative regimes contain statutory determination periods, and we will comply with these. We also publish standards of service⁸, and applicants can expect us to deliver in accordance with these standards. There may be times, that in order to deliver a better product, we may need to deviate from these. Where we believe this to be the case, we will be clear as to why, what the benefits are, and when a final determination will be expected. Any deviance from our service standards would have to be agreed with the applicant. At the other extreme, we will respond positively where an applicant has an urgent need for a permit (or change to a permit), and look to accommodate this wherever possible and practical.

Permitting incurs costs for both the applicant and for us. Some applicants may find the charges challenging, so we will try to be flexible as to how and when application fees are paid. We still expect full payment prior to the granting of an environmental permit.

In relation to all applications, we actively encourage early engagement, to ensure that operators (and potential operators) have all the necessary information to enable them to submit an appropriate application and comply with their legal requirements.

Compliance – we believe in supporting people to comply with legal obligations, providing ways for that compliance to be demonstrated.

The permitting stage provides the first formal opportunity to help people comply with their legal obligations. It will be this that defines the conditions of compliance, so the requirements must be as clear as possible. We recognise that circumstances change, and that it is possible that not all the necessary information is (or can be) available at the time of permitting. We will be flexible to respond to these changing circumstances through the way we formally regulate compliance with permits. We actively encourage operators to discuss their issues with us, so that we can make an appropriate response, including updating and changing permits, where justified.

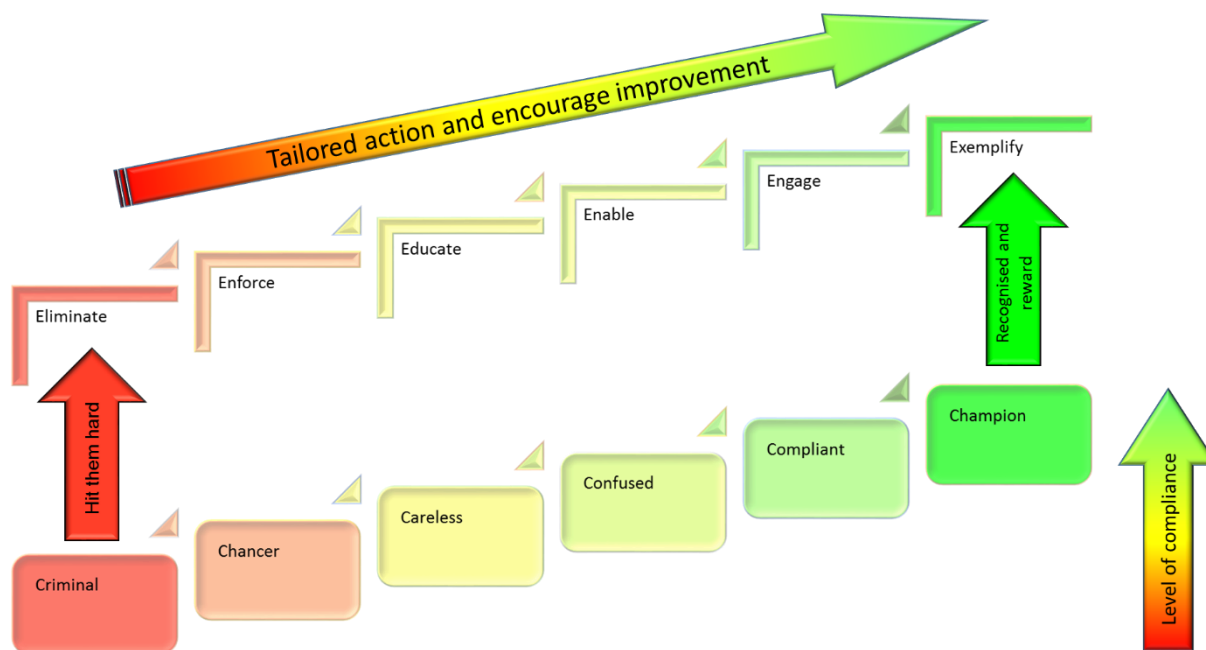
We recognise that it is too easy to label someone as a “non-compliant” operator. This could result in an approach taken by us that may not necessarily be the best for encouraging future

⁸ <http://naturalresources.wales/how-we-regulate-you/permit-applications-consultations-and-decisions/permitting-service-levels-in-natural-resources-wales>

compliance. Some operators will be reticent to discuss any compliance problems they have, for fear of labelling, or possible enforcement action. We want to support compliance, so by knowing what problems some may have, we can provide guidance to help secure future compliance. We may still need to take enforcement, but the nature of such enforcement may be influenced by the positive approach taken by an operator to secure compliance. Our compliance assessment approach recognises that we need a mature relationship with those we regulate, and is about identifying problems and fixing them.

Our approach when considering “non-compliance”, will be based on a compliance and engagement spectrum, and will be about encouraging and supporting improvement. We will be clear about where legal compliance ends⁹, and where doing the right thing beyond legal responsibilities start. We will not enforce where operators fail to do the right thing, beyond their legal compliance responsibilities.

Encouraging and supporting improvement can benefit from the use of other informal regulatory tools. For example, economic approaches through incentives and our charging scheme, recognising the value of compliance. There is also a significant role for information (through advice and guidance).



Tailoring approaches to compliance¹⁰

Enforcement – we will ensure that our enforcement and prosecution policy is regularly updated to reflect our understanding of the behaviours of those we regulate, and what can be done to bring them into compliance.

At the extreme end of compliance are those that simply ignore the law, or take chances by avoiding compliance. We recognise that those that actively ignore the law have an impact, not just on people and the environment, but also by damaging the competitiveness of legitimate businesses and their ability to grow. Therefore, it is not just in our interests to eliminate these, but also in the interest of other legal business. There is a clear role (and benefit) for the compliant to help us deal with criminals, and we will actively seek this support

⁹ Regulators’ Code principle 5 – Regulators should ensure clear information, guidance and advice is available to help those they regulate meet their responsibilities to comply.

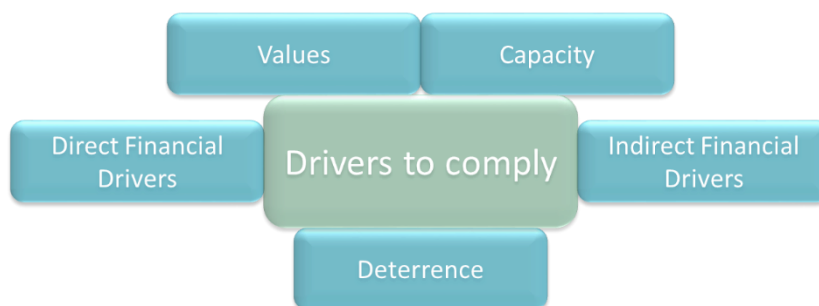
¹⁰ Taken from SEPA’s Compliance and Engagement Spectrum.

and help. We will also work with other law enforcement agencies, as criminals are likely to be ignoring more than just environmental law.

It is important that there is a clear understanding of the enforcement work we have undertaken and how successful this has been. We will therefore publish an annual enforcement report that describes this.

Recognition – given that we are encouraging compliance, and helping operators to achieve this, then they need to be rewarded. Where operators can demonstrate compliance (or where they have voluntarily done better), this will be recognised. Our charging scheme rewards highly compliant sites with a reduction to the fees and charges. The use of this will be further investigated as we develop our future charging scheme.

What is considered to be reward or recognition may not be the same for all operators, and may depend on their drivers to comply. It is therefore essential we hold dialogue with highly compliant operators to fully understand what recognition and rewards work for them. Alongside the publication of our annual enforcement report, we will also provide examples of what we have done to recognise exceptional performance.



Drivers on Companies to Comply¹¹

Advice & guidance for formal regulation – we have inherited a large body of guidance from our legacy bodies around our formal regulation. This is likely to cover the spectrum from “invaluable” through to “confusing and unhelpful”. As we increasingly use tailored approaches, there remains a challenge for us to secure a body of clear, accessible and concise materials that are useful to everyone. We are committed to this, and will look to work with others to develop this body of materials, using co-production or referral to others where appropriate and sensible. We will also be engaging with those we formally regulate to properly understand what kind of guidance they really need to help them comply with the legal requirements, and in what form, recognising that this also needs to be delivered in an affordable way.

Informal appeal – the formal regulatory regimes underpinned by legislation have formal appeal mechanisms. These can be burdensome, or a disproportionate way of dealing with concerns an operator or applicant may have regarding a decision made by us.

We will therefore provide an informal appeals route for such concerns to be raised, and this will be made clear to those we formally regulate, and to those we take enforcement action against. This does not prevent or replace any of the formal appeal mechanisms.

¹¹ Annex 9, “Report Exploring Complementary Approaches to Environmental Inspection for Ensuring Compliance”, IMPEL, May 2012

Economic & market-based

As well as formal regulatory approaches, there are a range of economic and market based instruments. Some of these may be underpinned by legislation, and thus may also be considered as formal regulatory approaches. There may be a need for market based approaches and incentives where these do not yet currently exist, or are not effective.

The flexibility around those formalised economic instruments may be limited by legislation. Others provide potential to drive change, such as payment for ecosystem services and environmental charges.

Payment for Ecosystem Services (PES) – this is a developing area that has been identified as an additional economic intervention that may be useful in the context of sustainable management of natural resources. This may be particularly useful as a way of dealing with the possible disconnect between those undertaking work to deliver outcomes (and incurring costs), and those benefitting from the delivery of such outcomes.

Charging Scheme - another form of economic instrument is our own charging scheme. This is currently in a form similar to those inherited from the legacy bodies that created NRW. Currently there are some modifications in place to this scheme to reflect the work being undertaken by us. However, we will be looking at the nature and form of our charging scheme. This will recognise the need to be able to recover the costs of the work we do, but also the different approach we will be taking, and that the types of intervention involved may involve work outside of the formal regulatory approaches that currently attract fees and charges. This also needs to reflect our approach in relation to compliance, and that we would look to incentivise demonstrable compliance.

Voluntary and information / communications-based

There are a number of intervention types under these two headings which are of interest and will require further work to understand their use, where these are most effective and how to ensure they can be delivered efficiently and effectively. These include advice and guidance beyond that associated with formal regulation.

Such informal regulatory advice and guidance may be associated with preventative measures, or advice in advance of formal legal frameworks. Our approach to advice and guidance will reflect need and affordability. This means we will need to be flexible about delivery, ensuring that this can be developed in a way that is affordable to us, and useful to those who use it.

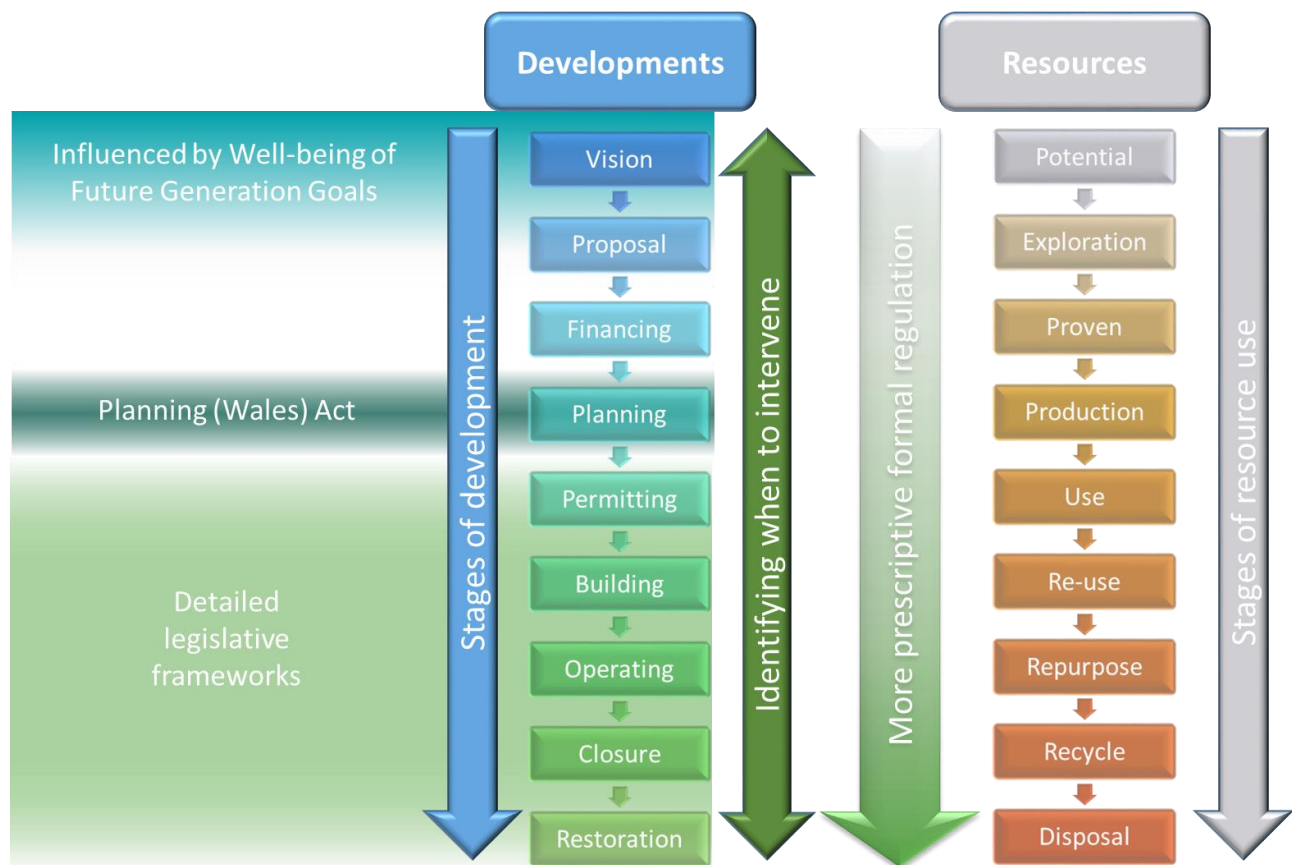
Using the regulatory toolkit

When considering the use of tool types and their efficient and effective application, it is important to reflect on the outcomes being sought. There remains a risk that looking at driving the efficiency of delivery of a single tool (or tool type) can have consequences elsewhere (by displacing burden from one tool to another), or failure to recognise the value of other interventions. For example, early intervention and prevention via informal regulation may remove or limit the requirements for formal regulation, thus delivering greater benefits than concentrating on formal regulation alone.

This is where the consideration of the sustainable management of natural resources is key, as this provides that broad picture of the outcome being sought.

Where, when, who?

As well as considering the toolkit, we also need to consider when might be the best time to intervene. This may expand the potential to use informal regulatory approaches, before developments, or the use of natural resources, enter the legal and formal regulatory frameworks.



When might be the best time to intervene?

It makes sense to intervene as early as possible, but this requires resources to be available to do so. We will examine the options for early intervention and what this means for how we work (or work with others) and how this should be funded.

Risk and what this means for what we do

We will not, and will never be able to do all the possible things that may be asked of us. We therefore need a mechanism which provides a way for us to prioritise our work. One such mechanism is to look at the risks associated with not intervening and looking to undertake some form of formal or informal regulation to mitigate these.

We remain committed to taking a risk based approach¹², but also recognise that this approach needs to be undertaken in the context of sustainable management of natural resources. We therefore need to develop our risk approach further, which historically focused on environmental risks in isolation to other social and economic risks. This will form part of our evidence base for the approaches we take.

¹² Regulators' Code principle 3 – Regulators should base their regulatory activities on risk.

This is not about weakening the necessary formal regulation for issues of high risk, but a mechanism to help identify where the priorities are, and where the most effective interventions can be deployed in the most efficient way, using public money and income from those we formally regulate.

Many of our formal regulatory activities take this into account, but we will be extending this to activities that do not yet fully apply this. Our risk based approach needs to be consistent across our formal regulatory activities, so we can target activities presenting the greatest risk. We will review and revise our approach to risk, and ensure that decisions around this are consistent across all the legislative regimes and geography.

Organisation (Principles 5, 6 & 7)

We are committed to working flexibly and in a way that delivers the best outcomes, and provides the best value of money. We also need to work in a way that is affordable in the medium and long term. This means we need to have the right people with the right skills with the confidence to use the tools available. We are committed to ensuring we have the right skills and support the development and maintenance of these skills. This includes ensuring all those working in the area of formal regulation fully understand the principles of good regulation and the Regulators' Code. We also need to work with others when their skills and tools will deliver the best outcome.

This means we will be flexible in our ways of working, ensuring that we maintain expertise and skills, whilst being able to respond in the integrated way needed to deliver sustainable management of natural resources. The ways of working will reflect the scale of the challenges as reflected in Area Statements, which should encourage more localised decision making and collaboration. Our flexible response will reflect on long-term objectives but be able to respond to change. To do this we will review our current processes and practices to drive efficiency (saving fee payers and tax payers money), and improve effectiveness.

We will be careful that where we look to improve the effectiveness and efficiency of elements of the way we work, we fully understand the wider impacts on our business and those we formally regulate. We will not implement changes that simply displace burdens or costs.

We are also committed to ensuring that we fully recover our regulatory costs. We will ensure that income from fees and charges is only used to undertake formal regulatory activities as allowed under Managing Welsh Public Money. Alongside the 'Annual Report and Accounts', we will publish a more detailed report on regulatory income, activity and expenditure. This will also provide the route for us to report on our progress on improving our approaches, what we are doing to minimise formal regulatory burdens and encouraging compliance and growth.

Communication (Principle 8)

It is important that we are able to clearly explain what we do, and why, and be open and transparent. We will also provide a clear mechanism to use informal routes to appeal those decisions¹³.

¹³ Regulators' Code principle 2 – Regulators should provide simple and straightforward ways to engage with those they regulate and hear their views.

We are committed to developing our website so that it is meaningful and simple for users, so that they can find what they want, and be confident that the information is current and accurate. To supplement this, we will use targeted electronic bulletins and other communications.

We will maintain and update a communications strategy, which identifies the most appropriate route to share and communicate information with the wide range of those we formally regulate. This will reflect the particular needs of sectors such as small or medium enterprises, forestry or the farming sector.

We will also be clear on our service standards and what you can expect from us¹⁴, as well as being clear as to what we expect from those that are formally regulated by us.

To help us understand how we are doing, we will seek feedback through a process of engagement with the regulated community. We will also engage with the wider community who may be affected by activities that we formally regulate. Both of these provide a valuable route to understand whether we are doing the right thing. We will therefore also report on what kind of feedback we have received, and what our response to this is.

Delivering the principles of good regulation

The five principles of good regulation state that any regulation should be: [transparent](#), [accountable](#), [proportionate](#), [consistent](#), and [targeted](#). We will apply the principles of good regulation, and we believe that delivering the Regulators' Code can help us deliver our Regulatory Principles (Annex 2). We have been reviewed by the Better Regulation Delivery Office (BRDO) and are responding to the recommendations made in their report.

The BRDO report recommends that “*NRW should continue with their work to develop their strategic approach to regulation and to build a distinctive and visionary set of regulatory principles which reflect the ethos of the NRW as a new regulator, and are responsive to the needs of those it regulates*”. We believe this document provides our vision and reflect our ethos.

We recognise however, that there is work that needs to be done on embedding this in our organisation and building on our competency. This is not simply around the Regulators' Code and our Regulatory Principles. This also includes the wider objectives around sustainable management of natural resources, and what this means for how we work, and what we do. Delivering good regulation has a key role to play in this.

Feedback

If you would like to provide any feedback, comments, suggestions or ideas after reading this document, these can be submitted to:

regulatory.principles@cyfoethnaturaolcymru.gov.uk

¹⁴ Regulators' Code principle 6 – Regulators should ensure that their approach to their regulatory activities is transparent.

Annex 1 – Evidence Programmes

Defra One Programme – Evidence Action Plans

Recognising that the Defra One Programme covers both England and Wales, Welsh Government is seeking to ensure better involvement and engagement in the Evidence Action Plans that describe the evidence areas that will be covered.

Engaging and influencing this through Welsh Government has the potential to provide access to the funding available from the Defra One Programme, or influence those that benefit from this programme.

IMPEL

IMPEL is an international non-profit association of the environmental authorities of the EU Member States, acceding and candidate countries of the European Union, EEA and EFTA countries. The association is registered in Belgium and has 47 members from 33 countries including all EU Member States, the former Yugoslav Republic of Macedonia, Turkey, Iceland, Norway and Switzerland.

IMPEL was set up in 1992 as an informal network of European regulators and authorities concerned with the implementation and enforcement of environmental law.

The Network's objective is to create the necessary impetus in the European Community to make progress on ensuring a more effective application of environmental legislation. IMPEL facilitates awareness raising, capacity building and exchange of information and experiences on implementation, enforcement and international enforcement collaboration as well as promoting and supporting the practicability and enforceability of European environmental legislation.

IMPEL's topic areas include: industry regulation, waste, water, air quality, trans-frontier shipment of waste, environmental impact assessment, nature and wildlife.

Shared Agency Regulatory Evidence Programme

The Shared Agency Regulatory Evidence Programme (ShARE) is a new programme involving five environmental regulators. These regulators are Natural Resources Wales, the Environment Agency, the Scottish Environmental Protection Agency (SEPA), the Northern Ireland Environment Agency (NIEA) and the Irish Environmental Protection Agency (Irish EPA), known as the "Five Agencies".

The purpose of the ShARE Programme is to create a flexible framework for Five Agencies' evidence collaboration in the field of regulation. Its objective is to deliver regulated industry evidence of common need, where it is most efficient and effective to work on a UK and Ireland wide basis.

"Make It Work" Project

The Make it Work Project is an initiative by The Netherlands (Ministry of Infrastructure and the Environment), the UK (Department for Environment, Food & Rural Affairs) and Germany (Federal Ministry of Environment, Nature Conservation, Building and Nuclear Safety) to establish a forum for discussing broader, strategic approaches to smarter EU environmental law. The project seeks to identify opportunities to systematically improve the quality of EU environmental law and thus help to achieve the benefits associated with the law while

delivering a more level playing field across the EU. In particular, it aims at establishing a more coherent and consistent framework for the EU environmental acquis¹⁵ through developing guidance on the use of cross-cutting instruments and procedures in EU environmental directives and regulations.

We will look to work with Welsh Government regarding any input to this project and also through IMPEL who also are involved and have interests in this particular project.

¹⁵ Environmental aquis - this refers to the collection of all environmental laws. The term aquis in French means “that which has been agreed upon”.

Annex 2 – Regulators’ Code and our Regulatory Principles

Regulatory Principles	Elements of the Regulators’ Code
1. Deliver Outcomes We seek to deliver environmental outcomes, not just deliver regulation, seeking to deliver shared outcomes where we can.	3.5 - Regulators should review the effectiveness of their chosen regulatory activities in delivering the desired outcomes and make any necessary adjustments accordingly
2. Be intelligent We should use all available evidence from a range of sources and seek to ensure the data we collect from those we regulate contributes to the evidence to inform action to deliver outcomes.	<p>3.1 - Regulators should take an evidence based approach to determining the priority risks in their area of responsibility, and should allocate resources where they would be most effective in addressing those priority risks.</p> <p>3.2 - Regulators should consider risk at every stage of their decision-making processes, including choosing the most appropriate type of intervention or way of working with those regulated; targeting checks on compliance; and when taking enforcement action.</p> <p>4.1 - Regulators should collectively follow the principle of “collect once, use many times” when requesting information from those they regulate.</p> <p>4.2 - When the law allows, regulators should agree secure mechanisms to share information with each other about businesses and other bodies they regulate, to help target resources and activities and minimise duplication.</p>
3. Prepared to challenge We will challenge and address barriers where they don’t contribute to the environmental outcome.	<i>There are no obvious Regulators’ Code elements that directly support this. However, UK Governments will look at this via other reviews, including the “Red Tape Challenge” undertaken by UK Government. However, we believe it remains important to continually assess all the tools and approaches to ensure they are fit for purpose and delivery against outcomes, and seek to address any issues, even if that is simply ensuring that Government is aware of the issues and the evidence supporting this.</i>
4. Use the full range of tools available We seek to apply a wide range of tools, chosen for their effectiveness in delivering outcomes. This includes using the law to deal with those who act illegally, to protect honest business, society and the environment.	<p>5.1 - Regulators should provide advice and guidance that is focused on assisting those they regulate to understand and meet their responsibilities. When providing advice and guidance, legal requirements should be distinguished from suggested good practice and the impact of the advice or guidance should be considered so that it does not impose unnecessary burdens in itself.</p> <p>5.2 - Regulators should publish guidance, and information in a clear, accessible, concise format, using media appropriate to the target audience and written in plain language for the audience.</p> <p>5.5 - In responding to requests for advice, a regulator’s primary concerns should be to provide the advice necessary to support compliance, and to ensure that the advice can be relied on.</p>
5. Be flexible We seek to be flexible and tailor the approach to the needs of the recipient, using innovation and novel approaches where appropriate and learning from past experience.	<p>1.1 - Regulators should avoid imposing unnecessary regulatory burdens through their regulatory activities and should assess whether similar social, environmental and economic outcomes could be achieved by less burdensome means. Regulators should choose proportionate approaches to those they regulate, based on relevant factors including, for example, business size and capacity.</p> <p>1.2 - When designing and reviewing policies, operational procedures and practices, regulators should consider how they might support or enable economic growth for compliant businesses and other regulated entities, for example, by considering how they can best: understand and minimise negative economic impacts of their regulatory</p>

Regulatory Principles	Elements of the Regulators' Code
	activities; minimising the costs of compliance for those they regulate; improve confidence in compliance for those they regulate; encourage and promote compliance.
	3.4 - Regulators, in making their assessment of risk, should recognise the compliance record of those they regulate, including using earned recognition approaches and should consider all available and relevant data on compliance, including evidence of relevant external verification.
	5.1 - Regulators should provide advice and guidance that is focused on assisting those they regulate to understand and meet their responsibilities. When providing advice and guidance, legal requirements should be distinguished from suggested good practice and the impact of the advice or guidance should be considered so that it does not impose unnecessary burdens in itself.
	5.2 - Regulators should publish guidance, and information in a clear, accessible, concise format, using media appropriate to the target audience and written in plain language for the audience.
	5.3 - Regulators should have mechanisms in place to consult those they regulate in relation to the guidance they produce to ensure that it meets their needs.
	5.4 - Regulators should seek to create an environment in which those they regulate have confidence in the advice they receive and feel able to seek advice without fear of triggering enforcement action.
	5.5 - In responding to requests for advice, a regulator's primary concerns should be to provide the advice necessary to support compliance, and to ensure that the advice can be relied on.
6. Bring the right skills / expertise together We seek to ensure we have the skills to use the right tools effectively, or seek access to and work with those who do.	<p>1.3 - Regulators should ensure that their officers have the necessary knowledge and skills to support those they regulate, including having an understanding of those they regulate that enables them to choose proportionate and effective approaches.</p> <p>1.4 - Regulators should ensure that their officers understand the statutory principles of good regulation and of this Code, and how the regulator delivers its activities in accordance with them.</p> <p>5.6 - Regulators should have mechanisms to work collaboratively to assist those regulated by more than one regulator. Regulators should consider advice provided by other regulators and, where there is disagreement about the advice provided, this should be discussed with the other regulator to reach agreement.</p>
7. Be efficient and effective We will seek to deliver in an efficient and effective way, working with others where we can, and where this is a good thing to do.	<p>6.1 - Regulators should publish a set of clear service standards, setting out what those they regulate should expect from them.</p> <p>6.2 - Regulators' published service standards should include clear information on:</p> <ul style="list-style-type: none"> a) how they communicate with those they regulate and how they can be contacted; b) their approach to providing information, guidance and advice; c) their approach to checks on compliance including details of the risk assessment framework used to target those checks and protocols for their conduct, clearly setting out what those they regulate should expect; (Including inspections, audit, monitoring and sampling visits, and test purchases); d) their enforcement policy, explaining how they respond to non-compliance; e) their fees and charges, if any. This information should clearly explain the basis on which these are calculated, and should include an explanation of whether compliance will affect fees and charges; and f) how to comment or complain about the service provided and routes to appeal.

Regulatory Principles	Elements of the Regulators' Code
	<p>6.3 - Information published to meet the requirements of this Code should be easily accessible, including being available at a single point on the regulator's website that is clearly signposted, and it should be kept up to date.</p> <p>6.5 - Regulators should publish, on a regular basis, details of their performance against their service standards, including feedback received from those they regulate, such as customer satisfaction surveys, and data relating to complaints about them and appeals against their decisions.</p>
<p>8. Be clear on what we do and why We will seek to ensure everyone understands the role and purpose of the regulator and what our outcomes are, in such a way that it is easy to see the link between what we are doing and why and to embed a consistent approach.</p>	<p>2.1 - Regulators should have mechanisms in place to engage those they regulate, citizens and others to offer views and contribute to the development of their policies and service standards. Before changing policies, practices or service standards, regulators should consider the impact on business and engage with business representatives.</p> <p>2.2 - In responding to non-compliance that they identify, regulators should clearly explain what the non-compliant item or activity is, the advice being given, actions required or decisions taken, and the reasons for these. Regulators should provide an opportunity for dialogue in relation to the advice, requirements or decisions, with a view to ensuring that they are acting in a way that is proportionate and consistent. <i>(This paragraph does not apply where the regulator can demonstrate that immediate enforcement action is required to prevent or respond to a serious breach or where providing such an opportunity would be likely to defeat the purpose of the proposed enforcement action.)</i></p> <p>2.3 - Regulators should provide an impartial and clearly explained route to appeal against a regulatory decision or a failure to act in accordance with this Code. Individual officers of the regulator who took the decision or action against which the appeal is being made should not be involved in considering the appeal. This route to appeal should be publicised to those who are regulated.</p> <p>2.4 - Regulators should provide a timely explanation in writing of any right to representation or right to appeal. This explanation should be in plain language and include practical information on the process involved.</p> <p>2.5 - Regulators should make available to those they regulate, clearly explained complaints procedures, allowing them to easily make a complaint about the conduct of the regulator.</p> <p>2.6 - Regulators should have a range of mechanisms to enable and regularly invite, receive and take on board customer feedback, including, for example, through customer satisfaction surveys of those they regulate.</p> <p>3.3 - Regulators designing a risk assessment framework, for their own use or for use by others, should have mechanisms in place to consult on the design with those affected, and to review it regularly.</p> <p>6.4 - Regulators should have mechanisms in place to ensure that their officers act in accordance with their published service standards, including their enforcement policy.</p>

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Department
for Environment
Food & Rural Affairs



Llywodraeth Cymru
Welsh Government

Government response to consultation on changes to water abstraction licensing exemptions in England and Wales: New Authorisations

Date: October 2017



Environment
Agency



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This publication is available at <https://www.gov.uk/government/consultations/water-abstraction-licensing-changes-to-exemptions-in-england-and-wales>

Any enquiries regarding this publication should be sent to Defra at waterresources.consultations@defra.gsi.gov.uk or the Welsh Government at water@gov.wales.

www.gov.uk/defra

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Executive Summary

Water is essential for people and the environment. It is vital to the economy and for health and is used to generate power, run industries and grow food. Access to clean, safe and secure water supplies is therefore fundamental to society. This is why the Environment Agency in England and Natural Resources Wales in Wales (the Regulator)¹ regulate water abstraction – the process of taking water from the environment, such as rivers or groundwater – through a licensing system.

As a result of increasing competing demands for water, areas of England and Wales are already experiencing water stress. Increasing demand for water from abstractors exempt from the licensing system is exacerbating this position. Other challenges such as a changing climate and population growth are expected to further increase the pressures on water resources.

An abstraction licensing system has been in place since the 1960s, however, certain abstractions have historically remained lawfully exempt from licensing control. This is largely because they were abstractions that were considered low risk or not widely used. As more information has become known about these exempt abstractions, our assessment and understanding of their risk has improved.

Currently around 5,000 significant abstractions are exempt from abstraction licensing. This compares with around 20,000 abstractors that are licensed. These exemptions create an unfair playing field, allowing some abstractors to put pressure on the environment and other water users without any controls, while requiring others to take the burden of addressing these risks. This unfairness can be strongly felt, for example, farmers that use spray irrigation are required to have an abstraction licence while those that use trickle irrigation are not.

The Water Act 2003 included provisions to remove these licensing exemptions in England and Wales. Implementing the legislation will help protect the water environment and make people's rights to take water fairer. This legislation also helps us meet the requirements of the Water Framework Directive (WFD) established in 2000 to make sure that EU Member States manage their water resources.

The WFD requires each Member State to have in place a programme of measures designed to achieve "Good" water body status. One of the basic requirements to help achieve "Good" status is to have in place a system of prior authorisation and control of

¹ We usually refer to the Environment Agency and Natural Resources Wales as the Regulator in this document.

significant water abstraction and impoundments. While we have had a licensing system since the 1960s, the exemptions still within it impact on achieving “Good” status.

We originally consulted on bringing these exempt activities into the licensing system in 2009². Following the responses we received, we worked with stakeholders to investigate the issues raised. Last year, we published a response to that consultation. It also included a further consultation, which we considered necessary to seek further views on a number of issues that had changed since 2009. Last year’s consultation was informed by an impact assessment, which estimated the administrative and economic costs to currently exempt abstractors of removing the exemptions.

In last year’s consultation, we proposed a light touch, risk based approach to bring exempt activities under licensing control. This included:

- Only removing exemptions for water use activities that have or might have significant environmental impacts. Several thousands of abstractions and impounding works with no significant impacts would remain exempt.
- Most abstractors would be granted licences reflecting the volumes they had previously abstracted under the exemption, although there may be cases where conditions are included to protect rivers at very low flows.
- Providing a considerable five-year transitional period from the date we end the exemptions: two years for abstractors to prepare and submit applications and three years for the Regulator to consider and determine applications. Abstractors could continue to take their existing volumes of water during this process.

We published a summary of responses in September 2016³.

As a result of the consultation response the UK and Welsh Governments will be making some technical changes to the licensing approach consulted on, to make the process of removing the exemptions even more light touch and risk-based regulation. We will be:

- allowing the Regulator flexibility to relax the requirements for volume limits on transfer licences (transfer licences are required to transfer water where there is no intervening use of the water) to avoid undue abstraction control costs on abstractors while still ensuring environmental protection;
- allowing the Regulator to be flexible in the application of flow controls so that it can recognise the wider conservation values; and
- allowing volume limits that better reflect business needs in dry periods by extending the qualifying period to include the dry weather in 2011.

² <http://webarchive.nationalarchives.gov.uk/20091205011114/http://www.defra.gov.uk/corporate/consult/water-act/index.htm>

³ <https://www.gov.uk/government/consultations/water-abstraction-licensing-changes-to-exemptions-in-england-and-wales>

Further to the consultation, we now set out our proposed final plans for changing exemptions to the licensing system in England and Wales by commencing the Water Act 2003 provisions. An updated impact assessment has been prepared to inform these plans. Our plans balance the needs of those currently exempt and the rights and responsibilities of all for creating a sustainable water abstraction licensing system.

We will lay the regulations in Parliament and the National Assembly for Wales. Changes to the exemptions will then come into force on 1 January 2018 at which point the two year licence application period will open.

The Regulator will engage further with all sectors and produce guidance for the application period and beyond.

1. Introduction

This document sets out the UK and Welsh Governments' response to the consultation with interested parties on changes to water abstraction licensing exemptions in England and Wales.

1.1 Why change the exemptions to abstraction licensing?

An abstraction licensing system has been in place since the 1960s. The licensing system has developed since. However, certain abstractions have historically remained lawfully exempt from licensing control because they had been considered low risk or the activity was not widely used since the 1960s.

Currently around 5,000⁴ significant abstractions are exempt from abstraction licensing in England and Wales. This compares with around 20,000 abstractions that are licensed.

Exempt abstractors can potentially take unlimited amounts of water, irrespective of availability and without regard to impacts on the environment or other abstractors. These exemptions are unfair when the impacts can be significant. They allow some abstractors to put pressure on the environment and other water users without any controls, while requiring others to take the responsibility of addressing these risks. This can deplete water resources and damage the environment. It creates an imbalance in the levels of cost and responsibility placed upon licensed abstractors. In addition, exemptions make it difficult for the Regulator to manage water resources effectively.

As a result of competing demands for access to water for abstraction, areas of England and Wales are already experiencing water stress. Increasing demand for water from those outside of the current licensing system is exacerbating this position. Other challenges such as a changing climate and population growth are expected to increase further the pressures on water resources.

We believe that all significant abstractors should be subject to regulation to help protect the water environment and make people's rights to take water fairer. However, we recognise that exempt abstractors have operated lawfully and rely upon their access to water. Our intention is to balance the needs of all abstractors and the environment.

The Water Act 2003 included provisions to remove licensing exemptions in England and Wales. This legislation helps us meet the requirements of the Water Framework Directive (WFD) established in 2000 to make sure that EU Member States manage their water resources. On 23 June 2016, the EU referendum took place and the people of the United Kingdom voted to leave the European Union. Until exit negotiations are concluded, the UK

⁴ Approximately 4,700 in England and 300 in Wales

remains a full member of the European Union and all the rights and obligations of EU membership remain in force. During this period the UK Government will continue to negotiate, implement and apply EU legislation. The outcome of these negotiations will determine what arrangements apply in relation to EU legislation in future once the UK has left the EU.

We originally consulted on commencing those provisions and bringing these exempt activities under licensing control in 2009. Following the responses we received, we investigated a number of additional issues and spoke with stakeholders as part of the process.

On 15 January last year, the UK and Welsh Governments, the Environment Agency and Natural Resources Wales published the document '*Changes to water abstraction licensing exemptions*'⁵. It consisted of two parts:

- Part I was the Government response to the original 2009 consultation on the policy to implement the final abstraction elements of the Water Act 2003 to end exemptions to the existing abstraction licensing system; and
- Part II formed the further consultation on the revised policy, reflecting the responses to the 2009 consultation, further engagement with stakeholders, and wider related policy and legislative developments since 2009.

This was an open consultation across England and Wales and lasted for 12 weeks. It closed on 8 April last year. We received 86 responses from interested parties and published a summary of responses on 26 September last year.

In support of the consultation, we also published an impact assessment on the proposed policy and draft legislation.

1.2 The aims for changing the exemptions

Changing the exemptions will:

- help create a fairer system for all abstractors – both those already licensed and those that will become licensed when the exemptions are removed;
- enable the Regulator to manage water resources more effectively now and in response to increasing pressures on water resources in the future; and

⁵ January 2016 – 'Changes to water abstraction licensing exemptions – Government response to the 2009 consultation and further consultation on implementing the abstraction elements of the Water Act 2003'
https://consult.defra.gov.uk/water/water-abstraction-licensing-exemptions/consult_view

- be part of wider work to implement the Water Framework Directive and create a cleaner, healthier environment⁶.

Bringing all significant abstractions into regulation is an important part of plans to reform the licensing system. Reform will provide a modern licensing system that is fairer with more resilient local solutions. Our updated plans for reform will be set out in due course.

The UK and Welsh Governments are working together to reform abstraction management.

1.3 Impact assessment

The policy position in this document has been informed by an impact assessment⁷. This impact assessment updates the January 2016 consultation version⁸.

1.4 Working with interested parties

During the consultation period the UK and Welsh Governments, the Environment Agency and Natural Resources Wales held a series of consultation meetings with interested parties. The meetings were held to give participants the opportunity to seek further information or clarification and to tell us their views about the consultation proposals.

Their views were taken account of as part of this response document. Engagement with these abstractors is ongoing.

1.5 This document

This document responds to the responses received from the consultation and sets out the final policy for the changes to the water abstraction and impoundment licensing exemptions. The rest of the document is split into the following sections:

- Section 2 – provides our responses to the points raised in the consultation

⁶ For example, as set out in Defra's current departmental plan:

<https://www.gov.uk/government/publications/defra-single-departmental-plan-2015-to-2020/single-departmental-plan-2015-to-2020> and the forthcoming 25 year environment plan. In Wales, the Well-being of Future Generations (Wales) Act 2015 <http://gov.wales/topics/people-and-communities/people/future-generations-act/?lang=en>

⁷ The final Impact Assessment accompanies the Water Act 2003 (Commencement no. 12) Order 2017, and can be found on: <http://www.legislation.gov.uk/>

⁸ Consultation Impact Assessment: https://consult.defra.gov.uk/water/water-abstraction-licensing-exemptions/supporting_documents/Annex%20D%20%20Consultation%20Impact%20Assessment%20for%20New%20Authorisations.pdf

- Section 3 – explains our final proposed policy to change exemptions to water abstraction licensing
- Section 4 – explains what happens next on making changes to exemptions to water abstraction licensing

In this document and for the purposes of this policy, the currently exempt abstractors being brought into the licensing system are often referred to as 'New Authorisations'.

2. The consultation

The consultation '*Changes to water abstraction licensing exemptions*' explained the proposed policy revised since the 2009 consultation, sought views on specific areas and, more broadly, on the proposed approach.

The specific questions asked in the consultation around the proposals were:

- Exemptions: the suitable period for the temporary construction abstraction exemption (Question 1);
- Planned abstractions⁹: the possible evidence required as part of the application process for planned abstractions (Question 2); excluding compensation provisions for planned abstractions from transitional arrangements to bring exempt abstractors into the licensing system (Question 3); and views on the main issues or challenges arising from the proposed approach regarding planned abstractions (Question 4);
- Application process: the evidence that an abstractor would be asked to provide as part of their application for a licence when their respective exemption ends (Question 5);
- Hands off flow conditions: the policy proposal to include a hands off flow condition on licences to protect the environment from the abstraction at times of low river flows (Questions 6-10);
- Transfer licences: the proposal to include authorised volumes on such licences (Question 11); and
- Compensation: proposals for how to fund any compensation arising from the policy (Questions 12-14).

We also asked for general comments on:

- the overall approach to the policy (Question 15); how it might be possible to further reduce any burdens for abstractors (Question 16); and
- the consultation in general (Question 17).

We received 86 consultation responses and published our summary of responses on 29 September last year.

⁹ Planned abstractions' are those where there are plans for new abstractions not currently taking place, or planned increases to existing exempt abstractions which will take effect post commencement of the regulations.

2.1 Exemptions

In the consultation, we set out the exemptions that would be removed and some additional low-risk exemptions that we proposed would continue. We explained that one exemption that would continue was temporary dewatering abstractions for construction purposes. We sought views on how long the ‘temporary’ time period should be.

What we proposed:

- an exemption for abstractions for temporary dewatering of underground strata; and
- an exemption for abstractions carried out for temporary diversions of waters to prevent interference with building or engineering works.

Where the abstraction:

- does not damage protected aquatic life nor damage the integrity of a site designated for nature conservation¹⁰; and
- is immediately discharged using a soakaway, if the water is from underground strata, or to surface waters.

In the case of dewatering and where the abstraction is not immediately discharged to soakaway:

- (i) the abstraction is less than 100m³/day where the abstraction takes place more than 500 metres from a designated nature conservation site and more than 250 metres from a spring, well or borehole used to supply water for any lawful use of abstracted water; or
- (ii) the abstraction is less than 50m³/day and takes place 500 metres or less from a designated nature conservation site, or 250 metres or less from a spring, well or borehole used to supply water for any lawful use of abstracted water).

The possible time periods suggested were: four weeks; three months; six months or longer than six months.

Most responses supported a period of six months or less. Those supporting a longer period were mainly respondents involved with engineering works, explaining that some construction projects lasted more than six months and that they were concerned about increased regulatory burden.

¹⁰ <https://www.gov.uk/check-your-business-protected-area>

We have considered the responses and the evidence provided and concluded that a temporary period of less than **six consecutive months** is appropriate. We understand this period will capture the majority of engineering and construction works and will therefore minimise unnecessary regulation, while avoiding harm to the environment or other abstractors. Abstraction taking place over a longer period increases the risk of wider environmental deterioration, which should be assessed as part of the licensing process. This decision takes account of the protections that will be in place for the environment and abstractors in the exemptions.

Final exemption:

The dewatering of underground strata and abstractions carried out from surface waters solely to prevent interference with building or engineering works where the abstraction is over a period of less than six consecutive months, provided the abstractor can demonstrate that the abstraction:

- does not cause damage or is not likely to cause damage to protected species nor the integrity of a site designated for nature conservation; and
- is immediately discharged to soakaway, if the water is from underground strata, or to surface waters.

In the case of dewatering of underground strata and where the abstraction is not immediately discharged to soakaway:

- (iii) the abstraction is less than 100m³/day where the abstraction takes place more than 500 metres from a designated nature conservation site and more than 250 metres from a spring, well or borehole used to supply water for any lawful use of abstracted water; or
- (iv) the abstraction is less than 50m³/day and takes place 500 metres or less from a designated nature conservation site, or 250 metres or less from a spring, well or borehole used to supply water for any lawful use of abstracted water (draft regulations 5 and 6).

Suggestions made for other exemptions

While there was broad agreement about the exemption changes proposed in the consultation, some respondents made suggestions of other activities that should continue to be exempt from licensing.

Our approach to deciding if an abstraction activity should be licensed has been whether the activity in general could have a significant impact on water resources, and therefore detrimental consequences for the environment or other abstractors.

The exemptions suggested and the responses to those suggestions are:

- Small scale activities.

We believe the *de minimis* threshold¹¹ for abstraction licensing should continue to be based on the volume of water abstracted. A volume based threshold is the most suitable and fairest way to set a water resources threshold, compared to other suggestions made such as the area of business activity, as it is comparable across licensing activities and directly relates to the impact the abstraction may have on the water environment.

- Dewatering of isolated groundwater or of rainwater collected in mining, quarrying or other engineering works.

Where dewatering of groundwater takes place¹² a licence will be required where the abstracted water is from water contained in any underground strata whether hydraulically isolated or not. Establishing whether and how groundwater interacts with other water sources and the impacts this may have on the environment and other abstractors is part of the considerations of an abstraction licence decision.

A licence is not required for the dewatering of wholly or mainly rainwater from an excavation.

- Public or publicly funded bodies or statutory undertakers or bodies with statutory duties

We believe the abstraction licensing provisions should apply to public bodies. The removal of these exemptions is for the purpose of enabling the Regulator to perform its duties to manage the potential of all significant impacts on water resources caused by abstractions. Many other abstractors (including public bodies and the Regulator) require or will require an abstraction licence and also have to comply with various other duties, licences and permissions, so providing abstraction exemptions for one and not another body would not be fair. We have therefore not provided such exemptions.

- Internal Drainage Boards.

We do not consider that there is sufficient evidence to make a case to exempt all abstraction by Internal Drainage Boards because of the potential consequences for the environment and abstractors downstream of their abstraction intakes. We do however consider that there is good reason to exempt some, which is why the Water Act 2003 included provisions to continue exemptions for transfers within drainage districts and for any land drainage activities. We proposed in our consultation that impounding works within drainage districts should also be exempt; which we will implement.

- Other regulation should be used to protect the environment therefore there is no need for licensing.

¹¹ Currently 20m³/day per source of supply.

¹² Unless it is an exempt abstraction, for example, temporary dewatering.

We firmly believe there is a need to directly regulate what water is taken from the environment where it may have significant impacts to make sure there is enough water for people and the environment. However that does not mean we do not recognise the need more broadly for different permissions to better interact and the UK and Welsh Governments are continuing to take action to reduce unnecessary regulatory burdens. When exemptions are removed and if appropriate, we expect the Regulator to use any relevant information used in previous permissions in its decisions. This will help align decisions as far as possible and ensure regulatory effort is proportionate, effective and seeks to minimise negative business impacts.

- Abstraction in an emergency (ports).

We agree that the licensing requirements would be inappropriate in an emergency and we will include this as an exemption.

- Abstraction from navigable rivers into a navigation authority's water system.

Navigable rivers were excluded from the definition of a navigation authority's water system in the Water Act 2003. We have again reviewed the scenarios relating to navigable rivers and we believe that passive river to canal interactions, would not require licences. Circumstances where deliberate action such as artificial structures is taken to allow water to be diverted from a river into a canal would need a licence which is the intention of the Water Act 2003.

In section 3 below, we provide a full list of the additional licensing exemptions that will be made.

2.2 Planned abstractions

‘Planned abstractions’ are those where there are plans for new abstractions or planned increases to existing exempt abstractions.

What we proposed:

- To exclude planned abstractions from the new authorisations transitional arrangements (so abstractors could not apply for ‘planned abstractions’ through the transitional application process for currently exempt abstractions).
- To license any application for a planned abstraction through the standard abstraction application licensing process.
- To exclude planned abstractions also from transitional arrangements for compensation (which may be available where an abstractor can demonstrate loss or damage as a result of the Regulator granting the licence to a lesser extent or refusing to grant the licence).

Across all sectors, the main issue respondents raised was that many had invested in or anticipated future expansion. Excluding these plans from new licences therefore would block growth.

Respondents also noted that some permissions for planned activities had already considered the impact on water resources and so questioned the need for further regulation through licensing.

Respondents also noted however that the proposal made sure that the process was equitable for those existing, licensed abstractors who were planning to increase their abstraction to support business growth. They would need to apply through the standard application process to abstract additional water, and would not receive compensation if their application was refused.

If provision for planned abstractions were made in our transitional arrangements, it would place previously exempt abstractors in a much more favourable position than existing licensed abstractors. It would also prevent us from continuing to take a light touch risk based approach as an application, which included planned abstraction, could not be considered environmentally neutral.

In addition, our plans to end these exemptions have been public and expected since 2003. Abstractors should have been able to prepare for this, and taken account of the position in their business plans.

We understand the reasons for the negative responses received, however, we do not believe that these justify taking an approach which advantages currently exempt abstractors’ growth over those currently licensed. We believe this approach to be equitable

and reasonable, as it places all abstractors who have plans to abstract on an equal footing.

We have therefore not changed the approach proposed in the consultation, however, we do not expect the Regulator to limit sustainable economic growth unnecessarily and will apply the principles of better regulation¹³ to license planned abstraction.

We expect the Regulator to use any relevant information, such as environmental reports used as evidence to support other permissions already in place for planned works, so that it aligns its abstraction licence decisions, as far as possible.

We also expect the Regulator to provide application forms that allow abstractions for previously exempt activities to be applied for together with planned (variations to increase) abstraction and to have in place internal processes that align the two application processes and are considerate to business needs.

¹³ As set out in:

For Environment Agency: <https://www.gov.uk/government/publications/regulators-code-and-the-environment-agency/how-the-environment-agency-meets-the-regulators-code>

For Natural Resources Wales: <https://naturalresources.wales/about-us/what-we-do/how-we-regulate-you/regulatory-principles/?lang=en>

2.3 Application process

What we proposed:

- That evidence of abstraction required to support the licence application could be flexible but could include meter readings, pump ratings, invoices for equipment, photos of infrastructure, or business receipts/contracts.

We sought views on other types of evidence that could be provided.

Given the different types of abstractions and operational circumstances, we proposed the Regulator would be flexible about the evidence of abstraction required as part of the application process. We concluded that a definitive list of relevant evidence may preclude relevant evidence from some abstractors.

We expect the Regulator to apply a flexible, risk-based approach regarding evidence. Applicants should be able to demonstrate to the reasonable satisfaction of the Regulator, by way of the application and supporting evidence, their abstraction requirements and entitlements and that abstraction has taken place within the qualifying period.

The Regulator will produce guidance on evidence requirements that will take account of the variability of abstractor working practices, including situations where abstraction volumes are not measured.

In turn, we expect abstractors to be able to provide sufficient evidence to make a valid application. If abstractors have concerns about what evidence can be used, the quality of the evidence available, or the potential impacts on current business activities, we strongly recommend speaking to the Regulator to discuss the concerns as early as possible in the two year application period.

In response to the consultation views, we have also extended the qualifying period.

Abstraction within the previous seven years will qualify. This has increased from the four years proposed in the consultation. Doing so, will allow abstractors greater flexibility, and cover a wider range of weather patterns, to demonstrate abstraction requirements.

2.4 Hands off flows

What we proposed:

- That the Regulator may apply environmental constraints to licences granted, without compensation, to protect the environment at low flows and during drought conditions. This will be a step towards sustainable abstraction.
- The Regulator would do this by including a basic Hands off Flow (HoF) condition on surface water abstraction or groundwater equivalent where the flow in a river is dependent on that groundwater¹⁴ on abstraction licences. By:
 - Placing a universal HoF of Qn95 on licences in catchments that are over-abstracted¹⁵; and
 - Placing a universal HoF of 75% of Qn99 on licences in catchments that are not over-abstracted.

The majority of respondents agreed with using hands off flow conditions. The main challenges were that the Regulator might impose unnecessarily stringent flow restrictions with uncertain consequences for businesses.

Other respondents meanwhile, while agreeing that these types of restrictions should be applied, thought that they were not at a suitable level to give enough protection to the

¹⁴ “Hands off flow”(HoF) conditions restrain abstraction when river flows are low. For example, a licence could restrain abstraction where the natural river flow is at or below the flow that is exceeded 95% of the time and this HoF would be shorthand as Qn95 or 75% of Qn99, which is shorthand for 75% of Qn99 is 75% of the natural flow that is exceeded 99% of the time.

These conditions will be included at the Regulator’s discretion depending on environment need. The conditions will usually be set at Qn95 (or a groundwater equivalent in the case of groundwater where the flow in inland waters is dependent on that groundwater) in catchments where there is over abstraction and flows do not support WFD objectives. Where current flows support the WFD objectives i.e. catchments that are not over abstracted 75% of Qn99 will usually be applied.

¹⁵ Over abstracted: recent actual flows are below the environmental flow indicators (EFI). The EFI is the proportion of the natural flow in a river set aside for the ecological health of the water course and is used to prevent ecological deterioration. These indicators are aligned with WFD good status standards for rivers.

The Environment Agency’s and Natural Resources Wales’ current approach for assessing catchments is through Abstraction licensing Strategies and is the means for achieving the River Basin Management Plan objectives of sustainable management of abstraction and impoundment. For England: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/562749/LIT_4892.pdf (pages 9 to 15) and: <https://www.gov.uk/government/collections/water-abstraction-licensing-strategies-cams-process> has the regional strategies in England. For Wales: <https://naturalresources.wales/guidance-and-advice/environmental-topics/water-management-and-quality/water-available-in-our-catchments/?lang=en> – see relevant catchment Abstraction Licensing Strategy.

environment. These comments were in particular about a lack of protection for surface waters that are not over abstracted and groundwater not in connectivity with surface water.

The UK and Welsh Governments consider that applying these basic hands off flow conditions provides basic protection for rivers during low flows and in drought conditions and places a proportionate responsibility of reducing unsustainable abstraction on abstractors being brought under licensing control. These conditions are meant to be more favourable to currently exempt abstractors than conditions that are applied to licences for new abstractions as this policy approach acknowledges that these are existing abstractions relied upon by business.

As stated in the consultation, we believe that the proposals strike a fair balance between targeting immediate environmental improvements and recognising that investment has been made based on these existing abstractions.

The UK and Welsh Governments' decisions on priorities under the Water Framework Directive or other environmental legislation, as well as consideration of disproportionate costs, will therefore be taken into consideration for these previously exempt abstractors, as for all licensed abstractors. The policy is therefore a two stage approach to achieve environmental benefits and meeting the Water Framework Directive requirements. Once all significant abstraction is in the licensing system the Regulator will deliver any further improvements needed by taking account of the overall abstraction position in a catchment, to deliver improvements needed to meet Water Framework Directive water body objectives.

From comments received, we recognise, however, that the universal application of these basic conditions could, in some circumstances, perversely cause harm to the environment. We therefore do not expect the Regulator to apply hands off flows universally.

The UK and Welsh Governments expect the Regulator to help abstractors understand what they need to do to comply with hands off flow conditions and to make compliance reasonably straightforward.

Table 1 – summary of how we propose basic HoF conditions will normally apply

Surface water status in abstraction licensing strategy (ALS/CAMS):	Flow / quantitative status supports WFD objectives	NAs HoF applied:
Water not available / Over abstracted catchments	Fail	Qn95
Restricted water available / Over licensed catchments	Pass	75% of Qn99
Water available	Pass	75% of Qn99

2.5 Transfer licences

What we proposed:

- To include volume conditions on transfer licences.

The majority of exempt abstraction activities (estimated at 4,000) that will become licensable in England will be for water transfers. We would expect the Regulator to issue these transfers with transfer licences¹⁶ to meet the policy objectives of maintaining existing rights and entitlements where it can. In Wales, water transfers are expected to make up a lower proportion of exempt activities than in England. The current legislation gives the Regulator discretion as to whether to include volume controls on transfer licences.

The majority of respondents supported the proposal to include volume conditions on transfer licences. Many respondents felt that volumes were necessary to enable the overall monitoring and control of the abstraction.

Those that disagreed did so primarily because their abstraction is difficult to measure or control.

Following our review of the consultation responses, the UK and Welsh Governments have concluded that adding volume limits to water transfers does not always reduce environmental risk and may add unnecessary business costs. We have therefore revised the consultation proposal.

The Regulator will have flexibility on the inclusion of volume conditions on a transfer licence. However, the final decision on whether to do so should be proportionate, reflecting environmental risk, impacts on other abstractors and the burdens it places on the abstractor. We expect, in particular, that in situations where an abstraction is currently unmeasured and / or not readily controlled and where there are satisfactory alternative ways to control the abstraction, for example conditions that describe the use of abstraction structures, that the Regulator uses a licensing approach that minimises regulatory burdens on the abstractor. This change from the consultation will reduce regulatory costs while achieving similar outcomes of licences that reflect abstraction requirements and prevent additional environmental impacts.

¹⁶ A 'transfer licence' is required to move water from one source of supply to another, or to the same source of supply, but at another point, in the course of dewatering activities in connection with mining, quarrying, engineering, building or other operations, without intervening use.

2.6 Compensation arrangements

What we proposed:

Using the compensation charge element of the Regulator's water abstraction charges scheme (Environmental Improvement Unit Charge - EIUC) to fund any compensation, and specifically to:

- Use EIUC funds already collected, that are potentially no longer required for the completion of the Restoring Sustainable Abstraction programme, to fund any compensation that may result from the implementation of New Authorisations.
- Collect additional funds, if required, through the EIUC from non-water company charge payers, to pay any more compensation identified under New Authorisations.

The policy we consulted on will allow claims to be made for compensation in certain circumstances where a qualifying applicant can demonstrate loss or damage as a result of the Regulator either granting a licence to a lesser extent than that of the abstraction the applicant was previously conducting; or refusing to grant a licence. We proposed that the existing compensation charge element of the Regulator's water abstraction charges scheme (Environmental Improvement Unit Charge - EIUC) be used to fund any compensation.

The majority of those who responded to this proposal favoured using compensation funds already collected or to collect additional funds, if required, via the compensation charge to meet any compensation claims. Currently exempt abstractors supported this approach. Those abstractors who are already licensed and have been paying into the compensation fund were not in favour.

The National Farmers' Union believed that the compensation funds collected to date should only be used for the Restoring Sustainable Abstraction programme, their original purpose, and that the rest should be refunded.

It is both the UK and the Welsh Governments' policy however for the Regulator to use charging schemes to recover their costs for relevant regulatory functions. Given the Governments have determined that compensation costs are part of the Regulator's water resources management function, the costs of this policy should also be recovered from abstractors through the Regulator's charges scheme as are other costs. In England and Wales, we will therefore continue with the compensation arrangements as set out in the consultation.

In Wales, the Welsh Government has agreed to consider specific support to Natural Resources Wales if compensation costs should materialise beyond a level that cannot reasonably be met from within the Natural Resources Wales' water resources income.

2.7 Other consultation areas

We asked three further questions on:

- any comment on the general, overall approach to New Authorisations;
- how it might be possible to further reduce any burdens for abstractors through the policy approach; and
- the overall consultation.

All comments to these questions have been considered and discussed with respondents as we have finalised the policy. In many cases, we have amended the final policy approach as explained in section 3.

For example, there were concerns about the overall approach included using a four year qualifying period of past abstraction, because it did not take sufficient account of the variability of weather patterns over time. As a result of further consideration and discussion with some respondents we have increased the period to seven years.

The National Farmers' Union and the Chartered Institution of Water and Environmental Management sought further clarification on the application of the Serious Damage provision and guidance on its use. The principles the Regulator would use to assess serious damage are set out in the 2012 consultation and the Government response on the issue¹⁷. As clarified in the 2016 consultation, if the abstraction is affecting, or has the potential to affect, a European site designated under Habitats Regulations, the Regulator will apply the precautionary principle in its determination decision of serious damage. This means that an abstraction would be restricted to protect from serious damage where the Regulator has insufficient evidence to conclude that no adverse effects to protected sites would be caused.

¹⁷ 2012 Serious Damage consultation: <https://www.gov.uk/government/consultations/the-water-act-2003-withdrawal-of-compensation-on-the-grounds-of-serious-damage>

3. The final policy approach

Our final policy approach takes account of the responses received to the consultation and our assessment of them as set out in section 2.

3.1 Exemptions

We can confirm that the exemptions we will end are:

- transferring water from one inland water to another in the course of, or as the result of, operations carried out by a navigation, harbour or conservancy authority;
- abstraction of water into internal drainage districts but not including land drainage activities;
- dewatering mines, quarries and engineering works, where the water is mostly groundwater rather than rain;
- warping (abstraction of water containing silt for deposit onto agricultural land so that the silt acts as a fertiliser);
- all forms of irrigation (other than spray irrigation, which is already licensable), and the use of land drainage systems in reverse (including transfers into managed wetland systems) to maintain field water levels;
- abstractions within currently geographically exempt areas, including some rivers close to the borders of Scotland; and
- the majority of abstractions covered by Crown and visiting forces exemptions.

The normal licensing threshold will apply. This means that only those abstracting more than 20m³/day in aggregate from a source of supply will need to apply for an abstraction licence once these exemptions end.

We will also create new exemptions for some low risk abstractions and impoundments leaving them exempt¹⁸. We can confirm that these are:

- abstraction (transfers) downstream of the normal tidal limit by navigation, harbour and conservancy authorities, other than in the hour before or after low tide;

¹⁸ An appropriate assessment for the purposes of regulation 99(1)(c) of the Conservation of Habitats and Species Regulations 2010 has been prepared for: abstraction of saline water for ports and harbours; abstraction of water in connection with dredging operations; abstraction of a water with a high saline content from underground strata in the Cheshire basin (part of an existing exemption given to the former Mersey and Weaver River Authority in 1968); and impounding works constructed by or on behalf of Internal Drainage Boards in exercise of their functions within their appointed areas. Exemptions not covered by these assessments may require the Regulator's consent under regulation 99(2) of the Conservation of Habitats and Species Regulations 2010.

- abstraction in connection with dredging operations authorised by an authority in the exercise of its statutory functions in relation to those waters upstream of the normal tidal limit and any abstraction downstream of the normal tidal limit;
- abstraction of water within managed wetland systems (subject to the main abstraction into the system being licensed) and impounding works solely for the management, operation or maintenance of water within managed wetland systems;
- abstraction of water with a high saline content from underground strata in the Cheshire basin (part of an existing exemption given to the former Mersey and Weaver River Authority in 1968);
- impounding works constructed by or on behalf of Internal Drainage Boards (IDBs) to exercise their functions within their appointed area;
- dewatering of underground strata and abstractions of surface waters to prevent interference with building or engineering works where the abstraction lasts less than six consecutive months (subject to restrictions¹⁹);
- third-party operated dry docks that transfer water to and from a navigation authority's water system;
- impounding works when required in an emergency; and
- emergency abstraction or impounding where undertaken by port, harbour or conservancy authorities.

3.2 Light-touch, risk based licensing approach

The UK and Welsh Governments expect the Regulator to take a light-touch, risk based approach to licensing these abstractions. A light touch, risk based approach means:

- The majority of licences will be granted based on existing abstraction requirements. Applicants should be able to demonstrate, to the reasonable satisfaction of the Regulator, their abstraction requirements and entitlements and that abstraction has taken place within the seven year qualifying period.
- Licences will normally have “hands off flow” conditions²⁰ to protect rivers during low flows and times of drought where these conditions provide benefits to the environment.

¹⁹ See the Water Abstraction and Impounding (Exemptions) Regulations 2017, which can be found at: <http://www.legislation.gov.uk/>

²⁰ Or a groundwater equivalent where the flow in an inland water is dependent on that groundwater.

- The Regulator will have flexibility on the inclusion of volume conditions on transfer licences to avoid undue abstraction control costs on abstractors while still ensuring environmental protection²¹.

It is expected that lawful abstractions will only be significantly curtailed or refused to protect the environment from serious damage²². However in exceptional circumstances applications may be refused or restricted for reasons other than serious damage, such as protecting a Site of Special Scientific Interest from damage but the Regulator does not consider this damage to be serious damage. In these circumstances, abstractors would be able to apply for compensation. We expect the Regulator to take a similar approach to its own abstractions that become licensable.

To support this approach in England, the UK Government will issue a direction to the Environment Agency that will apply to lawful abstractions that qualify for the transitional arrangements²³. The direction will recognise that to grant a licence for an existing abstraction to the same extent does not in itself change the environmental impact or increase any damage. The direction will neither remove the Environment Agency's existing duties, which will be complied with, nor detract from its independent assessment of individual licence applications.

In England, we expect Natural England to recognise that the Environment Agency has been directed in such a way and to advise accordingly.

The Welsh Government considers recent Welsh legislation sufficient for supporting a light touch, risk-based approach to licensing abstractions that qualify for the transitional arrangements, without making a direction to Natural Resources Wales²⁴.

²¹ Conditions could include for example details of the abstraction structure, which would prevent changes to that structure to allow increased abstraction.

²² The principles the Regulator would use to assess serious damage are set out in the 2012 consultation and Government response: <https://www.gov.uk/government/consultations/the-water-act-2003-withdrawal-of-compensation-on-the-grounds-of-serious-damage> As clarified in the 2016 consultation, if the abstraction is affecting, or has the potential to affect, a European site, the Regulator will apply the precautionary principle in its serious damage risk assessment.

²³ Exempt abstractors who have abstracted within the seven years preceding the commencement of legislation.

²⁴ The Environment (Wales) Act 2016 placed sustainable management of natural resources at the core of how Natural Resources Wales should carry out its activities in a manner consistent with its obligations under the Well-being of Future Generations (Wales) Act 2015 and among Natural Resources Wales' seven Well-being Objectives is the objective to promote successful and responsible business that use natural resources without damaging them.

The UK and Welsh Governments' expectations are that the Regulator will normally grant licences with a time limit to the relevant common end date²⁵ in keeping with its published licensing position²⁶. Once within the licensing system, these abstractions will be treated like other licensed abstractors. While licences will be issued with time limits, it is the UK and Welsh Governments' intention to phase out time limits as part of abstraction reform.

Charging provisions for previously exempt abstractors are included in the Regulators' charging schemes, as may be amended²⁷.

3.3 Licensing: application period and Regulator determinations

We will allow two years for abstractors to apply for their licences. The Regulator will determine all applications within three years from the end of the two year application period.

We expect abstractors to provide sufficient evidence of historic abstraction to support the making of a valid application. If applicants are unable to demonstrate that abstraction has taken place during the qualifying period, they will need to apply via the standard licensing process²⁸. Evidence could include meter readings, pump ratings, calculations of abstracted quantities, invoices for equipment, photographs of infrastructure, or business receipts/contracts.

We recognise however that abstractors may have other evidence, which demonstrates to the satisfaction of the Regulator the abstraction taking place to meet existing abstraction requirements. We therefore expect the Regulator to be flexible in considering what evidence is suitable to support applications.

²⁵ In exceptional circumstances, the Regulator may issue long duration licences (up to 24 years) if certain tests are met. However, because it is the intention to phase out time limits as part of abstraction reform and because of the additional evidence requirements for applicants to support a valid long duration licence application, we do not generally expect applicants to apply for and the Regulator to be issuing further long duration licences.

²⁶ England: <https://www.gov.uk/government/collections/water-abstraction-licensing-strategies-cams-process> and Wales: <https://naturalresources.wales/guidance-and-advice/environmental-topics/water-management-and-quality/water-available-in-our-catchments/?lang=en>

²⁷ Current charging schemes are available on the Environment Agency and Natural Resources Wales websites.

²⁸ As set out in the Water Resources (Abstraction and Impounding) Regulations 2006 (<http://www.legislation.gov.uk/ukxi/2006/641/contents/made>, In some cases, this is likely to mean licences with more restrictive water access and that the abstraction cannot take place until a licence is issued.

In England: <https://www.gov.uk/guidance/water-management-apply-for-a-water-abstraction-or-impoundment-licence> or in Wales: <https://naturalresources.wales/apply-for-a-permit/water-abstraction-licences-and-impoundment-licences/?lang=en>

New or increased abstractions will be considered by the Regulator using its standard licensing arrangements. There will be no compensation payable where these licence applications are refused or not granted in full.

Once the regulations are in force, abstractors wishing to undertake a new abstraction or increase their existing abstraction should apply using the appropriate form provided by the Regulator. We expect the Regulator to provide application forms that allow abstractions for previously exempt activities to be applied for together with planned (variations to increase) abstraction and to have in place internal processes that align the two application processes and are considerate to business needs.

Except for the timeframes for applying for and determining licences, in most other respects, the process for dealing with licence applications from existing abstractors who become subject to licensing will be similar to those required under the Water Resources (Abstraction and Impounding) Regulations 2006. The Regulator's standard abstraction charges would also apply.

3.4 Regulator guidance for the application process

The UK and Welsh Governments expect the Regulator to provide guidance as part of the application process. It will provide clarity on the number and types of licences to be applied for. The Regulator is best placed to advise and may sometimes need to decide which type of abstraction licence²⁹ or the number of licences an applicant should apply for³⁰. When it does so, it will advise an applicant that it proposes to treat an application for a licence as being one of a different type to that sought before it proceeds to determine the application or publish the proposal. We do not consider that full licences will be necessary or desirable in most cases to regulate water transfers. We do not therefore expect applicants to use this process as a means of enhancing existing rights.

We strongly encourage applicants to make early applications to allow sufficient time for discussions about their application with the Regulator. If an application is received towards

²⁹ The Water Act 2003 amended the Water Resources Act 1991 to provide that licences will be one of three types: a 'full licence', a 'transfer licence' or a 'temporary licence' (which lasts for less than 28 days). A 'full licence' gives the holder a right to abstract water that is protected in law from any later licences that the Agency may grant and is required for any abstraction lasting 28 days or more. A 'transfer licence' is available for abstraction of water lasting 28 days or more to transfer water from one source of supply to another, or to the same source of supply, but at another point, in the course of dewatering activities in connection with mining, quarrying, engineering, building or other operations, without intervening use.

Transfer licences do not attract protected rights under the Water Resources Act 1991 and therefore this will be the case when currently exempt abstractions become regulated.

³⁰ As set out in section 36A of the Water Resources Act 1991. Section 36A enables the Regulator to require an applicant for one type of abstraction licence to apply instead for another type, or to group several related applications together. The applicant can appeal against the Regulator's decision.

the end of the application period the Regulator may be unable to carry out the necessary application validity checks before the application period closes. If the application turns out to be deficient and cannot be deemed a valid application, the applicant risks missing the transitional period, meaning the abstraction must stop at the end of the two year application period and an application submitted under standard licensing procedure where it will not be determined using the light touch risk based approach.

3.5 Minimising regulatory burden

We expect the Regulator to minimise the burden of the licensing process on the applicants as far as possible. For instance we expect the Regulator to:

- help abstractors minimise administrative costs by for example linking applications for abstractions from the same source of supply³¹;
- provide application forms that allow abstractions for previously exempt activities to be applied for together with planned (variations to increase) abstraction and to have in place internal processes that align the two application processes and are considerate to business needs³²;
- take a flexible risk based approach to licensing which accommodates the wide variety of situations abstractors may find themselves in to avoid unnecessary business burdens or controls.

3.6 Compensation arrangements

Compensation³³ may be applied for where loss or damage arises from a refused or constrained application for lawful³⁴ abstraction that is made within the qualifying period, except where refusal or curtailment is necessary to:

³¹ In the case of abstractions for mining, quarrying, engineering and building operations where the exact point of abstraction changes over time within a sites' area, we expect the Regulator to license this abstraction in a way that will also minimise the need for multiple licences or licence variations by for example referring to the existing worked area as being the point(s) of abstraction.

³² As explained in Section 4.2, the planned element of these abstractions will be considered by the Regulator under the Water Resources (Abstraction and Impounding) Regulations 2006.

³³ There may be exceptional cases where compensation will be paid. These are most likely to be affecting damaged Sites of Special Scientific Interest (SSSIs), where the Regulator's duties either prevent it from granting licences or mean it must apply more restrictive licence conditions but it does not consider the damage to be serious damage.

³⁴ Where licence conditions reflect other permissions and entitlements, for example constraints referred to in enabling Acts, conditions contained within planning permissions or to prevent any significant adverse effects

- protect the environment from serious damage³⁵;
- apply a basic “hands off flow³⁶” condition to restrict abstraction during low flows and drought conditions;
- reflect current operating constraints already in place e.g. canal acts, planning conditions, mechanisms to control abstractions during qualifying period in the case of transfer licences with no volumes specified; and
- apply a time limit in accordance with the Regulator’s current policy.

Any compensation liabilities will be funded through the Regulator’s existing mechanisms for generating water resources income and it should use existing compensation funds collected or, where required, any further collection of compensation funds³⁷³⁸.

As a general principle, public authorities or organisations should not expect to seek recompense or claim compensation from other publicly funded authorities in the proper exercise of their statutory functions. This approach was supported by consultees in the 2009 consultation. The Regulator will therefore not be liable to pay compensation where the applicant under the transitional provisions is a public authority.

If there is a dispute about a licence decision or what type or number of abstraction licences an applicant should apply for, the applicant will have a right of appeal. The appeals process will be consistent with the usual appeal process for abstraction licences³⁹.

identified under the Water Resources (Environmental Impact Assessment) Regulations 2003 as this will not constitute loss or damage.

³⁵ In relation to sites designated under the Habitats Regulations, serious damage includes instances where the precautionary principle is applied because the Regulator has insufficient evidence to conclude no adverse effects to protected sites would be caused.

³⁶ Compensation will not be payable where the Regulator applies a Qn95 or less restrictive condition in over-abstracted catchments, similarly 75% of Qn99 where flow supports the environment.

³⁷ In Wales, the Welsh Government has agreed to consider specific support to Natural Resources Wales if compensation costs should materialise beyond a level that can reasonably be met from within the Natural Resources Wales’ water resources income.

³⁸ When required, the Environment Agency and Natural Resources Wales use the “Environmental Improvement Unit Charge (EIUC)”, a component of its abstraction charges, to collect funds for compensation.

³⁹ Section 36A of the Water Resources Act 1991 for appeals against type or number of licence applications and section 43 of the Water Resources Act 1991 for decision on whether to grant or refuse a licence.

4. Timetable and Next Steps

4.1 Implementation timetable

We will make the changes to the exemptions in the abstraction licensing system by commencing the primary legislation and through secondary legislation.

We consulted on the draft secondary legislation in January last year as part of the consultation process. We will now lay the regulations in Parliament and the National Assembly for Wales.

The two year licence application process will commence, once the regulations come into force on 1 January 2018.

Abstraction that has taken place during the qualifying period can continue without a licence until the licence is determined or, if no application is made, until the application period closes.

4.2 Further work to achieve the policy

The Regulator will produce guidance on the licence application process before the regulations come into force, during the application period and beyond. The Regulator will continue engagement with abstractors throughout the application and determination processes.

Abstractors can contact their local Regulator offices⁴⁰ to discuss their individual circumstances.

⁴⁰ Abstractors in England can contact the Environment Agency's National Customer Contact Centre to speak to the appropriate contact on: 03708 506 506 or enquiries@environment-agency.gov.uk

Abstractors in Wales can contact Natural Resources Wales' Customer Care Centre to speak to the appropriate contact on: 0300 065 3000 or enquiries@naturalresourceswales.gov.uk

Glossary

Abstraction: Removal of water from a surface or groundwater source.

Abstraction conditions: Conditions attached to an abstraction licence, for example, which can stop or reduce abstraction at specified threshold values (a Hands-off Flow), a seasonal restriction or an expiry date.

Abstraction licence: The authorisation granted by the Environment Agency or Natural Resources Wales to allow the removal of water from a surface or groundwater source. Licences are currently needed where more than 20 cubic metres (approximately 4,400 gallons) a day per source of supply is removed unless a specific exemption applies.

The Water Act 2003 amended the Water Resources Act 1991 to provide that licences will be one of three types: a 'full licence', a 'transfer licence' or a 'temporary licence' (which lasts for less than 28 days). A 'full licence' gives the holder a right to abstract a specified volume of water that is protected in law from any later licences that the Environment Agency or Natural Resources Wales may grant and is required for any abstraction lasting 28 days or more. A 'transfer licence' is available for abstraction of water lasting 28 days or more to transfer water from one source of supply to another, or to the same source of supply, but at another point, in the course of dewatering activities in connection with mining, quarrying, engineering, building or other operations, without intervening use.

Abstraction Licence Strategies /Catchment Abstraction Management Strategies definitions:

- **Water Available:** there is more than enough water to meet the needs of the environment.
- **Over Licensed:** the total volume of water licensed could compromise the needs of the environment. If all licensed water is abstracted, there will not be enough water left for the environment.
- **Over abstracted:** there is not enough water to meet the needs of the environment.

Environmental Improvement Unit Charge (EIUC): A component of the annual charge in the Regulators' charges schemes payable by abstractors which is used in some cases to cover the costs of compensating abstractors where their abstraction licences are compulsorily varied or revoked to reduce the risk of environmental damage caused by abstracting too much water.

Exemptions: The abstractions that can currently be lawfully made (and will be allowed in the future for low risk activities) without an abstraction or impoundment licence being needed.

Hands-off Flows (HoFs): A condition attached to an abstraction licence which states that if flow (in the river) reaches or falls below the threshold specified on the licence, the abstractor will be required to reduce or stop the abstraction.

Qn95 and Qn99: Qn95 is generally accepted to be a natural flow that is exceeded 95% of the time. Similarly Qn99 is the natural flow that is exceeded 99% of the time. 75% of Qn99 is 75% of Qn99 flow.

Regulator: Environment Agency in England and Natural Resources Wales in Wales

Restoring Sustainable Action (RSA) Programme: The programme involves the Environment Agency and Natural Resources Wales reviewing abstraction licences to find out whether water abstraction is causing environmental problems. Where they find licensed abstraction is a problem, they work with abstractors to find solutions.

Serious damage: The principles the Regulator would use to assess serious damage are set out in the 2012 consultation and Government response: <https://www.gov.uk/government/consultations/the-water-act-2003-withdrawal-of-compensation-on-the-grounds-of-serious-damage> and the clarifications made in the 2016 New Authorisations consultation.

Determining Transitional Water Resources Licence Applications

“New Authorisations” (NA): changes to water abstraction licensing exemptions

Reference number: OGN 176

Document Owner: Regulatory Business Board

What is this document about?

This guidance sets out the process for determining transitional water resources licence applications for previously exempt activities (also known as ‘New Authorisations’ or NAs). The purpose of this guidance is to ensure that transitional licence applications are considered in a consistent manner, and our decisions are in line with the Transitional Regulations and NA government policy, as well as our other statutory duties.

Who is this document for?

This document is for staff who will be involved in the determination of transitional licence applications:

- Permitting Officers (POs) within the Water Resources (WR) Permitting Team
- Geoscience team
- Hydrology and Water Resources Management Teams
- Environment teams
- Industry and Waste Regulation teams
- People and Place teams
- EPP Policy (Water Resources)

Contact for queries and feedback

Water Resources Permitting / Water Resources Policy teams

Version History

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To report issues or problems with this guidance [contact Guidance Development](#)

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Part A: Introduction

New Authorisations (NAs) is the term given to previously exempt abstractions (see [section 2.3](#)) which now need to be brought into the abstraction licensing system.

The licensing process for these abstractions is set out under the Water Abstraction (Transitional Provisions) Regulations 2017 (see [section 2.3](#)) and is different to the process followed for standard (or 'day job') water resources licence applications. The purpose of this Operational Guidance Note (OGN) is to ensure that NRW staff understand how to determine Transitional licence applications. It will help staff to:

- Work within the NA policy and legislative requirements;
- Understand how the NA policy and legislative requirements relate to our wider duties; and
- Come to a decision that is legally robust, fair and consistent.

1. Policy context

1.1 2017 Government response: light-touch, risk-based licensing approach

The [2017 Government response to consultation on changes to water abstraction licensing exemptions in England and Wales: New Authorisations](#) recognises that previously exempt abstractors have operated lawfully and rely upon their access to water. Therefore, it proposes a **light touch, risk-based** approach to bringing these abstractions into the licensing system, which is detailed in [Part B](#).

The 2017 Government response states that once all previously exempt abstractions are in the licensing system, any issues identified with the abstractions, that are not addressed under the Transitional licensing process, will be addressed through future sustainability review processes e.g. Water Framework Directive (WFD), Restoring Sustainable Abstraction (RSA) programme.

Bringing previously exempt abstractors into the licensing system will:

- help create a fairer system for all abstractors – both those already licensed and those that will become licensed;
- enable the Regulator to manage water resources more effectively now and in response to increasing pressures on water resources in the future; and
- be part of wider work to implement the Water Environment (Water Framework Directive (England & Wales) Regulations 2017 (the "WFD Regulations 2017") and create a cleaner, healthier environment;
- help aid the transition to a reformed licensing system.

1.2 NRW's Regulatory Principles

Our Regulatory Principles are the way that we demonstrate how we comply with the Regulators Code; they are also the means by which we embed the Sustainable Management of Natural Resources (SMNR) approach into our regulatory work.

There are eight Regulatory Principles:

1. Deliver outcomes
2. Be intelligent
3. Be prepared to challenge

4. Use the full range of tools available
5. Be flexible
6. Bring the right skills/expertise together
7. Be efficient and effective
8. Be clear on what we do and why

The Regulatory Principles set out the key values that NRW applies when we make decisions relating to our regulatory work. They provide us with the context and perspective on what we are legally required to do and how we can work with others to maximise the benefit to our environment.

Consideration of how the regulatory principles listed above have been applied to the determination of transitional licence applications will need to be clearly demonstrated in the determination report (see Part B, [section 7.18](#)).

2. Legislative framework

2.1 Water Environment (Water Framework Directive) (England & Wales) Regulations 2017 (WFD Regulations 2017)

The WFD Regulations 2017 set out the legal requirements to protect and improve the water environment. They require measures to be taken to encourage the sustainable use of water and to protect and improve the water environment, with the aim of achieving good status.

To comply with the requirement to achieve good status¹, it is considered necessary to have in place a system of prior authorisation and control of significant water abstractions and impoundments. While we have had a licensing system since the 1960s, the exemptions within it can impact on achieving good status. Therefore, bringing previously exempt abstraction activities into the licensing system is helping to meet the requirements of the WFD Regulations 2017.

Meeting the objectives of the WFD Regulations 2017 to enhance and protect the aquatic environment also complies with the principles of sustainable management of natural resources (see [section 2.5](#) and our website [here](#)).

Further information can be found in Part B, [section 7.9](#) and the [OGN 072 'Assessing activities and projects for compliance with the Water Framework Directive'](#) (draft). Alternatively consult the WR Permitting WFD lead.

2.2 Water Resources Act (WRA) 1991 and Water Act (WA) 2003

Under the Water Resources Act (WRA) 1991 some water abstractions were previously exempt from licensing control.

To comply with WFD Regulations 2017 objectives, the Water Act (WA) 2003 included provisions to remove significant exemptions (see [section 2.3](#)) and bring these lawful exempt abstractions into the water abstraction licensing system. Some 'low risk'

¹ <http://www.legislation.gov.uk/ukxi/2017/407/regulation/20/made>

abstractions remain exempt (see [Appendix A](#)). The WA 2003 also included provisions for making transitional arrangements for ending exemptions and to allow regulations to be developed for making and determining licence applications.

2.3 The Water Abstraction (Transitional Provisions) Regulations 2017

[The Water Abstraction \(Transitional Provisions\) Regulations 2017](#) (“the Transitional Regulations 2017”) provide:

- A specialised application, determination and appeals process for licensing previously exempt activities;
- Continued lawful abstraction during the application and determination process;
- The circumstances under which compensation for curtailed or refused licence applications may be paid;
- The process for making compensation payment claims; and
- The process for handling disputed compensation claims.

Applicants were eligible to apply for a licence under the Transitional Regulations 2017 provided they could evidence that they carried out an abstraction which was previously exempt within the ‘qualifying period’ between 1st January 2011 – 31st December 2017.

The previous exemptions that have now been removed are as follows:

- Water transfers from one inland water to another in the case of, or as a result of, operations carried out by a navigation, harbour or conservancy authority
- Abstractions into internal drainage districts (IDDs) but not including land drainage activities¹
- Dewatering of groundwater as part of construction and engineering works²
- Warming (abstraction of water containing silt for deposit onto agricultural land as a fertiliser)
- All forms of irrigation (except for spray irrigation which is already licensable) and the use of land drainage systems in reverse (including transfers into managed wetland systems) to maintain field water levels
- Abstractions by Crown and visiting forces
- Abstractions within previously geographically exempt areas (see [Appendix B](#)).

Key checks carried out during the validation process were 1) to ensure the activity applied for was a previously exempt activity and 2) that sufficient evidence had been provided to show that abstraction had been undertaken during the qualifying period. Further information about the validation process in [OGN 069: Validation of transitional provisions water abstraction licence applications](#).

2.3.1 Transitional timescales

The Transitional Regulations 2017 required previously exempt abstractors to submit a valid licence application between **1st January 2018** and **31st December 2019 (two-year application window)**³.

¹ As the management of IDD is carried out by NRW, determination of these applications will be under the Water Resources (Abstracting and Impounding) Regulations 2006 i.e. standard licence requirements, as per Part 3 of the Transitional Regulations 2017 (see legacy OI see 286_05 *Environment Agency licence applications*)

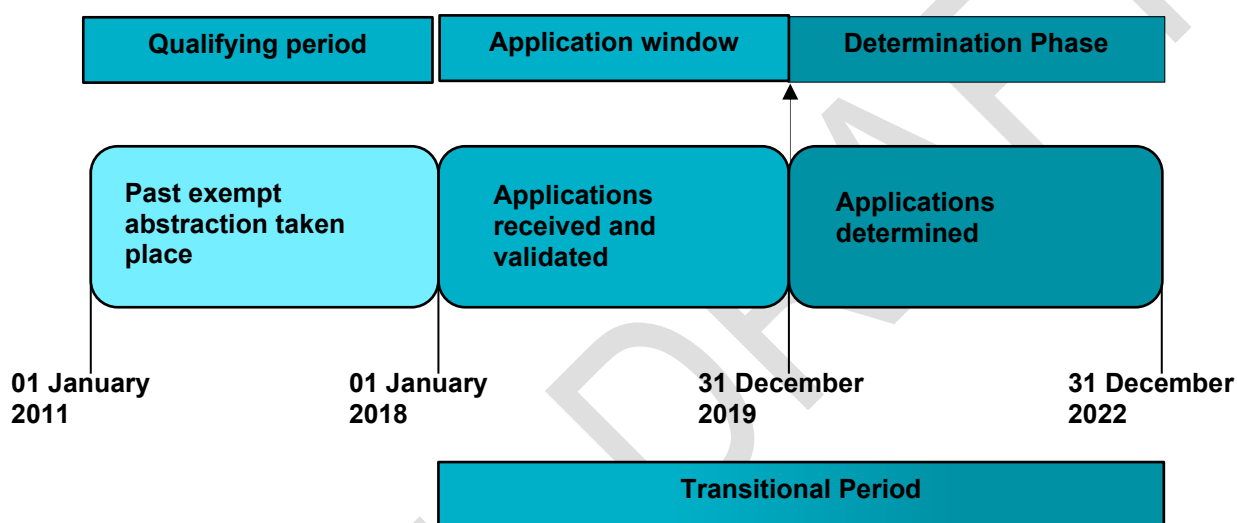
² Unless for period of less than 6 consecutive months and subject to the criteria detailed in provisions 5 and 6 of [The Water Abstraction and Impounding \(Exemptions\) Regulations 2017](#).

³ Please see [Appendix C](#) for maps showing all valid Transitional licence applications received in NRW.

Providing a valid application was submitted by the 31st December 2019, Regulation 6 of the Transitional Regulations 2017¹ allow abstractors to continue abstracting in line with the abstraction carried out during the ‘qualifying period’ (i.e. at the same rates, location and for the same purpose) until the application is determined.

The Transitional Regulations 2017 require the regulator to **determine** all licence applications **between 1st January 2020 and 31st December 2022 (three-year determination window)**.

Figure 1: transitional timescales



Late applications

Applicants who submitted a transitional licence application prior to the 31st December 2019 deadline, but without sufficient time for the necessary validation checks to be carried out before the deadline, were provided with a 28 day ‘grace period’ to provide any missing information to make their applications valid. If applicants failed to provide information within the 28 day ‘grace period’ the application was returned as invalid².

In these cases, and where abstractors failed altogether to submit a valid transitional licence application by the 31st December 2019 deadline, the abstraction must stop, and an application must be submitted under the standard licensing process. These applications will be determined under the [Water Resources \(Abstraction and Impounding\) Regulations 2006](#) and will not be determined using the light touch, risk based approach, as specified in the [Policy position for licensing illegal abstractions](#).

2.3.2 Planned abstractions

‘Planned abstractions’ describe any changes an abstractor wishes to make to their existing operation after the ‘qualifying period’ e.g. an increase in current abstraction quantities. In these cases, the new abstraction cannot be licensed under the Transitional Regulations 2017, and the applicant is required to submit an additional application for the ‘planned’

¹ Regulation 6 of the [Transitional Regulations 2017](#).

² Further information on this approach is available in the Regulatory Decision Document entitled “Proposed approach for addressing non-submission of valid Transitional Water Resources licence applications, for previously exempt abstractions, by statutory 31st December 2019 application deadline”.

increase under the standard licence application route. Where relevant, the applicant should have been advised of this requirement during the validation checks.

The [2017 Government response](#) states that the Regulator should have in place internal processes that align the Transitional and standard application processes and are considerate to business needs. Where standard and transitional applications are submitted for the same site / operation, we will endeavour to determine them together, as this is desirable from a technical determination point of view and provides a more stream-lined service for the applicant. This will need to be considered on a case by case basis in liaison with the WR Permitting NA lead.

2.4 Legislation for conservation, heritage and landscape

Under the transitional licensing process, we have a duty to consider any potential impacts to nationally or locally designated sites or features, including the following:

- Habitats and Species Regulations 2017 National Site Network of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), and also Ramsar sites;
- Sites of Special Scientific Interest (SSSI) and Areas of Outstanding Natural Beauty (AONBs) designated under the Wildlife & Countryside Act 1981 as amended by the Countryside and Rights of Way Act (CROW) 2000
- National Parks

Further information can be found in Part B, [section 1](#) and [section 7.10](#).

2.5 Welsh Legislation: Environment (Wales) Act (EWA) 2016 and Well-Being Future Generations Act 2015

The Welsh Government considers this recent Welsh legislation supportive of the **light touch, risk-based** licensing approach outlined in [section 1.1](#).

The Environment (Wales) Act 2016 placed sustainable management of natural resources at the core of how Natural Resources Wales (NRW) should carry out its activities, in a manner consistent with its obligations under the Well-being of Future Generations (Wales) Act 2015.

The Environment (Wales) Act (EWA) 2016 introduced new general purposes that NRW¹ must:

1. Pursue sustainable management of natural resources in relation to Wales; and
2. Apply the principles of sustainable management of natural resources (see [Appendix D](#)), in the exercise of its functions, so far as consistent with their proper exercise.

The “sustainable management of natural resources” (SMNR) means¹—

- a) using natural resources in a way and at a rate that promotes achievement of the objective;
- b) taking other action that promotes achievement of that objective; and
- c) not taking action that hinders achievement of that objective.

The objective is to maintain and enhance the resilience of ecosystems and the benefits they provide and, in so doing—

¹ [Section 3 Environment \(Wales\) Act 2016](#)

- i) Meet the needs of present generations of people without compromising the ability of future generations to meet their needs, and
- ii) Contribute to the achievement of the well-being goals (available on the Welsh Government website [here](#)) in section 4 of the Well-being of Future Generations (Wales) Act 2015.

NRW is only required to **pursue** SMNR where it is compatible with the proper exercise of its functions i.e. in the context of determining transitional licence applications, if there is any conflict between our general purpose as set out in the EWA 2016 and our specific duties and powers under the WRA 1991, WA 2003 and Transitional Regulations 2017, then our specific duties and powers would prevail.

2.6 The Water Resources (Environmental Impact Assessment) Regulations 2003 (WR EIA Regs 2003)

The WR EIA regulations apply to abstractions for agriculture, including irrigation, which are judged likely to have significant environmental effects due to their nature, size or location. As the competent authority, NRW is responsible for deciding whether an EIA is required or not (known as a 'screening decision'). Many NA abstractions have been operating lawfully for many years, under an exemption, without concerns about their impact on the environment being raised. Hence, the need to undertake an EIA will be the exception rather than the norm. The approach to assessing EIA need is no different to standard applications. For further advice on whether the EIA regs apply, please consult the WR Permitting NA lead.

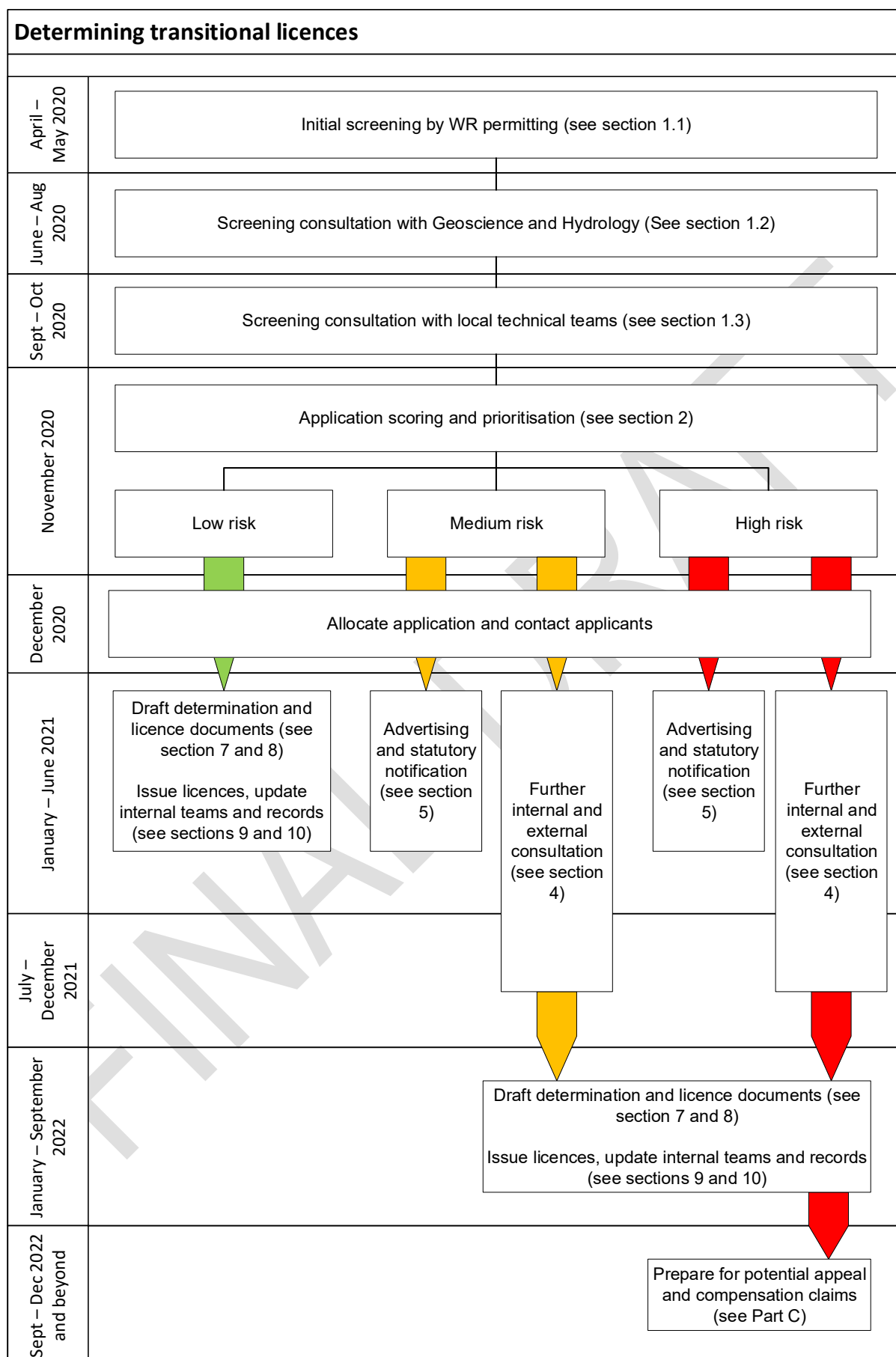
Part B: Determination

The **light touch, risk-based** licensing approach means there are limited licensing outcomes when determining Transitional licence applications. These are summarised as follows:

- The majority of licences will be granted based on **evidenced abstraction requirements**. Applicants should be able to demonstrate, to the **reasonable satisfaction** of the Regulator, their abstraction requirements and entitlements and that abstraction has taken place within the 1st January 2011 – 31st December 2017 ‘qualifying period’.
- The Regulator will have **flexibility** on the inclusion of **volume conditions** on transfer licences to avoid undue abstraction control costs on abstractors while still ensuring environmental protection.
- Where appropriate, licences may include **basic** “hands off flow” (HoF) conditions (see [section 7.15](#)) to protect rivers during low flows and times of drought.
- Abstractions will usually **only be significantly curtailed or refused** to protect the environment from ‘**serious damage**’ (see Part B, [section 7.11](#)). However, in exceptional circumstances abstractions may still be refused or restricted where the damage does not meet the serious damage criteria, but our legal duties require the abstraction to be curtailed or application refused e.g. environmental damage to a SSSI.
- Any sustainability issues not addressed through the Transitional licensing process will be addressed through future sustainability review processes.

The flow chart below outlines the process that will need to be followed to determine Transitional licence applications. Further detail and guidance on the process are set out in the following sections of this document.

A more detailed project plan is available [here](#).



1. Application screening

The aim of the screening stage is to understand the following:

- the risk / complexity of applications to inform the determination work going forward i.e. how applications will be prioritised and potential resource requirements.
- which applications require further consultation. In line with the 'light touch' policy approach, the aim is to 'screen out' as many applications as possible from further consultation.
- if any of the features picked up in the *My Map* screening are potentially being impacted by the NA abstraction
- any supporting information that may need to be requested from the applicant.

It is recognised that the list of questions asked via the initial screening consultation is extensive, and **not all questions** are expected to be answered **for all applications**. However, the more information provided at this stage will help ensure the risk and complexity of each application is understood as best as possible. It will also reduce the need for further consultation later in the determination window, and hopefully lessen time and resource pressures as the determination deadline gets closer. It is recognised that consultees may not be able to provide full details during this process but recommend that they are flagged so that they can be explored fully as the determination progresses.

It is also important to note there may be issues that we may be unable to address under the Transitional arrangements, however they can still be flagged at this stage so they can be fully considered as part of the determination process. Any issues recorded here that cannot be addressed as part of the determination may be used to inform any changes required under future sustainability review processes.

The screening stage will be carried out in three steps, as outlined below:

1.1 Initial screening by Water Resources Permitting team

All applications will initially be screened by the WR Permitting team in line with our [current process for screening standard licence applications](#).

Once the screening has been completed WR POs are required to save the outputs to the application case file on the DMS.

WR POs will also need to summarise the results in the [NA screening spreadsheet](#), under the following headings:

Column	Feature	Groundwater (GW) or Surface Water (SW) screening	Notes
AW	Screening radius Km	GW only	The screening radius for groundwater applications is determined according to abstraction quantity – see Appendix D . For applications with multiple points, professional judgement should be

Column	Feature	Groundwater (GW) or Surface Water (SW) screening	Notes
			exercised to decide if screening on a single point is appropriate. Consideration will need to be given to the site setting and the screening radius should be increased if considered necessary.
AX	Superficial geology	GW only	
AY	Bedrock geology	GW only	
AZ	Designated sites, including the following designations: <ul style="list-style-type: none"> • (proposed) SACs, SPAs and Ramsar sites; • (proposed) SSSIs; • protected species / habitat • National or Local Nature Reserves; • Ancient Woodland • SINC • Marine Conservation Zones 	SW only SW only	This will inform whether further assessment is required regarding impact to designated sites – see section 7.10
BA	National Park AONB		This information is required to inform whether external consultation / notification is required – see sections 4.2 and 5.2 .
BB	Response from National Park Authority		To record any response from National Park Authority - see sections 5.2 .
BC	Scheduled Ancient Monument, Listed Buildings, Historic Monuments, World Heritage Sites & Heritage Coast	SW only	These features are not considered relevant for groundwater abstractions in Wales, therefore further consultation is only required if identified for SW abstractions.
BD	Licensed or deregulated abstractions		SW screening includes EA Water Resource Permits whereas GW does not. However, the screening consultation process (see section 1) will highlight any potential cross border impacts.

Column	Feature	Groundwater (GW) or Surface Water (SW) screening	Notes
BE	Other permit applications, including permitted discharges		These will only be relevant for SW apps or for any GW abstractions in connectivity with SW. Screening consultation to identify whether there have been any reported impacts to local water quality relating to the discharge. If not, no need to consider further.
BF	Drinking Water Protected Areas (DWPA)	SW only	This includes any Lakes or River Catchments designated as Drinking Water Protected Areas. All of Wales is a DWPA for GW so only need to consider for SW applications.
BG	Source Protection Zone		This indicates if there is a potable groundwater supply nearby.

The WR Permitting team will also need to populate the following WFD Regulations 2017 - related fields in the [NA screening spreadsheet](#):

Column	Baseline information	Information Source ¹	Notes
AL	River catchment name	My Map for Permitting: Permitting EU Directives / WFD River catchments (Cycle 2 2015)	PO to crosscheck with screening report in DMS case file.
AM	River catchment ID	My Map for Permitting: Permitting EU Directives / WFD River catchments (Cycle 2 2015)	PO to crosscheck with screening report in DMS case file.
AN	Overall Status	WFD Classification Data 2015C2 S'sheet : 'Rivers and Canals 2015C2' tab; Column K 'Overall Status' (Original Source: Water Watch Wales - Classification data 2015)	The Transitional Regulations 2017 refer specifically to the Recent Actual Flow and quantitative assessment rather than the Overall WFD classification. However, Overall WFD Status should be recorded to inform the determination process.

¹The 2015 Cycle 2 WFD classification data has been used to ensure all applications are screened, assessed and licensing decisions are made from the same static baseline dataset. The 2015 Cycle 2 WFD classification data (published in the second cycle RBMP's Dec 2015) was the most up to date data at the time when exemptions were removed, and the application window opened.

Column	Baseline information	Information Source ¹	Notes
			If a waterbody is designated as high overall status for it cannot be screened out of WFD Compliance assessment requirements (See section 7.9).
AO	HMWB? (Heavily Modified Water Body)	WFD Classification Data 2015C2 S'sheet : 'Rivers and Canals 2015C2' tab; Column J 'HMWB' (Original Source: Water Watch Wales - Classification data 2015)	If a waterbody is designated as Heavily Modified it could indicate that the river is a supported source, which will have implications for the HoF requirements (see section 7.15).
AP	High status morphology / hydromorphology?	WFD Classification Data 2015C2 S'sheet : 'Rivers and Canals 2015C2' tab; Column AE 'Morphology' (Original Source: Water Watch Wales - Classification data 2015)	If a waterbody is designated as high status for morphology / hydromorphology it cannot be screened out of WFD Compliance assessment requirements (See section 7.9).
AQ	Hydrological Regime / Flow	WFD Classification Data 2015C2 S'sheet : 'Rivers and Canals 2015C2' tab; Column AF 'Hydrological Regime' and Column AG 'Flow' (Original Source: Water Watch Wales - Classification data 2015)	<ul style="list-style-type: none"> The Transitional Regulations 2017 refer specifically to Recent Actual Flow in relation to HoF requirements. As part of further consultation (section 4.1), Hydrology will need to confirm:
AR	Recent Actual (RA) Q95 Flow Compliance status ²	WRGIS - RA Compliance Q95 layer	<ul style="list-style-type: none"> - the flow failure¹ - HoF requirements (see section 7.15)

¹ There may be differences between the 'Hydrological Regime' / 'Flow' results and the RA Q95 Flow Compliance results i.e. 'Hydrological Regime' / 'Flow' could be "supporting good / or "pass" but RA Q95 Flow Compliance result Band 1/2/3 failure. This is because the RA Q95 Flow Compliance layer available in the WRGIS is raw processed data, whereas the 'Hydrological Regime' and 'Flow' results have been through an Operational QA before input to final WFD classification as published in the RBMP 2015 classification result. Screening consultation with Geoscience / Hydrology (see [section 1.2](#) below) will resolve any differences and confirm whether the water body is failing or passing for flow.

² Compliance status is defined in [section 7.15](#).

Column	Baseline information	Information Source ¹	Notes
AS	Included in 'NA apps in failing WBs' tab?	WRGIS - RA Compliance Q95 layer	<p>A separate screening exercise has been undertaken by the WR Policy Advisor and WR Permitting NA lead to identify NA abstractions located in WBs failing for flow, to inform the HoF requirements. The results of this exercise have been recorded in the 'NA apps in failing WBs' tab of the NA Screening spreadsheet</p> <p>Any abstractions that are included in the failing WBs tab should be flagged in the main 'NA apps - screening record' tab via this column.</p>
AT	Ground Water Body name	My Map for Permitting: Permitting EU Directives / WFD Groundwater Cycle 2 2015	PO to crosscheck with Screening Report in DMS case file.
AU	Ground Water Body ID	My Map for Permitting: Permitting EU Directives / WFD Groundwater Cycle 2 2015	PO to crosscheck with Screening Report in DMS case file.
AV	GW Body Quantitative status	WFD Classification Data 2015C2 S'sheet : 'Groundwater 2015C2' tab; Column G 'Quantitative' (Original Source: Water Watch Wales - Classification data 2015)	<p>The Transitional Regulations 2017 refer specifically to WFD GW Body Quantitative status.</p> <p>According to Water Watch Wales all GW bodies in Wales are Good, however results should be included to inform the determination and for audit.</p>

1.1.1 QA / PALS update

Whilst updating the [NA screening spreadsheet](#), WR POs should ensure the pre-populated application information contained in the other fields is correct. They should also update PALS with any relevant information, as per the [PALS field reference guide](#).

1.2 Screening consultation with Geoscience and Hydrology

Once the above steps have been completed, the Geoscience team will be asked to review all groundwater applications.

In addition to the main aims of the screening process listed above, consultation with Geoscience is also required to understand which groundwater abstractions have the potential to affect river flows. This will inform whether Hydrology need to also review the application.

Once Geoscience have completed their review, the relevant Hydrology team will be asked to review all SW abstractions as well as any GW abstractions that Geoscience have indicated could potentially affect river flows.

1.3 Screening consultation with local technical teams

Once Geoscience / Hydrology have completed their review and updated the [NA screening spreadsheet](#), the following local technical teams will be required to review the applications in their patch:

- People and Places.
- Environment Teams, including local Environment, Conservation, Designated Sites and Biodiversity officers. For surface water applications the local Fisheries officer and Geomorphologist may also need to be included¹.
- Water Resources Planning - for water company applications only.

1.4 Managing the screening consultation process

1.3.1 recording consultation responses

All screening consultation responses should be saved in the [NA screening spreadsheet](#), under the following headings:

Column	Team	Question	Notes
BH BY CM CZ	Geoscience Hydrology People and Places Environment Teams	Are there any concerns regarding abstraction volumes applied for / evidence provided?	Justification of need is not a consideration under the Transitional process, rather quantities are based on evidenced historical use, which will have been checked as part of the validation process. However, this question is included to allow consultees to flag any technical concerns about the quantities of water applied for e.g. are abstraction rates feasible under normal flow

¹ It may not be necessary for Conservation, Designated Sites, Biodiversity, Fisheries or Geomorphology officers to respond to the screening consultation. Rather, Environment Teams can flag that further consultation will be required with these specialists.

Column	Team	Question	Notes
			<p>conditions? Or to verify quantities where weir / pipe dimensions or calculations, structure drawings, pump capacity / ratings etc. have been submitted.</p> <p>It is recommended that this is only considered for larger (i.e. higher risk) abstractions.</p> <p>For ease of reference quantities are included within the NA screening spreadsheet (columns O – R). Also see Appendix C (map 2) showing NA abstractions by quantity.</p> <p>Further information also available in section 7.1.3 and section 7.6 for further information.</p>
BI BZ CN DA	Geoscience Hydrology People and Places Environment Teams	Is the current method of measurement acceptable?	<p>See section 7.1.3 and section 7.7</p> <p>It is recommended that this is only considered for larger (i.e. higher risk) abstractions, or where there are known concerns about the measurement of water e.g. through the planning process.</p>
BJ	Geoscience	Is the MyMap screening radius (column AW) considered sufficient?	Geoscience to review the search radius applied and advise if additional screening should be undertaken.
BK CA CO DB	Geoscience Hydrology People and Places Environment Teams	Are there any local issues to be aware of that have not been picked up in the screening outputs?	Include any features not picked up in initial screening e.g. complaints, lawful uses, protected rights, protected species, abstraction pressures, RSA sites etc.
BL CB CP DC	Geoscience Hydrology People and Places Environment Teams	Please provide details of any related permitting or planning consents.	<p>Any nearby permits will be highlighted in column BE.</p> <p>Please note a thorough check of existing planning / permitting records is not required at this stage. Rather, this question is included to allow consultees to flag any permitting or planning issues that they are aware of</p>

Column	Team	Question	Notes
			<p>that relevant to the abstraction applied for example quarry dewatering:</p> <ul style="list-style-type: none"> Does the associated planning consent contain any conditions related to the abstraction? Is there an existing discharge consent? (This will inform the consumptiveness of the abstraction and how the licence will be represented in the RAM Ledger).
BM CC CQ DD	Geoscience Hydrology People and Places Environment Teams	Are there any local legislative requirements to be aware of? E.g. Canal Act conditions	See section 7.16 . Consideration will need to be given to how these existing permissions will be reflected in any transitional licence issued.
BN	Geoscience	Is there any probable connectivity between groundwater and surface water?	<p>A professional judgement based on available information will be sufficient at this stage.</p> <p>The purpose of this question is to highlight those groundwater abstractions that are likely to affect river flows. This will be important information for deciding whether further screening is required by Hydrology (see section 1.2 above), potential HoF requirements, and also how the licence will be represented in the RAM Ledger).</p>
BO CD	Geoscience Hydrology	Is there any probable pathway / connectivity with any features identified through screening?	A professional judgement based on available information will be sufficient at this stage.
DE	Environment Teams	Is the activity having any known impacts on any of the features identified in the screening outputs?	See section 7.10 . For example, if any designated sites have been highlighted in screening, are any of the designated features likely / known to be affected by the abstraction?
DF	Environment Teams	Is a HRA / Appendix 4 required?	See section 7.10 .

Column	Team	Question	Notes
BP	Geoscience	Is there a (potential) risk of saline intrusion?	This information is relevant for GW abstractions situated near the coast which can cause saline intrusion which may result in a WFD failure.
CE CR DG	Hydrology People and Places Environment Teams	Please review WFD / (catchment) information. Please use this column to indicate any changes required.	This information has been pre-populated using the relevant layers in MyMap for Permitting and the WFD 2015 Classification data available via the Water Watch Wales website (see section 1.1). QA by relevant teams required. Hydrology / People and Places are required to review columns AN – AR. Environment Teams are required to review column AN (Overall WFD Status) only.
BQ CF CS	Geoscience Hydrology People and Places	For abstractions included in the 'NA apps in failing WBs' tab (as indicated in column AS), please review the relevant row and update this tab where required.	If possible, consultees to rule out any abstractions that are not contributing to / causing the flow failure. Where this is not possible at screening stage further consultation will be required. A professional judgement based on available information will be sufficient at this stage.
BR CG CT	Geoscience Hydrology People and Places	Are there any (potential) in-combination / cumulative impacts?	See section 7.12 Please consider if the abstraction applied for could be acting in combination with other known ongoing or proposed activities, including other transitional applications (see columns BD - BE).
DH	Environment Teams	Potential Fish or Eel screening / passage requirements	SW abstractions only.
BS CH CU DI	Geoscience Hydrology People and Places Environment Teams	Do you consider the abstraction to be causing or have the potential to cause serious damage?	See section 7.11 Only an indication of the potential for serious damage will be required at this stage. Further investigation / consultation will be required to confirm this.
DP	Water	Is this abstraction part of any	Water Company applications only

Column	Team	Question	Notes
	Resources Planning	Drought or Water Resources Management Plans?	
DQ	Water Resources Planning	Are there are any Supply Demand Balance issues to be aware of?	Water Company applications only
BT CI CV DJ	Geoscience Hydrology People and Places Environment Teams	Is further internal consultation required? If so, please advise what teams should be consulted e.g. Fisheries, Planning, Regulated Industry, Land Management.	See section 4.1 . Industry & Waste Regulation teams should be consulted for any applications from regulated industrial sites i.e. EPR installations.
BU CJ CW DK	Geoscience Hydrology People and Places Environment Teams	Is any external consultation required e.g. EA, Natural England?	See section 4.2 . Please note consultation requirements are decided by permitting officers, but this question is included to allow consultees to flag any external consultation they feel might be necessary e.g. for abstractions close to the England / Wales border, could Geoscience advise if consultation with the EA/Natural England is necessary? i.e. provide a professional judgement as to whether the abstraction is likely to be having an impact on any features located in England.
BV CK CX DL	Geoscience Hydrology People and Places Environment Teams	Is any further information required from the applicant?	Applicants are required to submit any further information considered necessary to determine an application. To prevent unnecessary delays, this information should be requested as early in the determination window as possible.
BW CL CY DM	Geoscience Hydrology People and Places	Any further comments?	Any other comments relevant to the abstraction.

Column	Team	Question	Notes
	Environment Teams		

For the purposes of consultation with local teams, the NA screening spreadsheet has been divided into individual spreadsheets according to Operational area. It is possible to filter further within the individual spreadsheets by sector (exemption / purpose) or place (Environment team boundary / catchment) so individuals can choose how to manage work allocation / prioritisation. All screening responses will be collated in the master [NA screening spreadsheet](#).

1.3.2 agreeing response times

The WR Permitting NA lead will work with consultees to agree appropriate timescales for responding to screening consultation requests, with the aim of completing the screening consultation by Autumn 2020.

2. Application scoring and prioritisation

The aim of the application scoring and prioritisation stage is to ensure the following:

- the level of risk and complexity associated with each application is understood;
- appropriate timescales and resources are assigned according to risk / complexity;
- the correct level of consultation (internal and external);
- to inform advertising requirements; and
- applications are determined consistently and in line with the NA policy approach.

2.1 Application risk / complexity score

Once the screening process is complete, each application can be scored in terms of risk and complexity.

The table below should be used to help decide which score is most appropriate. Please note not all criteria will need to be met to place an application in a certain category. Decisions will be made on a case by case basis, via the NA Panel¹ where appropriate.

Score	Criteria	Preferred determination approach
Low	<ul style="list-style-type: none"> • For groundwater abstractions with no connectivity to surface water - Groundwater Quantitative assessment is Good; • For surface water abstractions or groundwater abstractions with potential connectivity to surface 	<ul style="list-style-type: none"> • Allocated to PO1. • Screening consultation only; no further internal consultation required. • No advertising requirement. • Standard text and templates to be used. • Licences to be granted in line with quantities applied for; no HoF required

¹ The New Authorisations (NA) Panel was originally established within NRW to ensure consistency with validation checks and decision-making. It is made up of members from WR Permitting, Policy, Legal, Geoscience and other local technical teams where relevant. It will continue throughout the determination period to ensure consistency with NA determination process and policy.

Score	Criteria	Preferred determination approach
	<p>water - flow compliance¹ assessment – Compliant / Supports Good Ecological Status (GES).</p> <ul style="list-style-type: none"> No known sustainability issues² related to flow / level. No local issues. Not in close proximity to or within a designated site i.e. no designated sites identified through <i>MyMap</i> screening. 	<p>(see section 7.15); subject to published time limits and standard licence conditions.</p> <ul style="list-style-type: none"> Aim to complete determination by June 2021.
Moderate	<ul style="list-style-type: none"> For groundwater abstractions with no connectivity to surface water - Groundwater Quantitative assessment is Poor³; For surface water abstractions or groundwater abstractions with potential connectivity to surface water - flow compliance² assessment – Non-compliant / Does not support Good Ecological Status (GES) / Band 1 or 2 Flow failure. Actual or potential impact to water dependent features of a designated site. Potential sustainability issues related to flow / level. Record of local issues / interest. Abstraction is linked to existing entitlement e.g. canal acts. 	<ul style="list-style-type: none"> Allocated to PO2 / PO1 with support from PO2. Further (bulk) consultation - internal and external. Advertising likely to be required. May need to request further information from applicants e.g. abstraction structure details. Standard text and templates to be used, supplemented with bespoke wording where required. HRA / Appendix 4 / WFD Regulations 2017 assessments carried out where required. In most cases, licences to be granted in line with quantities applied for, basic HoF conditions to be included if required (see section 7.15); subject to published time limits and other standard conditions where required. In exceptional circumstances, bespoke conditions / refusal may be required i.e. where our legal duties require the abstraction to be curtailed or application refused, but where the serious damage criteria does not apply. Aim to complete determination by December 2021.
High	<ul style="list-style-type: none"> For groundwater abstractions with no connectivity to surface water - Groundwater Quantitative assessment is Poor; 	<ul style="list-style-type: none"> Allocated to Senior Officer / PO2 with support from Senior Officer. Further extended consultation - internal and external.

¹ Flow Compliance is defined as follows:

-Non-Compliant Band 1 = Recent Actual Flows are up to 25% below the EFI at Qn95

-Non-Compliant Band 2 = Recent Actual Flows are between 25% and 50% below the EFI at Qn95

-Non-Compliant Band 3 = Recent Actual Flows are greater than 50% below the EFI at Qn95

² A flow/level sustainability issue means that there are impacts due to reductions in flow and/or lowered water levels/table as opposed to other issues e.g. pollution.

³ No groundwater bodies in Wales are at Poor Quantitative status

Score	Criteria	Preferred determination approach
	<ul style="list-style-type: none"> For surface water abstractions or groundwater abstractions with potential connectivity to surface water - WFD flow compliance assessment – Non-compliant / Does not support Good Ecological Status (GES) / Band 3 Flow failure. Potential or actual serious damage to water dependent features within a designated site. Substantial local / public interest, including media / ministerial involvement. 	<ul style="list-style-type: none"> Advertising required, potential High Public Interest (HPI). Further detailed information from applicants likely to be required e.g. environmental reports. Standard text and templates to be used, supplemented with bespoke wording where required. HRA / Appendix 4 / WFD Regulations 2017 assessments carried out where required. Bespoke licence conditions or refusal likely. Applications to be determined by June 2022 (allowing a 6-month contingency to December 2022 deadline). Appeal and compensation arrangements may apply (see Part C).

2.2 Application prioritisation

The NA panel will decide how applications should be prioritised, based on the following factors:

- Risk / complexity score assigned to each application;
- catchment common end dates (see [section 7.3](#)).
- any requests for early determination (captured in Column Y of the [NA Screening Spreadsheet](#)).
- Resource and workload commitments of local and technical teams.

The NA panel will also use the risk scores to inform the following:

- Advertising requirements, including potential HPI sites (see [section 5](#)).
- Potential compensation requirements (see [Part C, section 2](#)).

The WR Permitting NA lead will work with the WR Permitting Team Leader to allocate applications to Permitting Officers (POs). Once allocated, POs should update PALS to show which applications have been allocated to them. POs should follow the steps set out below and summarised within the [NA Determination application checklist](#).

3. Contact applicant

Once the screening and prioritisation process is complete and applications have been allocated, POs should use the [NA Applicant Update letter template](#) to contact and update applicants¹. This letter will:

¹ Under the Schedule to the Transitional Regulations 2017 (Part 2, parag 7 (Provision of information to the applicant), NRW must, by 30th June 2021, provide the applicant with the following information in relation to a valid application—

(a) whether a notice of the application has been or is to be published in accordance with section 37(1);

(b) the date by which the applicant must be notified of the appropriate agency's decision on the application;

1. Provide contact details of the officer dealing with their application.
2. Update applicants on the progress of their application, including a reminder of the statutory determination deadline of 31st December 2022 (see [section 2.3](#)).
3. Confirm if advertising required.
4. Confirm right of access:
 - if there are any concerns regarding whether the applicant has a legal right of access, it may be necessary to request further evidence from the applicant e.g. lease agreements.
 - The application should be refused if this is not confirmed with a reasonable period before the issue date.
5. Identify any changes in application details:
 - Any changes to the site or operation (e.g. change in abstraction period or location, increase to abstraction quantities) from what took place during the qualifying period cannot be considered under the Transitional Regulations 2017, and will require an additional application under our standard licensing process.
 - However, if there is no significant change to the nature or impact of the operation (e.g. minor change in abstraction location but relates to same source of supply / site), consideration can be given to dealing with the changes as part of the transitional application.
6. Request any other additional information¹ that may have been identified at screening stage. Where additional information is required from the applicant then POs should clearly specify a deadline by which the information should be submitted. POs should make reasonable efforts to obtain this information e.g. by following up the letter with phone calls, further emails or letters etc. All correspondence and attempts to contact applicants should be recorded and saved to the relevant case folder on the DMS. Where POs have been unable to contact an applicant or obtain the necessary information, they should update the WR Permitting NA lead to identify the next steps.
7. Notify applicant if screening has identified issues which may affect their operation going forward e.g. if the application is considered to be causing serious damage (see [section 7.11](#)) or will require certain conditions such as a Hands off Flow (see [section 7.15](#)). Correspondence should be worded carefully, in order to avoid pre-determination of the licence application. For further advice, discuss with the WR Permitting NA lead.
8. Remind applicants of potential abstraction charges requirements².

(c) the applicant's entitlement to appeal, in accordance with section 43(1)(b), against any failure by the appropriate agency to give notice, within the time period prescribed by paragraph 10(1), of its decision on the application.

¹ The Schedule to the Transitional Regulations 2017 (Part 2, parag 6 'Provision of additional information in support of the application') states that "The appropriate agency may, following receipt of a valid application, require the applicant to submit any further information or reports that it considers necessary to determine that application". The applicant may also be required to submit information under the Habitats Regulations and WFD Regulations 2017.

² The applicant will have been made aware of these issues in the Validation letter, but as some time may have passed since the validation letter being sent and the update, it is considered necessary to remind the applicant again at this stage.

9. Remind applicants of potential abstraction recording and reporting requirements¹.
10. Reminder that applicants are entitled to continue abstract the same quantities of water applied for until a decision is reached on their application, and that any proposed increase to abstraction quantities will require a separate application under our standard licensing process (see [section 2.3](#)).
11. Remind applicants of their right to appeal (see [Part C, section 1](#)).

4. Further consultation

The aim of the further consultation stage is to:

- Investigate further any issues flagged during the screening stage (see [section 1](#));
- Confirm whether any WFD flow failures are caused by / linked to NA abstractions;
- Complete any necessary HRAs / Appendix 4 assessments;
- Identify any supporting information that may need to be requested from the applicant.

It is **important to note** there may be issues that we may be unable to address under the Transitional arrangements, however consultees should flag any issues or concerns they may have so they can be fully considered as part of the determination process. Any issues that cannot be addressed as part of the determination may be used to inform any changes required under future sustainability review processes.

The relevant local and technical teams will already have reviewed all transitional applications at the screening stage (see [section 1](#)) and for **low** scoring applications, no further consultation (internal or external) is required. These applications will be determined in line with NA policy and legislation and using standard templates, paragraphs and conditions.

For **moderate** and **high**-scoring applications, further internal and / or external consultation will be required, as outlined below.

4.1 Internal consultation

Generally, the internal teams that will need to be further consulted for **moderate** and **high**-scoring applications are as follows:

- Geoscience (if groundwater)
- Hydrology (if surface water or ground water with surface water connectivity)
- People and Places
- Environment Teams, including local Environment, Conservation and Biodiversity officers. For surface water applications, or some groundwater applications where the abstraction may affect surface water flows, the local Fisheries officer and Geomorphologist may also need to be consulted.
- Industry & Waste Regulation teams (for any applications from regulated industrial sites i.e. EPR installations).
- Water Resources Planning (for water company applications only)

¹ The applicant will have been made aware of these issues in the Validation letter, but as some time may have passed since the validation letter being sent and the update, it is considered necessary to remind the applicant again at this stage.

It may be necessary to consult additional teams about certain, more complex applications. For example, the local Planning, Waste and / or Regulatory Industry teams will need to be consulted for any regulated EPR installations. Wider consultation may also be necessary to complete HRA / Appendix 4 assessments. Refer to the [NA screening spreadsheet](#) for further information regarding what specific issues may require this additional consultation / details of who should be consulted.

An initial deadline of **15 working days** should be given for any consultation responses. However, the request should make it clear that more time can be given if necessary, i.e. in the case of more complex applications or bulk consultations.

Consultations for **moderate** and **high** scoring applications should initially be carried out using the [NA Internal Consultation Evidence \(ICE\) pack template](#). If there are a large number of applications situated within an operational / environment team boundary, it may be appropriate to arrange for a 'bulk' consultation. Any concerns raised must be identified and flagged with the WR Permitting NA lead as soon as possible. Where necessary, further consultation can be carried out via email, meetings etc. to conclude any complex issues. All correspondence must be saved to the DMS and summarised clearly within the determination report.

For any applications that are likely to be curtailed or refused, local / technical teams should be made aware that they are likely to be required to provide evidence / defend licensing decisions in any appeal scenario. POs should seek written confirmation that consultees support the determination decision and ensure the correspondence is saved to the relevant case file on the DMS.

If there is any disagreement between local / technical teams and WR permitting this should be escalated via the WR Permitting NA lead in the first instance, and then subsequently via the NA Panel and / or relevant management routes.

4.2 External consultation

4.2.1 Cross-border consultation

If an application includes multiple points of abstraction and some of these points are located in both Wales and England, the application is considered a 'cross-border application'. Applicants should have submitted applications to NRW for any points of abstraction located in Wales; whilst applications for points located in England should have been submitted to the Environment Agency (EA). Applicants submitting cross-border applications should have provided details of the EA application to us and vice versa. In these cases, the respective organisations are required to consult each other, to ensure the determination is joined-up. Discussions on application prioritisation should have already taken place to match determination timescales to ensure joined up determinations.

There may also be applications located in the 'cross-border' catchments - the Wye, Severn and Dee. NRW lead on the Water Resources management of the Wye and Dee catchments so the EA are required to consult NRW on any applications located in the English part of these catchments. The EA lead on the Water Resources management of the Severn catchment so NRW are required to consult the EA on any applications located in the Welsh part of the catchment.

The WR Permitting team are responsible for coordinating and responding to cross-border consultations from the EA, as outlined in the [cross-border water resources process document](#) (draft). If there are a large number of applications requiring cross-border consultation, it may be appropriate to arrange for a 'bulk' consultation. The WR Permitting NA lead will coordinate this as required.

4.2.2 Consultation for conservation, landscape and heritage

To comply with our statutory duties for conservation, landscape and heritage we have a legal duty to consult with / notify the following relevant external organisations¹:

- Natural England – for any abstractions with the potential to impact on designated sites in England ([see section 7.10](#))
- Area of Outstanding Natural Beauty (AONB) Conservation Board – for any abstractions located within AONBs (surface water abstractions only). Use [Appendix 5](#).
- English Heritage or Cadw – for any potential impacts on Scheduled Ancient Monuments or listed buildings (surface water abstractions only).
- Local Authority – for any abstractions with potential to impact local wildlife sites, nature reserves, ancient woodlands, World Heritage Sites (surface water abstractions only).

External consultation is different from statutory notification (see [section 5.2](#)). External consultation is required as per the list above and is carried out regardless of whether advertising is required.

External consultations should be sent using the [NA Statutory Consultation letter template](#) with a copy of the application and any supporting documents. If there are a large number of applications requiring external consultation with a particular organisation, it may be appropriate to arrange for a 'bulk' consultation. The WR Permitting NA lead will coordinate this as required.

External consultees should be allowed **28 days** to respond, as per our process for standard licence applications. However, the request should advise that more time can be given if necessary, i.e. in the case of more complex applications or bulk consultations.

5. Advertising and statutory notification

5.1 Advertising

Under paragraph 8 of the schedule to the Transitional Regulations 2017, NRW is required to publish notice of an application "in at least one newspaper circulating in the locality of the proposed point of abstraction and on the appropriate agency's website". It requires all advertisements to be placed by **30th June 2021**. The WR Permitting NA lead is responsible for managing the timetable for determination and ensuring all applications are advertised by this deadline.

Under the Transitional Regulations 2017, we are only required to advertise applications that are considered to have a potential adverse effect on the environment². This is different to the requirement under the standard licensing process which requires applications to be

¹ From legacy OI 226_10 Screening and assessing new water resources permissions for impacts on conservation, heritage and landscape

² Under section 8 (para 6) of the schedule to the Transitional Regulations 2017 the requirements of section 37(1) and (2) may be dispensed with if it appears to the appropriate agency that the proposed abstraction would have no appreciable adverse effect on the environment.

advertised if the proposed abstraction is considered to have an adverse effect on the environment **and** lawful users / protected rights.

Generally low scoring applications will not need to be advertised, while medium and high scoring applications will require advertising. However, all advertising decisions should be made on a case by case basis and agreed by the NA Panel as part of prioritisation exercise (see [section 2.2](#)). The advertising requirement decision will be recorded in the [NA Screening spreadsheet](#) (Column DU).

Where applications are not advertised there is no need to complete the advertising dispensation form, however the advertising decision and reasons must be included in the determination report.

Where the decision is for an application to be advertised, this should be in line with our [current processes for advertising standard licence applications](#). However, the [NA WR advert template](#) for should be used. Where a large number of applications are due to be advertised within the same newspaper, arrangements should be made for a 'bulk' advertisement, as per the [NA Advertisement process guide](#). The WR Permitting NA lead will coordinate this and provide amended templates where required. All web adverts should be published to the '[Applications for licences under transitional arrangements](#)' [webpage](#).

5.1.1 National security and commercial confidentiality

There are special arrangements in place for dealing with applications where a customer has claimed that disclosing details of an application would be contrary to the interests of national security. Where a claim has been upheld applications should not be advertised. For further information please speak to the WR Permitting NA lead.

Where a claim for commercial confidentiality has been made, the notice must not include any information that the applicant has requested to be withheld under the claim.

Where a claim for national security or commercial confidentiality has been made, any information that the applicant has requested to be withheld under the claim, must not be included on the public register.

In these situations, the PO must ensure a [Public Register Statement](#) is added to the DMS / public register to advise the public that certain information is being withheld as a result of a national security / commercial confidentiality claim.

Where information is withheld as a result of a claim for commercial confidentiality, the statement will advise that additional information relating to this application can be requested by contacting the Access To Information (ATI) team. The ATI team would be responsible for liaising with Water Resources Permitting team regarding what information can be provided.

5.1.3 Advertising NRW-own applications

All licence applications where NRW is the applicant must be advertised. WR Permitting will arrange to publish the notice in a local paper and on our website.

For internal applications the £100 administration fee is waived. However, the full cost of the advert (both English and Welsh) is charged. Payment of the advertising cost is dealt with through a transfer between cost centres. Permitting will contact a member of the finance team to arrange this.

When advertising NRW-own applications the draft licence and determination report will need to be made available to be viewed on request. Therefore, both documents will need to have been QAd (see [section 9.1](#)) beforehand. This will need to be taken in to account when prioritising applications for determination, in order to meet the advertising deadline of **30th June 2021**.

5.2 Statutory notification

Under paragraphs 8 and 9 of the schedules to the Transitional Regulations 2017, NRW is required to notify the organisations listed below. All relevant organisations must be notified of the application by **30th June 2021**. The WR Permitting NA lead is responsible for managing the timetable for determination and ensuring all notices are served by the 30th June 2021 deadline.

Organisation / function	Notes on organisation	When to notify
Internal Drainage Board (IDB)	Internal Drainage District (IDD) functions in Wales are now carried out by NRW	If the application is advertised, and where the abstraction point (surface water only) lies within the IDD.
Navigation Authority e.g. Canal and Rivers Trust (CRT)	Section 221(1) of the Water Resources Act 1991 defines “navigation authority” as any person who has a duty or power under any enactment to work, maintain, conserve, improve or control any canal or other inland navigation, navigable river, estuary, harbour or dock”.	If the application is advertised, and where the authority's functions relate to any inland waters ¹ where the abstraction is located.
Harbour Authority (HA) e.g. Cardiff Harbour Authority	Section 221(1) of the Water Resources Act 1991 defines “harbour authority as a person who is a harbour authority [as defined in section 151 for the purpose of Chapter II of Part VI of the Merchant Shipping Act 1995] and is not a navigation authority”.	
Conservancy Authority (CA)	Section 221(1) of the Water Resources Act 1991 defines a conservancy authority as “any person who has a duty	

¹ The definition of ‘Inland Waters’ only refers to surface water sources. However, to be consistent with our standard licensing process, we have extended this requirement to ground water abstractions where there is potential connectivity to surface water.

Organisation / function	Notes on organisation	When to notify
	or power under any enactment to conserve, maintain or improve the navigation of a tidal water and is not a navigation authority or harbour authority”	
Statutory Water Undertaker (SWU) e.g. Dŵr Cymru		If the application is advertised, and within whose appointed area the abstraction is occurring.
National Park Authorities (NPA)	The following National Parks are located in Wales: Brecon Beacons Snowdonia Pembrokeshire	Regardless of whether application is advertised and if the abstraction is located in the area of a National Park.
The Broads Authority	Norfolk or Suffolk Broads - Not applicable in Wales	

Note, if the applicant is one of the organisations listed above, then it is not necessary to serve (a copy of the) notice.

Once the relevant notifiable organisations have been identified, the notification cover letter should be drafted using the [Statutory Notification letter template](#). A copy of the press notice (advert) should be enclosed with the letter.

! Important Notification to the relevant organisation must arrive before or on the same day the notice / advert appears in the local newspaper and on our website. The press notice, web advert and notice must be all be dated with the same date.

Where there is a need to notify an organisation regarding a large number of applications, a ‘bulk’ notification may be sent. The WR Permitting NA lead will advise on this as necessary and provide amended templates where required.

After sending the notice to the relevant organisations we may receive requests from them for further information. All requests should be responded to promptly so as not to delay the determination process.

Most relevant notifiable organisations will be required to respond within the period specified in the notice (within 28 days). However, under paragraph 9 of the of the schedule to the Transitional Regulations 2017, National Park Authorities have up to 3 months to respond¹. As above, the WR Permitting NA lead will coordinate consultation with the National Park Authorities to ensure no unnecessary delays to the determination process.

5.3 Applications of High Public Interest (HPI)

As outlined within NRW’s [Regulatory Public Participation Statement](#) (RPPS), for some applications, if we consider there is, or is likely to be, a high degree of public interest it may

¹ Under section 9 (parag 3) of the schedule to the Transitional Regulations 2017 the National Park authority may make representations in writing to within three months, beginning on the date on which the notice is served.

be appropriate to take additional communication and engagement activities to raise awareness of the application and the opportunity to participate in our decision making by responding to the consultation. Options can include an extended period of consultation and offering a public drop-in session, the purpose of which is to help facilitate informed consultation responses. As with the advertising decision itself, the decision to treat an application as HPI should be considered against the need to manage expectations under our statutory obligations and the light-touch, risk-based NA policy approach. The HPI process could be used to explain the two-step policy approach of first bringing in abstractions to the licensing system and secondly addressing any sustainability issues under existing work processes such as the Renewals or RSA programme.

As outlined in [section 2.2](#), the NA panel will agree which, if any, applications are likely to be HPI as part of the risk and prioritisation scores and the decision will be recorded in Column DV of the [NA Screening spreadsheet](#).

6. Dealing with consultation responses and representations

All consultation response / representations are 'valid' if they are made in writing and received before the end of the consultation / public notice period. However, for a response or a representation to have a material effect on the licensing outcome, it will need to be supported by **specific technical / scientific** evidence.

Any issues raised through the consultation and advertising process will need to be considered and if possible, resolved as part of the determination in line with the intentions of the Transitional Regulations 2017 and NA policy. Where we are able to address via the NA determination process, in most cases, it is expected that issues raised will be resolved through further discussion / the inclusion of standard licence conditions where relevant. However, in some cases, it may be necessary to curtail the abstraction, through the inclusion of bespoke licence conditions, or in rare cases, refuse the application.

Any response that suggests the inclusion of bespoke licence conditions or refusal of an application will need to be flagged to the NA Panel, via the WR Permitting NA lead to ensure the decision is in line with NA legislation and policy, as these decisions are likely to trigger the appeals and / or compensation processes (see [Part C](#)). If the concerns have been raised by an internal consultee, they will need to be advised that they may be expected to give evidence at any subsequent appeal hearing.

6.1 Update records

Consultation responses, representations and any subsequent correspondence / information submitted will need to be saved to the application case file on the DMS. Any issues raised and the outcomes of further discussion / work carried out will also need to be recorded and summarised in the determination report.

6.2 Responding to representations

If any representations are received the permitting officer should use the [NA Acknowledgement letter to representee template](#) to acknowledge receipt of the representation and the likely determination date of the application. The letter should include a copy of the [‘Making Your Views Count’ fact sheet](#) that explains in more detail what will happen to any representation and how we will handle it.

Once a licence has been issued / refused, a response should be sent to any representations received notifying them of our decision. Depending on the issues raised, a standard response letter ([granted](#) / [refusal](#)) may be sufficient or more bespoke text may be required. For further advice, contact the WR Permitting NA lead.

If the application is refused (see [section 9.4](#)) or attracts significant opposition, a [decision statement](#) will need to be drafted and published on our website. A link to the decision statement will need to be included in the response letters.

Further information on writing and publishing decisions statements is available in legacy Operational Instruction 378_03 How to publish abstraction licence decision statements to the internet.

6.3 Update the applicant

Once the consultation and advertising process is complete, the WR Permitting officer should contact the applicant to update them on the progress of their application and any updates regarding likely timescales for determination.

At this stage, POs should make applicants aware of any potential licensing decisions likely to affect their operation (i.e. refusal or curtailment). Where there is a likelihood of challenge or appeal, the PO should discuss the concerns with the applicant to allow them an opportunity to understand the requirement and if possible, resolve any issues or queries.

Where there is any indication that the applicant was likely to disagree with the determination decision, this should be escalated via the WR Permitting NA lead early on in the process.

6.3.1 Requests for further information

The internal and external consultation process may in some cases, highlight further information is required before the issue can be resolved. If a hydrological / hydrogeological impact assessment is required, then internal consultees must specify the scope of any impact assessment. Generally, the onus will be on the applicant to carry out any necessary investigations and provide any additional information required e.g. hydrometric monitoring, hydrology / hydrogeological investigation, ecological survey, as determined by internal consultees. It is important that the applicant is notified of the need to provide further information as soon as possible to allow them to submit it with enough time for it to be considered within the determination period¹.

In line with the light-touch, risk-based policy approach existing information should be used where available (e.g. hydrometric or hydrogeological assessments) and additional information should only be requested in exceptional circumstances. Generally, we only expect to request additional information for moderate or high-scoring sites (see [section 2.1](#)). Examples of further information that may be requested include details of abstraction structures; any information required to assess risk of serious damage and / or to complete HRA / Appendix 4 / WFD Regulations Compliance Assessments. Please discuss any requests for additional information with the WR Permitting NA lead before contacting the applicant.

¹ The Schedule to the Transitional Regulations 2017 (Part 2, parag 6 (Provision of additional information in support of the application) states that "The appropriate agency may, following receipt of a valid application, require the applicant to submit any further information or reports that it considers necessary to determine that application".

Once the additional information has been submitted, it will need to be reviewed by the relevant consultees in order to assess if the issues have been adequately resolved.

Where information is not submitted in time to be considered within the statutory determination period (1st January 2020 – 31st December 2022), applications will need to be determined on the best available information, which could result in a less favourable outcome for the applicant. Such cases should be discussed with the WR Permitting NA lead at the earliest opportunity.

7. Prepare determination report and supporting assessments

The purpose of the determination report and any supporting assessments is to:

- justify the decision on an application and to show how it has been reached in a reasoned, logical way;
- demonstrate that in determining this application, NRW have acted in a way that is logical, robust and consistent with the Transitional Regulations 2017 and NA policy, as well as our wider legislative duties;
- provide an audit trail for any decisions made, especially where applications are curtailed or refused.

Permitting officers should draft the determination report using the [NA determination report template](#). Information regarding templates for other supporting assessments is provided in the relevant sections below.

Remember that determination reports and supporting assessments are in the public domain. They can legitimately contain statements of opinion about the application, but it must not comment on the applicant (unless this is relevant to the assessment of the proposals and their determination e.g. their status as a navigation authority).

Guidance on the specific issues that need to be considered within the determination report, and when further assessment may be required, is provided below. For more general guidance on [writing determination reports see legacy Operational Instruction 314 10 “Determining water resources licence applications”](#).

7.1 Eligibility to apply

[To be eligible to apply for a transitional licence, the applicant has to demonstrate they meet the three eligibility criteria outlined in sections 7.1.1 - 7.1.3 below.](#)

The eligibility criteria will have been checked as part of the validation process and recorded in the validation checklist saved to the application case file on the DMS, as detailed in [OGN 069: Validation of transitional provisions water abstraction licence applications](#).

The eligibility to apply will also need to be documented in the determination report, as detailed below.

7.1.1 Right of access

The applicant is required to demonstrate that they have a legal right of access to the point of abstraction¹ e.g. they are the 'owner' or 'occupier' of the land the abstraction is located on.

If during determination concerns are raised regarding whether the applicant has a legal right of access, it may be necessary to request further information from the applicant e.g. lease agreements. It is also worth considering the need to advertise the application to check for any opposition to the claimed right of access. In these situations, the WR Permitting NA lead should be consulted on the best way to proceed.

7.1.2 Abstraction for a previously exempt purpose

The abstraction must be for a previously exempt purpose or be located within a previously exempt groundwater or surface water area (see Part A, [section 2.3](#)).

If during determination concerns regarding the previous exemption are raised, it may be necessary to request further information from the applicant e.g. copies of any relevant pieces of legislation, details on site operation. In these situations, the WR Permitting NA lead should be consulted on the best way to proceed.

7.1.3 Evidence of abstraction during 'qualifying period'

As part of the transitional licence application, applicants were required to submit evidence to demonstrate the quantities of water abstracted and when the abstraction took place during the seven year 'qualifying period'.

The 2017 Government response states that the Regulator is expected to be flexible in considering what evidence is suitable to support applications. Examples of evidence include meter readings, pump specification details, agricultural records, sales information or business contracts. [Guidance](#) was published to our website, providing further advice on the types of evidence that could be submitted to support this requirement.

The determination report will need to explain how the evidence submitted demonstrates the following:

- the **quantities** of water abstracted;
- the **method** of abstraction;
- how the abstraction quantities have been **measured** or **assessed**;
- the quantities were abstracted during the seven-year '**qualifying period**'; and
- **when** the abstraction took place in any given year i.e. the period of abstraction

Where weir / pipe dimensions or calculations, structure drawings, pump capacity / ratings etc. have been submitted to support this requirement, Hydrology / Geoscience will need to verify the abstraction quantities applied for. If there are any discrepancies or concerns regarding the quantities applied for, it may be necessary to request further information from the applicant e.g. clarification on meter readings, pump capacity etc. In these situations, the WR Permitting NA lead should be consulted on the best way to proceed.

If the applicant requires more water than can be demonstrated through their evidence, even if this is for only part of the year, they are required to submit an additional standard licence

¹ Water Resources Act 1991 (as amended by the Water Act 2003), section 35

application for the extra quantities. As noted in Part A, [section 2.3](#), it may be possible / desirable to determine both the transitional and standard licence application together.

7.2 Effective dates

Under Section 46 (5) Water Resources Act 1991, all licences must state the date from which they take effect. In all cases, effective dates should be no later than 31/12/2022, to coincide with the determination window deadline.

The effective date of a licence should be the same as the issue date. However, there may be some circumstances (e.g. to allow Licence Holders time to implement any necessary changes needed to comply with licence condition(s), such as installing metering equipment or a gauge board) where consideration can be given to applying a later effective date to specific licence conditions (e.g. metering or HoF conditions). Any necessary changes will need to be secured as soon as reasonably practicable, although in some cases, it may be appropriate to consider an effective date that fits with other planned changes

POs should liaise with applicants as early as possible to allow them an opportunity to consider any conditions where a later effective date may be applicable, and to discuss the potential timescales required to implement any changes required. Applicants will be required to provide robust justification as to why a later effective date is required, which should be shared with the NA panel for consideration, and local compliance team, and detailed within the determination report.

In the case of abstraction impacting on a designated site (see [section 7.10](#)), we are required to address any actual or potential adverse effects at the point of grant¹, which must be by 31st December 2022 at the latest. Therefore, we cannot issue a licence on the basis of mitigation at a later date i.e. with a future effective date. This may mean a licence refusal or initially issuing a licence with the same issue and effective dates and appropriate conditions that curtail the historic abstraction to prevent any actual or potential adverse effect on the site. Options to licence the mitigation / solution may include the issuing of a transitional licence with two schedules (first schedule with the same issue and effective dates curtailing abstraction to prevent adverse impact and second schedule authorising the mitigation/solution by a future effective date) or a future variation of any transitional licence issued via the standard application route.

Each application should be considered on a case by case basis with the NA Panel to allow all information (e.g. condition details, timescales to implement mitigation measures) to be taken into account to ensure the best regulatory approach is adopted.

7.3 Licence duration

Section 46 of the Water Resources Act 1991 (as amended by Section 19 of the Water Act 2003) requires all licences, including transitional licences, to state the date on which they expire. For further information please refer to the draft OGNs [Applying time limits to abstraction licences](#) (internal) and [Long Duration Licences](#) (external).

7.3.1 Normal duration

As set out in the 2017 Government response, the intention is for the Regulator to grant transitional licences with a time limit to the relevant catchment common end date (CED) in

¹ Regulation 63 (5) of the Habitats Regulations is clear that we must be satisfied as to the effects of continued abstraction on site **before** granting a licence.

line with its published licensing position for the catchment - see [Appendix E](#). Once within the licensing system, these abstractions will be treated like other existing licensed abstractors.

Determination timescales will need to take account of common end dates to ensure licences can be reviewed at the earliest opportunity i.e. to prevent 'skipping end dates'¹.

7.3.2 Short duration

Shorter time limits should not generally be applied to Transitional licences. Applying shorter time limits is not part of NA Policy as set out in the Government response document and NRW may be liable to pay compensation in this situation (see [Part C, section 2](#)). Therefore if consideration is being given to a short duration time limit it should be raised via the WR Permitting NA lead and escalated to NA Panel for agreement and compensation risk assessment (see [Part C, section 2.3](#)).

7.3.3 Long duration

The 2017 Government response states that in exceptional circumstances, the Regulator may issue long duration licences (LDLs), which can be granted for up to 24 years, if certain tests are met. However, no LDL applications were received by NRW under the Transitional Regulations 2017 so will not be considered as part of the NA application process.

7.3.4 Variations

There are specific rules on how time limits are applied to variations of existing licences. Generally, the relevant time limit (as outlined above) should be applied to the variation only, unless the variation cuts across the whole licence, in which case, the time limit should be applied the whole licence. In these situations, the WR Permitting NA lead should be consulted on the best way to proceed.

7.4 Abstraction location(s)

The abstraction location(s) will have been confirmed as part of the validation checks and recorded in the application case file on the DMS. As detailed in [section 3](#), in order for the application to be considered under the transitional licence application process, there can be no significant change to the abstraction location(s) during the 'qualifying period' and the abstraction location(s) specified on the licence document.

Any licence issued can only relate to a single source of supply. However, the 2017 Government response states that the Regulator is expected to license abstractions in a way that minimises the need for multiple licences or licence variations. For example, in the case of quarries, the existing worked area could be referred to as the point(s) of abstraction. In these situations, the abstraction location specified on a licence should be agreed with the WR Permitting NA lead and NA panel.

7.5 Abstraction period

The abstraction period included on any licence issued should reflect the evidence submitted as part of the application. For example, if the evidence shows that abstraction in the 'qualifying period' only occurred during the summer months, the abstraction period should specify those months.

¹ When a licence application is made within six years of the CED we will generally apply the next CED to any licence granted. If there are sustainability issues identified with an abstraction that can't be addressed at the determination stage, then we would look to address ahead of the catchment CED. Therefore, where possible, we would want to avoid skipping to the next common end date to ensure the sustainability issues are addressed sooner rather than later.

There may be situations where abstraction may have only started or changed late in the 'qualifying period' e.g. from August to December 2017. In these instances, the licence document will need to apply different abstraction periods to different volumes, points and / or purposes. If the applicant wishes to have a licence which reflects the recently changed abstraction all year, they will need to apply for the additional volumes, points and / or purposes via the standard licensing application route.

7.6 Abstraction quantities

Under section 46(2) of the WRA 1991 all full abstraction licences must specify the quantity of water authorised for abstraction. On transfer licences these provisions are optional.

The NA policy intention is to "maintain the status quo" by issuing licences in line with the abstraction rates evidenced during the seven year 'qualifying period'.

As part of the validation checks the abstraction quantities applied for and the evidence provided to support these quantities would have been checked (see [section 7.1.3](#)). The determination report will need to demonstrate the quantities applied for have been evidenced.

Any concerns or queries regarding abstraction quantities applied for should have been flagged during the screening consultation ([section 1](#)). In these situations, further work may be needed to determine the appropriate volume conditions to be included on any licences issued.

Some examples are provided in the table below.

Scenario	Volume conditions (required on all full licences, optional on transfer licences)
An applicant has provided evidence showing that a pump has been run for 24 hours per day at maximum capacity all year.	Specify instantaneous, daily and annual quantities (based on 365 days usage).
An applicant has provided daily estimates based on number of cattle	Specify daily and annual quantities only. Annual quantity to be calculated in line with maximum numbers of days usage evidenced.
An applicant has applied for a daily rate of 50 cubic metres but was only able to demonstrate that abstraction took place for 200 days within a year.	The maximum annual quantity should be limited to 10,000 cubic metres (50 cubic metres x 200 days) restricted to the season/months that abstraction took place during the qualifying period.
An applicant has abstracted from multiple points / for multiple purposes.	Licence should specify individual maximum quantities for each abstraction point, and / or a maximum aggregated quantity across all / a combination of some points. To be agreed with SPO and if necessary, NA Panel.
An applicant has specified 3 abstraction boreholes (A, B and C), however, the evidence suggests that only points A and B or points A and C	Maximum quantities to be specified for each individual borehole (if available), however a maximum aggregated quantity should also be included to reflect the total maximum quantity

Scenario	Volume conditions (required on all full licences, optional on transfer licences)
were used simultaneously within the 'qualifying period'.	of water taken from points A and B and A and C in any given year, rather than the total maximum quantity of water taken from points A, B and C at different points throughout the qualifying period.
An applicant has specified 2 abstraction points (A and B), but only abstraction from point B has potential to impact designated site.	If the licence only includes a maximum aggregated quantity across all points, the abstractor would be able to take more water than evidenced from the point most likely to impact the designated site (point B), which may change the impact on the site. In this scenario, if the impact from point B is considered to be Serious Damage, the licence will need to specify the maximum annual quantity for point B and point A or specify a maximum for point B and a maximum aggregate quantity for both points.
Applicant has requested lower quantities to be licensed than their evidenced abstraction rates	Quantities should be confirmed with the applicant before any licence is issued. Applicants should be made aware that if they wish to increase their quantities in the future, they will need to apply to vary their licence through our standard licensing process.

The scenarios and licensing options above are not exhaustive but are provided to demonstrate what sort of issues may need to be considered when determining volume conditions.

Conditions regarding quantities will need to be determined on a case by case basis, taking into account the evidence provided, the operation of the site and potential impacts. Where necessary, condition wording should be agreed with the WR Permitting NA lead and NA panel.

7.6.1 Regulator discretion – transfer licences

It is recognised that in some cases, abstraction is difficult to control, for example in the case of water transfers. In addition, adding volume limits does not always reduce environmental risk and may add unnecessary burden to the applicant or NRW's compliance and enforcement requirements. Therefore the 2017 Government response states that the Regulator will have flexibility on the inclusion of volume conditions on transfer licences. It goes on to say that the final decision on whether to do so should be proportionate, reflecting environmental risk, impacts on other abstractors and the burdens it places on the abstractor. In situations where there are satisfactory alternative ways to control the abstraction it is expected that the Regulator uses a licensing approach that minimises regulatory burdens on the abstractor. For example, conditions could include details of the abstraction structure, which would prevent changes to that structure to allow increased abstraction. Such situations should be discussed with the WR Permitting NA

lead at the earliest opportunity so that abstractors can be made aware of any necessary additional requirements to control abstractions at the earliest opportunity.

7.7 Measurement, recording and reporting requirements

Under section 46(2) of the WRA 1991 all full abstraction licences must include provisions for the measurement or assessment of the actual volume of water abstracted. On transfer licences these provisions are only required where abstraction volumes are included within the licence conditions. Abstractors with these licence conditions are required to submit details of the volumes of water abstracted, which are known as 'abstraction returns. As well as helping to check compliance, abstraction returns are also required to assess water availability, the impact of abstractions on the environment and the current and future demands for water.

Measurement and assessment conditions should be appropriate to the environmental risk and operation of the abstraction. Metering should be the approach adopted where available but where not available consideration can be given to alternative means of assessment/measurement. For example, in the case of a dairy farm a condition could be included requiring the licence holder to provide a record for the number of cattle and multiply

this by an agreed abstraction figure (based on the Optimum Use Guide in [Appendix F](#)). Alternatively, a condition could be included requiring the licence holder to record and report on pumping hours multiplied by pump capacity. This is in line with what has been accepted as evidence of abstraction quantities as part of the application and validation process, as per the [evidence guidance](#) published on our website¹.

Where volumes have been specified per purpose / point, the abstraction should be measured separately.

Recording and reporting frequency requirements for transitional licences should be in line with those applied to standard licences, as per the table in [Appendix G](#).

Abstraction quantities and measurement and recording conditions **should be determined on a case by case basis** and approved by the WR Permitting NA lead where necessary.

Further information on reporting and recording requirements can be found in Legacy Operational Instruction [056 08 Operator returns for Water Resources](#) and the legacy [Abstraction Metering Good Practice Manual](#).

7.8 Discharge condition

A point of return or discharge condition should be included on the licence where:

- some or all of the water abstracted is discharged back to the environment e.g. for applications involving large transfers of water such as dewatering;
- there is a need to protect the environment or to manage water resources;
- there is a need to ensure abstraction is licensed in line with the operation during the qualifying period.

Where possible the proportion / quantity of water to be discharged back to the environment should be specified, provided it is in line with the operation during the qualifying period.

¹ Web page has now been removed. Link is to copy of guidance note saved on DMS

Even where an Environmental permit for a water discharge activity or groundwater activity is already used to control the return of water from an abstraction, then the point of return and minimum volume to be discharged back to the environment should still be included on any abstraction licence issued¹. This is because an Environmental permit will usually only specify a maximum that can be returned, whereas in the case of an abstraction licence, we need to ensure a minimum amount is returned to the environment.

7.9 The WFD Regulations 2017

In line with the draft [OGN 072 'assessing activities and projects for compliance with the Water Framework Directive'](#) we have a duty to ensure compliance with the requirements of the WFD Regulations 2017 when determining transitional licence applications.

When considering compliance with the WFD Regulations 2017, consideration should be given to the following:

- abstraction quantities will be licensed based on historic use, so licensing them will not change river flows or groundwater levels or cause deterioration in WFD water body status.
- In most cases NA abstractions have been ongoing for many years, any impacts of the abstraction may already be reflected in WFD ecological data.
- where appropriate, NA abstractions will be subject to basic Hands-off Flow conditions (see [section 7.15](#)), meaning that low flows will be protected and the abstraction will no longer be contributing to / causing the flow compliance failure at low flows.
- moving previously exempt abstractions into the licensing system is considered a first step to move towards sustainable abstraction and will allow them to be reviewed / addressed through future sustainability review processes.

On this basis, the following approach to undertaking WFD Regulations 2017 compliance assessments for NA applications has been agreed:

Application score (see section 2)	Approach
Low	<ul style="list-style-type: none"> • In line with the approach set out in Annex D of OGN 72 for green activities, the application can be screened out from further WFD Regulations 2017 compliance assessment. • Licensed abstraction quantities will be based on historic use, so licensing them will not change river flows or groundwater levels or cause deterioration in WFD water body status. • The 75% of Qn99 HoF recommended in the 2017 Government Response to protect lowest (drought) flows is not considered appropriate for the reasons outlined in section 7.15. • Licence to be reviewed through future sustainability review processes.
Medium / High	<ul style="list-style-type: none"> • In line with the approach set out in Annex D of OGN 72 for amber activities, the application should be reviewed as part of the further consultation stage (see section 4) to determine if further scoping / detailed assessment will be required under WFD Regulations 2017. • In the first instance, the consultation should ask Hydrology / Geoscience to confirm the requirement for further scoping / detailed assessment, depending on whether the abstraction is from surface water or

¹ It is not necessary to reference the Environmental permit within the licence document. It is considered sufficient to ensure the licence conditions correspond with the conditions of the permit. The Environmental permit should be referred to in the licence determination report where relevant.

Application score (see section 2)	Approach
	<p>groundwater respectively. Other functions such as geomorphology, fisheries and biodiversity should be consulted if the need for further scoping / detailed assessment is confirmed.</p> <ul style="list-style-type: none"> • Licensed abstraction quantities will be based on historic use, so licensing them will not change river flows or groundwater levels or cause deterioration in WFD water body status. • A Qn95 or bespoke¹ HoF will be applied where beneficial to the environment, meaning that low flows are protected, and the licensing of the abstraction will not be contributing or causing the flow compliance failure at low flows. • Licence to be reviewed through future sustainability review processes.

Where no WFD compliance assessment is required, **all decisions must be recorded within the determination report**. Where WFD compliance assessment has been completed, this should be saved to the application case file on the DMS and referenced within the determination report.

7.10 Impacts on designated sites

Any applications with the potential for impacts upon designated sites (e.g. SACs, SSSIs) will have been identified at the screening stage (see [section 1](#)). Where there is risk of the site being affected by the abstraction (e.g. features of the site are water dependent), further assessment will be required.

The type of assessment to be completed will depend on the nature of the designation, as follows:

- [Habitats Regulation Assessment](#) - for any applications with the potential to impact on Habitats and Species Regulations 2017 National Site Network of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), and also Ramsar sites.
- [Appendix 4](#) – for any applications with the potential to impact Sites of Special Scientific Interest (SSSI).
- [Appendix 5](#) – for any application with the potential to impact AONBs.
- For any other designations identified through screening (e.g. SINCs), it may be necessary to undertake further consultation (see [section 4](#)) and document within the relevant section of the [determination report](#).

The conclusions of any assessments will also need to be summarised within the relevant section of the [determination report](#).

Where possible, bulk assessments should be carried out. For example, where there are multiple applications potentially impacting upon the same designated site. This will help ensure efficiencies as well as satisfying requirement for in-combination assessment. The WR Permitting NA lead will be responsible for organising this process and identifying any sites which can be included in bulk assessments. Individual assessment will be required where bulk assessments are not possible / considered any more efficient.

¹ If considered serious damage or has the potential to impact on a designated site.

As NA abstractions have been ongoing, there may be some cases where an Appendix 4 / HRA has already been completed, albeit in relation to a differing permission e.g. in the case of planning applications for quarry operations or for EPR permit applications. In these cases, WR Permitting will still be responsible for completing its own assessment, however it may be possible to draw on the existing work and conclusions to avoid duplication of effort and ensure consistent decision-making where possible. NRW would need to be satisfied that the prevailing conditions had not changed since original assessment had been completed.

Generally, the WR Permitting team have responsibility for carrying out the assessment. The Environment team responsible for the designated site concerned should be consulted in order to provide the protected site advice (see [section 4.1](#)). If the designated site is located in England, Natural England should be consulted (see [section 4.2.2](#)). Input from other relevant teams should be sought where necessary. Whilst the WR Permitting team should have regard to the advice of the consultees the decision on the HRA / Appendix 4 lies with the WR Permitting team.

For transitional licence applications requiring an HRA / Appendix 4 assessments, the possible licensing outcomes are summarised as follows:

Scenario	Licensing outcome
Confirmed no adverse effect	Licences to be granted with basic HoFs (see section 7.15) / standard conditions, where required.
Unable to conclude no adverse effect / Proven adverse effect - sites designated under Habitats Regulations 2017	<p>Serious damage is considered to apply where there is a proven adverse effect or where we are unable to conclude no adverse effect (i.e. the precautionary principle applies – see section 7.10.1).</p> <p>In these cases an additional Serious Damage assessment is not required (see section 7.11) and the abstraction can be curtailed / application refused without compensation (see Part C, section 2).</p> <p>The determination report will need to refer to the HRA and make clear that refusal / curtailment is required to protect against serious damage.</p>
Unable to conclude no adverse effect / Proven adverse effect – other designated sites	<p>Serious damage is only considered to apply when there is a proven adverse effect, specifically as a result of the NA abstraction.</p> <p>In these cases a serious damage assessment will be required to demonstrate that serious damage is occurring (see section 7.11). This will allow us to curtail an abstraction / refuse an application without compensation (see Part C, section 2).</p>

Scenario	Licensing outcome
	<p>The determination report will need to refer to the serious damage assessment and make clear that refusal / curtailment is required to protect against serious damage.</p> <p>If we are unable to prove an adverse impact / we cannot demonstrate serious damage it may still be necessary to curtail an abstraction / refuse an application but in these cases compensation may be payable (see Part C, section 2.1). Such situations should be discussed with the lead SPO at the earliest opportunity.</p> <p>Where abstractions are not curtailed / applications are not refused, licences should be issued with basic HoFs / standard conditions, where required, and will be subject to future sustainability review processes.</p>

Further advice on completing HRAs can be found in the [Operational Guidance Note 200: Habitats Regulations Assessments of Projects](#). For Appendix 4s please refer to legacy Operational Instruction [226 10 “Screening and assessing new water resources permissions for impacts on conservation, heritage and landscape”](#).

7.10.1 Habitats Regulations – precautionary principle

If an abstraction is within or has the potential to impact on a designated SAC¹ we must apply the ‘precautionary principle’. This means that if we are unable to demonstrate no adverse effect (actual or potential) on the SAC integrity then any relevant conditions to protect the SAC should be applied, or in certain circumstances the application should be refused. The ‘precautionary principle’ applies unless robust evidence can be provided which demonstrates no adverse effect.

7.10.2 Habitats Regulations – mitigation measures

In 2018 a ruling in the Court of Justice of the European Union raised fundamental questions about the screening of plans and projects under the Habitats Regulations. For standard licence applications this means that mitigation measures cannot usually be considered when screening for a likely significant effect (LSE).

For transitional licence applications, the basic HoFs described in [section 7.15](#) are not considered specific measures to protect a site designated under Habitats Regulations, and can therefore be considered within the screening stage. However, any other conditions (including bespoke HoFs) considered necessary to protect a designated site cannot be included within the screening stage and therefore, the appropriate assessment to determine whether such measures are adequate must be carried out in full.

¹ For example, where an abstraction is from or in connectivity with a watercourse where flow is a supporting element to a SAC (including tributaries of a riverine SAC not designated) or a designated wetland.

7.10.3 Habitats Regulations - imperative reasons of overriding public interest (IROPI)

In some cases, there may be no options to enable a conclusion of no adverse effect to be reached. In these situations, the applicant can request that consideration be given to whether IROPI applies. For IROPI to apply, NRW would need to be satisfied that the imperative reasons in the public interest would override the harm to the site that had been identified.

Permitting officers should notify the WR Permitting NA lead as soon as they think IROPI may be applicable to an application.

In practice, the IROPI process is led by the applicant, who would need to demonstrate the following:

- i) there are no feasible alternatives that would deliver the same overall objective;
- ii) there are “imperative reasons of overriding public interest” (IROPI) for the plan or project to proceed;
- iii) any necessary compensatory measures being taken.

It is for the applicant to provide sufficient information for NRW to make a decision. Primarily, we would need to consider reasons relating to human health, public safety, or beneficial consequences of primary importance to the environment. If the site does not host priority habitat or species, NRW can also consider other reasons including those relating to social or economic benefit.

There is a requirement for NRW to notify Welsh Government at least 21 days before making the decision. NRW need to provide Welsh Government with sufficient information to make the IROPI case. NRW cannot agree to a decision until 21 days have elapsed since the notification, unless directed to do so by Welsh Government. Therefore, it is recommended that the applicant would need to notify NRW of their intention to pursue IROPI by June 2022 at the latest to allow sufficient time to complete the above process and licence determinations based on the direction from Welsh Government. However, to enable discussions around what form the compensatory measures might take, applicants should engage in discussions with NRW and Welsh Government as early as possible. It should be noted that this process may be considered too onerous for many applicants and the chances of success are not certain.

7.10.4 Work prioritisation

The requirement for Appendix 4 or HRA assessments will be taken in to account when applications are prioritised for determination (see [section 2.2](#)). Where these requirements only become apparent later in the determination process, prioritisation timescales will be reviewed and revised if necessary.

7.10.5 Update the applicant

Where screening or consultation suggests that Appendix 4 or HRA assessments are required the applicant should be notified as early as possible. It is important to keep the applicant informed of the process and possible implications, including any additional information that they may need to provide or alternative options they may need to consider. However, correspondence should be worded carefully, in order to avoid pre-determination of the licence application. For further advice, discuss with the WR Permitting NA lead.

7.11 Serious damage

Under the 2017 Government response and Transitional Regulations 2017¹ applications will *only be significantly curtailed or refused* to protect the environment from ‘serious damage’.

The principles of serious damage are set out in the [2012 consultation and the Government response](#) on the issue. This sets out the following three key principles against which to assess whether the damage is serious:

- Establishing the qualitative nature of the damage - this describes why what is being damaged is considered important – it can be the status of a river or the designation of a habitat or population.
- Establishing the extent and magnitude of the damage - this describes the physical scale of the damage (i.e., area of water or habitat).
- Establishing if the damage is reversible and how long recovery may take - this describes whether the damage is temporary or whether more lasting effects are expected

Further detail on these principles and how they can be assessed is available in the legacy [Operational Instruction 1473 12 “Serious damage from abstraction \(Section 27 of the Water Act 2003\)”](#).

It is not possible to provide a definitive list of impacts that constitute serious damage. Each case will be different, and many factors will need to be considered to determine the impact on the environment. However, under the Transitional application process, the following scenarios are considered likely to meet the serious damage criteria:

Scenario	Approach
Effects on sites designated under Habitats Regs	In the case of a site designated under Habitats Regs, where an abstraction is affecting, or has the potential to affect it, the 2017 Government Response states that the Regulator will apply the ‘precautionary principle’ in its determination decision of serious damage. This means that an abstraction would be restricted to protect from serious damage where the Regulator has insufficient evidence to conclude that ‘no adverse effects’ to protected sites would be caused. As a result, no additional serious damage assessment required.
Effects on other designated sites.	We only have the ability to curtail an abstraction without compensation (see Part C, section 2) if there is a known, tangible impact to the site/area identified. Serious damage assessment required to demonstrate that serious damage is occurring, specifically as a result of the NA abstraction.
WFD waterbody flow failure (Band 3)	In order for an abstraction to be causing serious damage under WFD Regulations 2017, a water body would need to meet the following 3 criteria: i) Classified as Band 3 non-compliant for flow i.e. they are experiencing severe levels of abstraction

¹ The Transitional Regulations 2017 (Part 3 Provision 9) clarifies compensation eligibility in relation to NA applications.

Scenario	Approach
	<p>pressure causing recent actual flows to fall 50% below the EFl.</p> <p>ii) Have an overall WFD status of less than 'Good'</p> <p>iii) Have the abstraction of water and subsequent low flows confirmed as the reason, or contributing to the reason, for not achieving 'Good Ecological Status'. Serious damage assessment required to demonstrate that serious damage is occurring, specifically as a result of the NA abstraction.</p>

The final decision will be determined on a case by case basis taking into account the weight of evidence across all three principles, as well as the likelihood of serious damage occurring. Any decision must be supported by appropriate evidence. In some cases, it may be necessary to request this from the applicant (see section 7.11.2 below) or to carry out our own investigations.

Before requesting any information or carrying out our own investigations the risk / likelihood of serious damage occurring should have been confirmed with consultees and approved by the WR Permitting NA lead.

As above, serious damage assessments are not required in the case of actual or potential impacts to a site designated under the Habitats Regs. However, the determination report should clearly reference the HRA and summarise the evidence for either curtailing or refusing the application, in order to protect from serious damage.

In other cases (i.e. effects on other designated sites or WFD flow failure) a serious damage assessment form should be completed¹, and should also be summarised within the determination report. The determination report and / or serious damage assessment form must provide the evidence for either curtailing or refusing the application, in order to protect from serious damage. As these cases are likely to be subject to appeal, the assessments must be sufficiently robust to defend the decision to curtail or refuse.

Once the form has been completed, it must be reviewed by the WR Permitting NA lead and NA Panel for consideration. They will review the form with input from relevant colleagues (e.g. legal, Biodiversity / Fisheries Policy) where required and agree on a final recommendation.

Where serious damage is confirmed, abstractions will not benefit from the 'light touch' regulatory approach or be eligible for compensation (see [Part C, section 2](#)). The abstraction must be curtailed, or the application refused, in order to protect the water environment from serious damage.

Where serious damage cannot be confirmed then consideration will need to be given to whether the application is refused or curtailed with risk of compensation (see [Part C, section 2](#)) or if the licence should be determined in accordance with the 'light touch' regulatory approach, and reviewed as part of future sustainability review processes.

¹ OI 1473_12 refers to an assessment form SD01 and example assessments SD02. Speak to the WR Permitting NA lead for these documents.

7.11.1 Work prioritisation

Applications considered to meet the criteria of serious damage must be prioritised to deliver environmental benefits to the most damaged, or at risk, sites as early as possible. This will be taken into account when applications are prioritised for determination (see [section 2.2](#)). Where serious damage only becomes apparent later in the determination process, prioritisation timescales will be reviewed and revised if necessary. Formal assessments of serious damage must be carried out at the earliest opportunity.

7.11.2 Update the applicant

Where abstractions have been identified as causing potential serious damage, it is important to be engaged with applicants as early as possible. In the first instance permitting officers should work with applicants to see if alternative options are possible. POs should also ensure applicants understand any potential licensing decisions (i.e. refusal or curtailment). They should allow applicants an opportunity to discuss any concerns and if possible, resolve any issues or queries. It may be appropriate to share a draft copy of the licence with the applicant prior to licence issue. However, correspondence should be worded carefully, in order to avoid pre-determination of the licence application.

Where there is a likelihood of challenge or appeal, this should have been escalated via the WR Permitting NA lead early on in the process.

Permitting officers should also contact applicants at the earliest stage to request any additional information that may be required to determine the application.

For further advice on updating applicants, discuss with the WR Permitting NA lead.

7.12 Cumulative impacts

Screening / consultation may have identified potential cumulative impacts e.g. how an NA activity could potentially be acting in combination with other ongoing or proposed activities. These will have been captured in the [NA screening spreadsheet](#) and will need to be investigated and documented fully in the determination report and any associated WFD Regulations 2017 / HRA / Appendix 4 / serious damage assessment, using expert and local knowledge where available.

Where a number of abstractions, including already licensed and previously exempt activities, are acting in combination, it will be necessary to establish the impact of the NA abstraction. If there is no clear evidence of the impact of this, it is unlikely that the abstraction can be curtailed / application can be refused, unless in the case of serious damage (see [section 7.11](#)).

7.13 Protected rights and lawful uses

A protected right is a right to abstract, for example, under a full abstraction licence or a deregulated abstraction¹. The right protects the quantity of water that can be abstracted.

¹ small abstractions of less than 20 cubic metres per day were removed from water resource regulation as of 1 April 2005 and do not require an abstraction licence. Those persons who held a licence to abstract less than 20 m³/day at the time of the deregulation, retained their protected right status until such time as the licence was revoked or a new abstractor succeeded to the licence.

A lawful use is a use of water that does not have a protected right but is a legal use e.g. abstraction under a transfer or temporary licence or an abstraction exempt from licensing controls.

Protected rights and lawful uses are complex legal issues and how they are considered under the transitional determination process differs to how they are considered under the standard licensing process.

Under our standard licensing processes, we may look to mitigate the effects on protected rights or lawful uses. However, for transitional licence applications we need to consider Section 102(5) of the Water Act 2003, which essentially allows us (NRW) to issue licences for previously exempt activities *even if the abstraction is causing derogation or affecting lawful users*. If we were to curtail or refuse a transitional licence application that is potentially derogating a protected right or affecting a lawful use, then compensation may be payable (see [Part C, section 2](#)).

Any claims of impacts on protected rights or lawful uses will need to be supported by specific technical and scientific evidence in order for them to be considered fully during the determination process. All claims will need to be assessed on a case by case basis and documented in the determination report. The determination report will need to address the requirements under the relevant water resources legislation, as well as consideration of the SMNR principles (see Part A, [section 2.5](#) and our website [here](#)). In cases where licences are issued, affected (third) parties may seek to secure compensation through a private claim¹.

If any impacts regarding protected rights or lawful uses are flagged during screening or consultation **it is important to discuss** with the WR Permitting NA lead as early as possible.

7.14 Subsidence and desiccation

When determining transitional licence applications, we may encounter claims for subsidence and desiccation. Geological conditions in Wales means that subsidence and desiccation will be very rare and unlikely to be caused by groundwater abstraction.

If we were to curtail or refuse a transitional licence for potential desiccation or subsidence issues, then compensation may be payable (see [Part C, section 2](#)).

Any claims of subsidence will need to be supported by specific technical and scientific evidence in order for them to be considered fully during the determination process. All claims will need to be assessed on a case by case basis and documented in the determination report. The determination report will need to address the requirements under the relevant water resources legislation, as well as consideration of the SMNR principles (see Part A, [section 2.5](#) and our website [here](#)). In cases where licences are issued, affected (third) parties may seek to secure compensation through a private claim as they were able to prior to the NA exemption removals².

If any claims for subsidence and desiccation are flagged during the determination process **it is important to discuss** with the WR Permitting NA lead as early as possible.

¹ [Under Section 48A Water Resources Act 1991.](#)

² [Under Section 48A Water Resources Act 1991.](#)

7.15 Hands off flow conditions

“Hands off Flow” (HoFs) are conditions attached to abstraction licences which require that if a river flow falls below the threshold specified, the abstraction is to be reduced or stopped.

HoF conditions are used to protect rivers during low flows and at times of drought, and therefore support the objectives of the WFD Regulations 2017 (see Part Am [section 2.1](#) and Part B [section 7.9](#) above).

The [2017 Government response](#) allows NRW as the regulator to have some discretion about the application HoFs to transitional licences¹, using them only where it is sensible to do so, or doing so would not harm the environment e.g. where compensation flow from a reservoir or an existing structure provides a higher flow than would be afforded by the HoF. Therefore, we do not expect HoFs to be applied universally.

NRW’s approach to applying HoFs to transitional licence applications is summarised in the table below.

Scenario	HoF
<ul style="list-style-type: none">Abstraction located in a waterbody where flow is adequate to support GES i.e. Recent Actual flows are above the EFI; andConfirmed no adverse effects on designated sites.	No HoF ²
<ul style="list-style-type: none">Surface water abstraction, or groundwater abstraction in continuity with surface water flows; andlocated in a waterbody where flow is not adequate to support GES i.e. Recent Actual flows are below the EFI.	Basic Qn95 HoF (i.e. natural flow that is exceeded 95% of the time). OR No HoF, if there is no sense in applying one or applying one would cause environmental harm.
<ul style="list-style-type: none">Serious damageEnvironmental damage to a designated site, but where serious damage criteria has not been met (compensation may be payable – see Part C, section 2.1)	Bespoke - to be assessed on a case by case basis

¹ For further detail on the HoFs outlined in the [2017 Government response](#) see [Appendix H](#).

² In line with our regulatory discretion, NRW have made a policy decision **not to apply the 75% of Qn99 HOF** condition (see [Appendix H](#)) to abstractions that are located within WFD waterbodies that are ‘supporting good ecological status’. This is because there is insufficient evidence in Wales that a prescribed flow of 75% of Qn99 would provide any environmental benefit / be likely to result in any improvement to WFD status. Finally, flow gauges are not generally considered to operate reliably at such low flows, and therefore any condition applying this HoF would not meet the legally enforceable aspect of the ‘UNCLE’ test (see [section 8.3](#)).

In some cases, the HoFs applied may be lower than the recommended HoFs detailed in the Abstraction Licensing Strategy (ALS) for that catchment. This is in recognition that these abstractions may have been happening lawfully for many years. The transitional licence is considered to be a “first step to move towards sustainable abstraction”.

In the case of serious damage, or other exceptional circumstances, we are able to grant a more restrictive bespoke HoF (based on local requirements or in-line with the ALS for that catchment), although where serious damage criteria does not apply, applicants may be eligible for compensation (see [section C, part 2](#)).

In line with the light-touch, risk-based policy approach, basic HoF conditions should be linked to an appropriate existing gauging station where possible. This will minimise burden on the applicant and NRW compliance resource. Decisions on the most appropriate gauging station will be made on a case by case basis by the local Hydrologist as part of further consultation. In the absence of an appropriate existing gauging station, local HoFs can be used but this should only be when there is existing data available and the HoF can already be secured or measured via existing infrastructure.

Where bespoke HoFs are required, the light touch approach outlined above may not apply and additional work (e.g. spot flow gauging or infrastructure changes) to determine / secure the HoFs may be required.

All HoF conditions should meet the ‘UNCLE’ test (see [section 8.3](#)). If this is not possible then a HoF condition should not be applied¹. This decision must be approved by the NA permitting lead, in liaison with NA Panel if required, and fully documented in the determination report.

7.15.2 Groundwater abstractions

In Wales there are no groundwater bodies that have poor quantitative status under the WFD Regulations 2017, so the application of HoFs for NA groundwater abstractions will be dependent on whether the groundwater is in connectivity with surface water. If this is the case, HoFs will be applied in line with the table above. “Hands off Level” (HoLs) conditions, based on groundwater levels, can be used instead of a HoF but they must be set so that they afford the same protection on river flows as the identified basic HoF. Decisions on whether it is appropriate to apply a HoF or HoL to a groundwater abstraction will be taken on a case by case basis, in consultation with Geoscience and Hydrology teams.

Where Geoscience have advised potential connectivity between groundwater and surface water flows, Hydrology will also need to review the application to advise whether the groundwater abstraction could be contributing to any surface water flow failures under the WFD Regulations 2017.

During further consultation, WR permitting will need to work with the relevant teams (e.g. Hydrology, Geoscience and People + Places) to agree the appropriate HoF or HoL, if required.

¹ It may be appropriate to notify applicants that under future sustainability review process a HoF may be required and that this may require additional work e.g. spot flow gaugings, infrastructure changes etc.

7.15.3 Update the applicant

Where abstractions have been identified as requiring a HoF condition, it is important to engage with applicants as early as possible. In the first instance permitting officers should liaise with applicants to ensure they understand the potential requirements. They should allow applicants an opportunity to discuss any concerns and if possible, resolve any issues or queries. It may be appropriate to share a draft copy of the licence or HoF condition(s) with the applicant prior to licence issue. POs should also consider discussing timescales an applicant may require for making any necessary changes to their operation so future effective dates can be considered if appropriate (see [section 7.2](#)).

Where there is a likelihood of challenge or appeal, this should have been escalated via the WR Permitting NA lead early on in the process.

Permitting officers should also contact applicants at the earliest stage to request any additional information that may be required to determine the appropriate HoF.

Correspondence should be worded carefully, in order to avoid pre-determination of the licence application. For further advice on updating applicants, discuss with the WR Permitting NA lead.

7.16 Existing legislation and permissions

Some sites may be subject to existing local or historic legislation or permissions such as Canal Acts or planning consents.

Where these are relevant to the NA abstraction, details may have been provided by the applicant to demonstrate how the abstraction is operated in line with the existing legislation e.g. intake structure dimensions. Further information can be requested from the applicant during determination if required. Information may also have been provided internally though the screening and consultation process.

Where appropriate, it is possible to replicate relevant conditions from existing legislation or permissions within transitional licences. For example, in the case quarry dewatering, any water protection requirements previously agreed via planning (e.g. via water management plans) should be replicated within transitional licences.

In some cases, historic abstraction practices may differ from what is stated in existing legislation or permissions. For example, for some canal or port operations the abstraction which has taken place between 2011 – 2017 'qualifying period' may be different to what was authorised by local Acts. In these cases, it is not necessary to mirror the statutory abstraction conditions from existing permissions, and it is considered more appropriate to licence the abstraction as it has been operated within the 'qualifying period'. This is considered in line with existing water resources legislation¹ and NA policy.

Any conditions should be agreed with the relevant local technical team (e.g. Hydrology, Geoscience or People and Places) and reviewed by the WR Permitting NA lead. Any non-standard conditions must meet the 'UNCLE' test – see [section 8.3](#)).

¹ section 24(6) of the WRA 1991 enables statutory abstraction conditions to be varied in abstraction licences.

The 2017 government response suggests compensation will not be payable where conditions are added to reflect current operating constraints in place e.g. canal acts or planning conditions as this will not constitute loss or damage (see [Part C, section 2](#)).

7.17 Fish / eel regulations

When determining Transitional licence applications, we are required to consider impacts on fish behavior such as movement, migration, spawning; or species composition and abundance. We also have duties to safeguard European Eels. Where relevant, abstractors were required to provide details of any measures in place to safeguard eels as part of the application process.

If impacts to fish / eels are identified through screening / consultation they will need to be considered further within the determination report and any other relevant assessment if required.

If conditions to protect fish / eels are included on a licence **compensation may be payable** ([see Part C, section 2](#)), unless in the case of serious damage. Therefore, any conditions will need to be reviewed by the WR Permitting lead for NA and approved by the NA panel.

7.17.1 Update the applicant

Where abstractions have been identified as requiring conditions relating to fish / eel passage and / or screening, it is important to engage with applicants as early as possible. In the first instance permitting officers should liaise with applicants to ensure they understand any potential requirements. They should allow applicants an opportunity to discuss any concerns and if possible, resolve any issues or queries. It may be appropriate to share a draft copy of the licence or relevant condition(s) with the applicant prior to licence issue. POs should also consider discussing timescales an applicant may require for making any necessary changes to their operation so future effective dates can be considered if appropriate (see [section 7.2](#)).

Where there is a likelihood of challenge or appeal, this should have been escalated via the WR Permitting NA lead early on in the process.

Correspondence should be worded carefully, in order to avoid pre-determination of the licence application. For further advice on updating applicants, discuss with the WR Permitting NA lead.

7.18 SMNR

The legislative background to the sustainable management of natural resources (SMNR) is provided in Part A, [section 2.5](#). Consideration of how the principles of SMNR apply to the determination of transitional licence applications will need to be included in any decision documents. It will be sufficient to focus on those principles which could be considered to be in conflict with any decision made. The determination report will need to either explain why the decision is still considered to be consistent with that principle, or explain why the decision is maintained, notwithstanding the principle.

The clearest and most comprehensive way to demonstrate compliance with NRW's general purpose would be to ensure that the following general issues are considered as part of the decision-making process:

- Whether a given application maintains and enhances the resilience of ecosystems and the benefits they provide?

- How does a given application meet the needs of present generations?
- Whether, in what manner, and to what degree does it impact on the ability of future generations to meet their needs?
- How, if at all, would the application contribute to each of the 7 well-being goals (available on the Welsh Government website [here](#)) being met?
- In considering the application, has NRW applied the principles of SNMR (see our website [here](#)), as set out in section 4 of Environment (Wales) Act 2016?
- Insofar as the application is conceivably in conflict with any of those principles, how should NRW resolve that tension and why?

8. Prepare the licence document

The licence document is a legal document authorising the holder to abstract water, subject to the conditions specified in the document.

The purpose of this section of the guidance is to ensure transitional licences are:

- consistent with other transitional licences;
- in line with the Transitional Regulations 2017, NA policy and other relevant legislation;
- easily understood by the licence holder and enforcement and compliance staff;
- enforceable; and
- legally correct.

Using the PALS guidance '[Generating and Formatting Water Resources Licence](#)' POs should generate and complete the licence document.

Where a Transitional application has been submitted to vary an existing licence (see PALS or column K of the [NA Screening Spreadsheet](#)) any new licence issued must incorporate the relevant terms of the existing (base) licence and the varied terms. Whether the transitional licence templates or existing licence document is used will depend on the variation and how much of the licence is being varied.

8.1 Licence holder's name and address

It is important that the correct name and address is specified on the licence document for enforcement and compliance purposes.

The licence holder name must be a legal entity, such as an individual person, a company or a public body. For examples please refer to [Appendix I](#).

If there is any uncertainty about the legal status of a licence holder, it may be necessary to clarify with the applicant. In addition, any queries should be raised to the WR Permitting NA lead, who may need to consult with legal where necessary.

For companies and Limited Liability Partnerships the registered number should be included on the licence¹. Whilst a company name can change at any time, the number remains the same and might be useful should any enforcement be necessary (i.e. we can track the company through the number and see if its changed names during its lifetime).

¹ Details will be on the Companies House website https://find-and-update.company-information.service.gov.uk/?_ga=2.240332033.360995387.1611246090-499002964.1582898978

The address on the licence will need to be the registered office¹.

When a licence is issued to a Trust, the trustees should be named on the licence so that if any enforcement action is required at a later stage, the licence has been properly issued to a legal person.

The licence document will need to include the names and address of all persons comprising the licence holder.

8.2 Issue, effective and expiry dates

For new licences, the effective date should be the same as the issue date. See [section 7.2](#) for more information.

For variations to existing licences, you will need to include the original issue date as well as the issue and effective dates of the variation.

As outlined in [section 7.3](#), licences will need to include an expiry date (time limit) in line with the relevant common end date as per the published licensing position for the catchment - see [Appendix E](#). For variations to existing licences, the expiry date should be discussed and agreed with the WR Permitting NA lead.

8.3 Licence schedule of conditions

Licence conditions must be consistent with the Transitional Regulations 2017 and NA policy, as well as any other relevant legislation.

All licence conditions should meet the 'UNCLE' test, that is they be Unambiguous, Necessary, Clear and Legally Enforceable.

To complete the schedule of conditions, the following actions should be completed:

- Use the [condition library](#) to populate conditions within the licence document template.
- For the purpose condition, please refer to the Purpose Code Guidance (links available through the [Water Resources Permitting Guidance Catalogue](#)).
- For HoF conditions refer to [section 7.15](#).
- If you have multiple points, purposes and/or season with separate quantities applicable, consider presenting this information in a table.
- Add any relevant conditions from existing legal agreements (e.g. Canal Acts, Planning Permission), as agreed through internal consultation (see [section 7.16](#)).

Any **non-standard / bespoke conditions should be drafted and reviewed** by the WR Permitting NA lead, who will consult the NA panel if necessary. Generally non-standard or bespoke conditions should only be used where there is a need to protect against serious damage / environmental damage to a SSSI.

8.4 Reasons for conditions

For standard conditions, the 'reasons for condition' text should be in line with that used under our standard licensing process.

For basic HoF conditions, reference should be made to the Transitional Regulations 2017. For bespoke conditions, the 'reasons for condition' wording should be agreed by the WR Permitting NA lead / NA panel as above.

8.5 Important notes

This section does not form part of the licence but can be used to provide information that may be useful to the reader, such as the fact that the licence was granted under the Transitional Regulations 2017. In the case of variations to existing licences, this section could include reference to the original licence.

8.6 Licence maps

To ensure licence maps are produced to a consistent standard, they should be generated using the existing guidance for [creating a Water Resources Licence Map](#)

8.7 Plans and drawings

Relevant technical teams should advise whether any plans or drawing should be included on the licence document. Where required, drawings or plans should include dimensions and levels where relevant and will need to be referenced in the further conditions.

For dewatering operations, the licence document should include the following:

- A cross section to include the extent of the workings
- A plan to show the workings
- A cross-section to show water table levels

Further guidance on writing licence documents is available in legacy Operational Instruction [505_09 Preparing water resources licence documents](#)

9. Licence issue / refusal

9.1 Quality Assurance (QA)

The PO should complete the [NA QA checklist](#) and send a link to the application case file on the DMS to the Reviewing Officer (RO) for QA. The PO should also update the status (column W) of the application in the NA Apps Tracker (within the [NA Determination work plan](#)) to indicate the application is awaiting QA. Ideally the RO will be the same or higher grade than the PO, but alternative arrangements can be agreed with the WR Team Leader. The RO should use the QA checklist to complete the QA of the determination and licence documents, including the issue letter. The QA checklist should be saved to the application case file on the DMS. The PO / RO should raise any queries with the WR Permitting NA lead where appropriate.

Note that for NRW-own applications the QA will need to take place at an earlier stage in process as the draft licence and determination report will be available to be viewed on request during advertising and the draft licence will also need to be sent to during external consultation.

9.2 Sign-off

The PO should send a DMS link to the completed QA checklist, licence document and determination report to the WR Permitting team leader for sign off. As above, the PO should also update the status (column W) of the application in the NA Apps Tracker (within the [NA Determination work plan](#)) to indicate the application is awaiting sign-off.

9.2.1 NRW-own applications – referral to Welsh Government

All applications submitted by NRW must be referred to Welsh Government, as the appropriate authority, who will decide whether an application should be 'called in' or 'not called in'.

Once the application has been QA'd internally, the PO should complete the [referral letter](#) and send along with all relevant documents to WG's Water Branch via email (water@gov.wales and susan.jenkins@gov.wales). The PO should also notify the PA of the Executive Director of Evidence, Policy and Permitting (EPP) that the application has been referred to Welsh Government.

Welsh Government have 28 days to respond to confirm whether they are calling in the application. However, the PO should wait for a response from Welsh Government, regardless of whether the 28 days has elapsed.

Applications that are 'not called in' are signed-off within NRW. The PO should send the application to the PA of the EPP director for sign-off.

If Welsh Government **do** 'call in' the application, WG must consider the application and notify NRW of their decision. The PO should notify the WR Permitting NA lead and team leader to discuss and agree the next steps.

More information is available in legacy [OI 286 05](#) Environment Agency water resource licence applications and [application checklist for NRW own applications](#).

9.3 Notify the applicant

Under section 10 (paragraph 1) of the schedule to the Transitional Regulations 2017, NRW is required, by **31st December 2022**, to notify the applicant in writing of its decision on an application for a licence. POs should use the [issue letter template](#).

If a licence is granted on terms that are different in any material respect from the application, or the application is refused, the notification must:

- include a statement of the appropriate agency's reasons for doing so;
- state the applicant's entitlement to appeal.

POs should have made applicants aware of any potential licensing decisions likely to affect their operation (i.e. refusal or curtailment) as early as possible. Where there is a likelihood of challenge or appeal, the PO should discuss the concerns with the applicant to allow them an opportunity to understand the requirement and if possible, resolve any issues or queries.

It may be appropriate to share a draft copy of the licence with the applicant prior to licence issue.

Where there is any indication that the applicant is likely to disagree with the determination decision, this should have been escalated via the WR Permitting NA lead early on in the process. However, if potential challenges only became apparent at this late stage in the process, it should be escalated via the WR Permitting NA lead as soon as possible.

Applicants should be made aware of the time limit applied to any licence issued and that the licence will be reviewed at this time. Applicants should also be made aware of any sustainability issues that have been identified through determination, but cannot be addressed through transitional licence conditions, and the likelihood of future constraint being required. The issue letter template will include standard wording, but further information should be added, giving specific details of any likely constraint or refusal. The issue later should be reviewed as part of the QA process outlined in [section 9.1](#).

9.4 Refusal

Refusal of a transitional licence application is only expected to arise in the following situations:

- The applicant is unable to demonstrate to our satisfaction that they have a right of access to the abstraction point;
- Where the abstraction is causing serious damage and the licence cannot be conditioned to protect against serious damage.
- In exceptional circumstances, where the abstraction is causing environmental damage (but does not meet serious damage criteria) and the licence cannot be conditioned to protect against the damage.

Evidence for any decision to refuse or curtail must be provided via the consultation process and must be fully defensible in case of an appeal. All decisions and evidence must be fully documented in the determination and relevant case file on the DMS and have been raised with the NA lead for further discussion with the NA panel if required

WR permitting need to update WR policy on any decision to curtail / refuse so the compensation risk assessment can be updated (see [Part C, section 2.3](#)).

For any applications that are refused, a [decision statement](#) must be published on our website. Any decision to refuse must be supported by the WR Permitting NA lead and NA Panel. All correspondence must be saved to the relevant case folder on the DMS.

As above, notification of the decision to the applicant must:

- include a statement of the appropriate agency's reasons for doing so;
- state the applicant's entitlement to appeal.

9.5 Responding to representations

Once a licence has been issued / refused, a response should be sent to any representations received during advertisement notifying them of our decision. Depending on the issues raised, a standard response letter ([granted](#) / [refusal](#)) may be sufficient or more bespoke text may be required. A link to the decision statement (see [section 9.4](#)) will need to be included in the response letters. For further details see [section 6.2](#).

10. Records management

10.1 DMS and public register records

Our work may, occasionally, be subject to scrutiny. There may be internal auditing or other reasons for investigation; occasionally the scrutiny may result from judicial review or an Ombudsman inquiry. There must be an audit trail to provide details of who decided what and when. This will ensure protection to individual staff and our professional reputation as an organisation.

To ensure an appropriate audit trail, the actions below should be completed:

Step	Action
1	Ensure all important telephone conversations are confirmed in writing. Ensure substantive points of other telephone conversations are recorded and saved to the application case file on the DMS.
2	Ensure all documents (originals as appropriate) are saved to the application case file on the DMS in date order, including both Word & PDF copies of licences & determination reports, decision documents, issue/refusal letter, application forms & supporting documents, any relevant correspondence, withdrawals of applications, agreements to time extensions, representations, letters to the applicant or others.
3	All consultation responses (internal or external) must be saved to the application case file on the DMS.
4	Ensure the correct public register disclosure status is assigned to each document ¹ . this is especially important where the applicant has claimed confidentiality on commercial or national security grounds – see section 10.3 . The relevant documents will need to be available on the online public register within 28 days of the licence decision being made ² .
5	Do not express personal opinions about an application or the applicant or any other party in the determination report or on file.

10.2 PALS

All relevant fields on PALS should be completed, as per the [PALS field reference guide](#).

10.2.1 Licence number

Once signed off, the licence can be issued on PALS. PALS will generate a licence number, and the licence document and determination report will need to be updated with this number.

10.2.2 Criticality classification

Assign a criticality classification to the licence using the guidance [Water Resources compliance, enforcement and incident investigation](#). For further advice discuss with the WR Permitting NA lead who will liaise with the NA panel as necessary.

This will need to be recorded in the [determination report template](#).

10.2.3 Charging

Transitional licence applications are subject to the same charging provisions as set out in the Scheme of Abstraction Charges, available on our website [here](#).

Note that there are no annual charges associated with transfer licences.

¹ For advice please speak WR Permitting NA lead.

² Reg 7(1)(c) and 7(2)(b) requires that particulars of any decision should be on the public register within 28 days of a decision on the application.

For full licences, the annual charges should be calculated using the guidance in [135 06 Setting annual charges](#) and the [abstraction charges calculator](#)¹. This will need to be recorded in the [determination report template](#) and checked as part of the QA process outlined in [section 9.1](#).

In line with recent legal advice, Section 127 of the Water Resources Act 1991 is only relevant to spray irrigation and consequently applications for trickle irrigation are not eligible for a Two-Part Tariff billing agreement². Charges for trickle irrigation should be calculated in full.

Under Section 126 of the Water Resources Act 1991 it is possible to abate part or all the annual charge for full abstraction licences meeting specific criteria. Licence holders will need to show that the abstraction is for environmental benefit, contributes to our duties and responsibilities and that they do not gain commercially from the abstraction. Eligibility for S126 is considered as part of the determination process via this [WR Form 274](#) and subsequent [agreement](#) if appropriate.

For NRW-own licences, charges are recovered from the project or function. Finance raise an invoice followed by a credit note (to cancel it out). This is to ensure there is a formal record of a payment. Finance then contact Michael Peter Jones (Business Finance Team Manager) for authorisation of a cost centre transfer.

10.2.4 Issuing transitional and standard licences (i.e. ‘planned abstractions’) at the same time

First, issue the transitional application in PALS to obtain your licence number. Next, change the application type for the standard licence application to a variation and link it to the new licence number for the transitional application. Then issue the standard licence as a variation, effective on the same day as the transitional application.

10.3 National security and commercial confidentiality

There are special arrangements in place for dealing with applications where a customer has claimed that disclosing details of an application would be contrary to the interests of national security. For further information please speak to the WR Permitting NA lead.

Where a claim for commercial confidentiality has been made, any information that the applicant has requested to be withheld under the claim, must not be included on the public register.

In these situations, the PO must ensure a [Public Register Statement](#) is added to the DMS / public register to advise the public that certain information is being withheld as a result of a national security / commercial confidentiality claim.

Where information is withheld as a result of a claim for commercial confidentiality, the statement will advise that additional information relating to this application can be requested by contacting the Access To Information (ATI) team. The ATI team would be responsible for liaising with Water Resources Permitting team regarding what information can be provided.

¹ Ensure you are referring to the calculator for the correct financial year.

² Applicants who indicated that they wanted to apply for a two-part tariff agreement under question 11, form WRH have now been advised that they are not eligible.

10.4 Notify relevant teams

The relevant People and Places / Hydrology teams will need to be notified on issue of all licences. This to ensure RAM ledgers are updated to take account of Transitional abstraction licences¹.

The relevant Environment and Industry & Waste Regulation Teams will need to be notified on issue of all licences to ensure any compliance activities are carried out.

Geoscience should be notified of any licences issued for any potable or food supply use, so the necessary SPZ assessments can be undertaken.

Where a large number of applications have been issued within the same 'patch', it may be preferable to arrange a 'bulk' notification. This will be coordinated by the NA WR Permitting lead as necessary.

¹ For further information about the programme of work to update RAM Ledgers please contact EPP – Water Resources.

Part C: Appeals and compensation

1. Appeals process

The [Transitional Regulations 2017](#) allow for appeals under section 43(1) of the [Water Resources Act 1991](#). This relates to appeals against the regulator's decision on an application (section 43(1)(a)), as well as for non-determination (section 43 (1)(b)(i)).

The appeals process for transitional licence applications can be summarised as follows:

1. Applicants can obtain a standard notice for making an appeal by contacting the Planning Inspectorate at:
Address: Crown Buildings, Cathays Park, Cardiff, CF10 3NQ
Telephone: 0303 444 5940
Email: wales@planninginspectorate.gov.uk
2. Appeals should be submitted to the Planning Inspectorate at the above address.
3. If the appeal is for non-determination, the notice of appeal must be sent to the Planning Inspectorate within 28 days of the 31 December 2022.
4. If the appeal is against the decision on an application (e.g. curtailment or refusal), then the notice of appeal must be sent to the Planning Inspectorate within 28 days of the date of our decision letter.
5. Notice of appeal must state the grounds of appeal and be accompanied by a copy of:
 - i) the application to which the appeal relates;
 - ii) any information or report submitted with the application;
 - iii) the notice of the decision on the application, if any;
 - iv) all other relevant correspondence
6. Applicants are also required to send us (NRW) a copy of their notice of appeal, including all details listed above.

Appeals can be withdrawn at any time before a decision has been made.

In exceptional circumstances, the Planning Inspectorate has the power to allow a longer period for serving a notice of appeal.

Please note, the appeals provisions suggest it may be possible to agree to an extension to the determination period, however, this is not considered to be in line with the NA policy intention. Such situations should be escalated via the WR Permitting NA lead, who will be responsible for notifying the NA Panel, (including legal and WR policy lead / Team Leader) and the relevant Operations manager.

Any licensing decisions that are likely to result in an appeal must be escalated at the earliest opportunity to the WR Permitting NA lead, who again, will be responsible for notifying the NA Panel, (including legal and WR policy lead / Team Leader) and the relevant Operations manager.

Upon formal notification on an appeal, either by the applicant or PINS, the Water Resources permitting team should contact legal services immediately to ensure the above timescales and process are complied with. Legal services can assist with advising on the Appeals process.

Local / technical consultees will be required to support WR Permitting with the provision of evidence and / or defending licensing decisions.

2. Compensation arrangements

Part 3 of the [Transitional Regulations 2017](#) provides for the payment of compensation to certain persons whose application for a licence is refused or granted but in respect of an abstraction of more limited extent than previously abstracted.

Regulation 9 sets out the circumstances in which compensation is payable, as follows:

- where an application is refused, or granted “in a more limited extent” than the abstraction carried out in the seven year ‘qualifying period’
- where an appeal (see [section 1](#) above) is dismissed
- where loss or damage arises as a result of a licensing decision
- where an application for compensation has been made within six years of the determination of an appeal (as per regulation 10 below)

In addition, **Regulation 9** describes where compensation is not payable, as follows:

- to protect defined waters or any flora or fauna dependent on those waters from serious damage (see [section 7.11](#))
- to comply with any relevant legal requirement (see Part C [section 2.1](#) below).

Regulation 9 also states that the application of a 75% of Qn99 or Qn95 hands-off flow constraint (see [section 7.15](#)) is not considered to be an abstraction of “more limited extent”.

Other circumstances where NRW do not consider compensation to be payable are as follows:

- where conditions are included to reflect current operating constraints already in place e.g. canal acts, planning conditions (see [section 7.16](#));
- where a time limit is applied in accordance with the Regulator’s current policy (see [section 7.3](#));
- where the applicant is a public authority
- applications for ‘planned abstractions’ (i.e. new or increased abstractions) where these licence applications are refused or not granted in full.

Regulation 10 provides that applications for compensation must be made to us within six years of the determination of an appeal.

Regulation 11 provides that any question of disputed compensation is to be determined by the Upper Tribunal.

Regulation 12 covers the compensation calculation method.

Any licensing decisions that are likely to result in compensation claim must be escalated at the earliest opportunity to the WR Permitting NA lead and NA Panel.

Compensation claims will be assessed in accordance with regulation 12. Claims will initially be assessed by the NA panel, but it may be necessary to request support from

NRW's surveyors to advise on the level of compensation. Any subsequent disputes will need to be escalated by the applicant via the Upper Land Tribunal.

Further information regarding compensation issues is available in legacy OI 841_11 Restoring Sustainable Abstraction: Pre Licence Change Compensation Assessment.

2.1 Compliance with “any relevant legal requirement”

As drafted, Regulation 9(1) and (2) of the Transitional Regulations 2017 suggests that no compensation is payable in the situation where we refuse an application or curtail an abstraction so as to comply with any relevant legal requirement e.g. to comply with the CROW Act even where there is no serious damage.

However, there does appear to be some tension between the Transitional Regulations 2017 and the policy intent as set out in the [2017 Government Response](#) (pages 23 & 26), which suggests that there may be exceptional circumstances where compensation **will** be paid (not may) and states this situation is most likely to arise in the case of impact to a SSSI, where that impact is not deemed to be Serious Damage. In using this wording, there might be a legitimate expectation by abstractors that compensation will be payable.

Although it is a matter for the regulator as to whether compensation is paid, the position of the UK and Welsh Governments in relation to the exceptional circumstances when compensation should be paid (as set out in the 2017 Government Response) is a relevant consideration when making the decision.

Assessments of any impact or effect should be made on a case by case basis to determine whether the provisions might apply and to then come to a view firstly on whether there is serious damage and if not, secondly, whether the refusal/curtailment is on the basis that its necessary to comply with any relevant legal requirement.

Any decision will need to be evidence based and fully documented so that in the event that a decision is made not to pay compensation, we have a clear position should the decision be challenged. Such applications should therefore be discussed with the WR Permitting NA lead the earliest opportunity to allow further discussion with all relevant colleagues via the NA panel.

2.2 Compensation funding

Any compensation liabilities will be funded through the Regulator's existing mechanisms¹ for generating water resources income and it should use existing compensation funds collected or, where required, any further collection of compensation funds.

Compensation funds are raised on a catchment basis. NRW are responsible for raising these for the Wye and Dee catchments and the EA for the Severn catchment. Therefore, NRW and EA will need to notify the respective organisations of any likely compensation risks at the earliest opportunity. Any licensing decisions that are likely to result in compensation claim in these catchments should be flagged to the WR Permitting NA lead the earliest opportunity who will provide support and advice as required.

¹ When required, NRW use the “Environmental Improvement Unit Charge (EIUC)”, a component of its abstraction charges, to collect funds for compensation.

2.3 Compensation risk assessment

The compensation risk assessment previously completed by NA Policy leads concluded a negligible compensation risk. However, the process outlined in [Part B](#) will allow the compensation risks to be reviewed and amended if necessary. NA Policy leads will revise the compensation risk assessment with support from WR Permitting NA leads. This is necessary to ensure sufficient funds can be raised¹. There are only set windows to consult on, and put in place arrangements to raise funds so it is vital to immediately flag with NA permitting and policy leads any new information that comes to light during licence determinations which may result in a decision to curtail or refuse an application.

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Appendix A: Remaining exemptions for ‘low risk’ abstractions

Further exemptions have been created to allow low risk abstractions to remain exempt from licensing. These are detailed in [The Water Abstraction and Impounding \(Exemptions\) Regulations 2017](#) and can be summarised as follows:

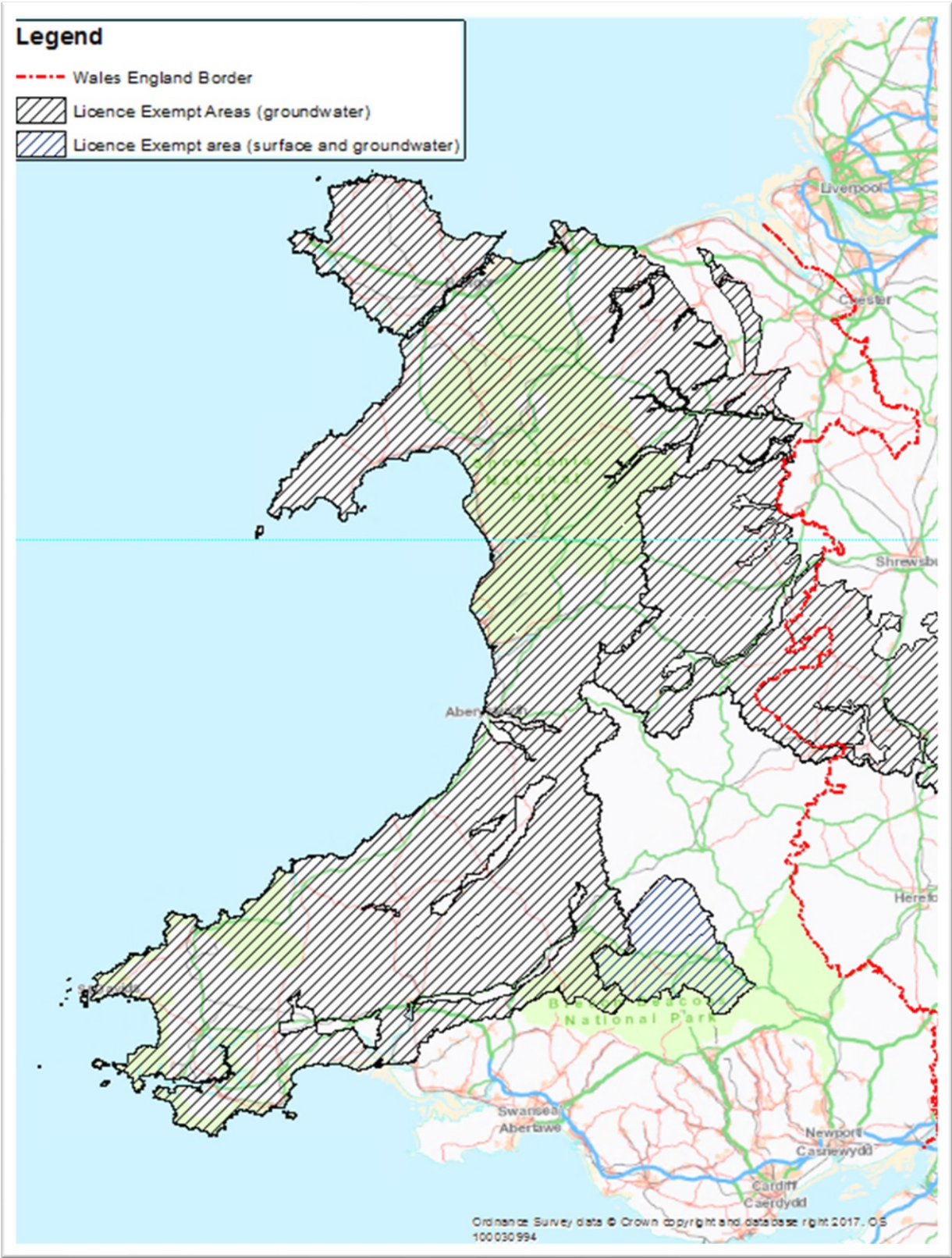
- Abstractions carried out by navigation, harbour or conservancy authorities downstream of the normal tidal limit, and abstractions into and out of a dry dock.
- Emergency abstractions by navigation, harbour and conservancy authorities to prevent risk of death or harm to humans, or damage to property or the environment.
- Third-party operated dry docks that transfer water to and from a navigation authority’s water system.
- Small scale, temporary dewatering in the course of building or engineering works, but subject to specific conditions.
- Abstractions in the course of dredging downstream of the tidal limit, or if upstream, carried out by, or on behalf of any authority.
- Abstraction of water **within** a managed wetland system, if for the sole purpose of the management, operation or maintenance of the water levels or flows in that system.
- Construction or alteration of impounding works **within** a managed wetland system if the sole purpose of the works is the management, operation or maintenance of water levels or flows in that system.
- Construction or alteration of impounding works in emergencies, in order to meet provisions of the Reservoirs Act 1975, or impounding works carried out by or on behalf of navigation, harbour or conservancy authorities in connection with their functions or by any person with the prior written consent of NRW.
- Construction or alteration of impounding works by an internal drainage board **within** its district and is in connection with the board’s functions.

Further detail regarding the new exemptions is available in [OGN 069: Validation of transitional provisions water abstraction licence applications \(see section 3.4\)](#).

It should be noted that the normal licensing threshold continue to apply. This means that anyone abstracting less than 20m³/day in aggregate from a source of supply will not require an abstraction licence, even though the other exemptions have been removed. In addition, the exemptions for the use of water during firefighting, and land drainage, as set out in the Water Resources Act 1991 (section 29(2) and (2C)) have not been removed and abstractions for these purposes remain exempt. For dewatering activities, please refer to our external briefing note¹.

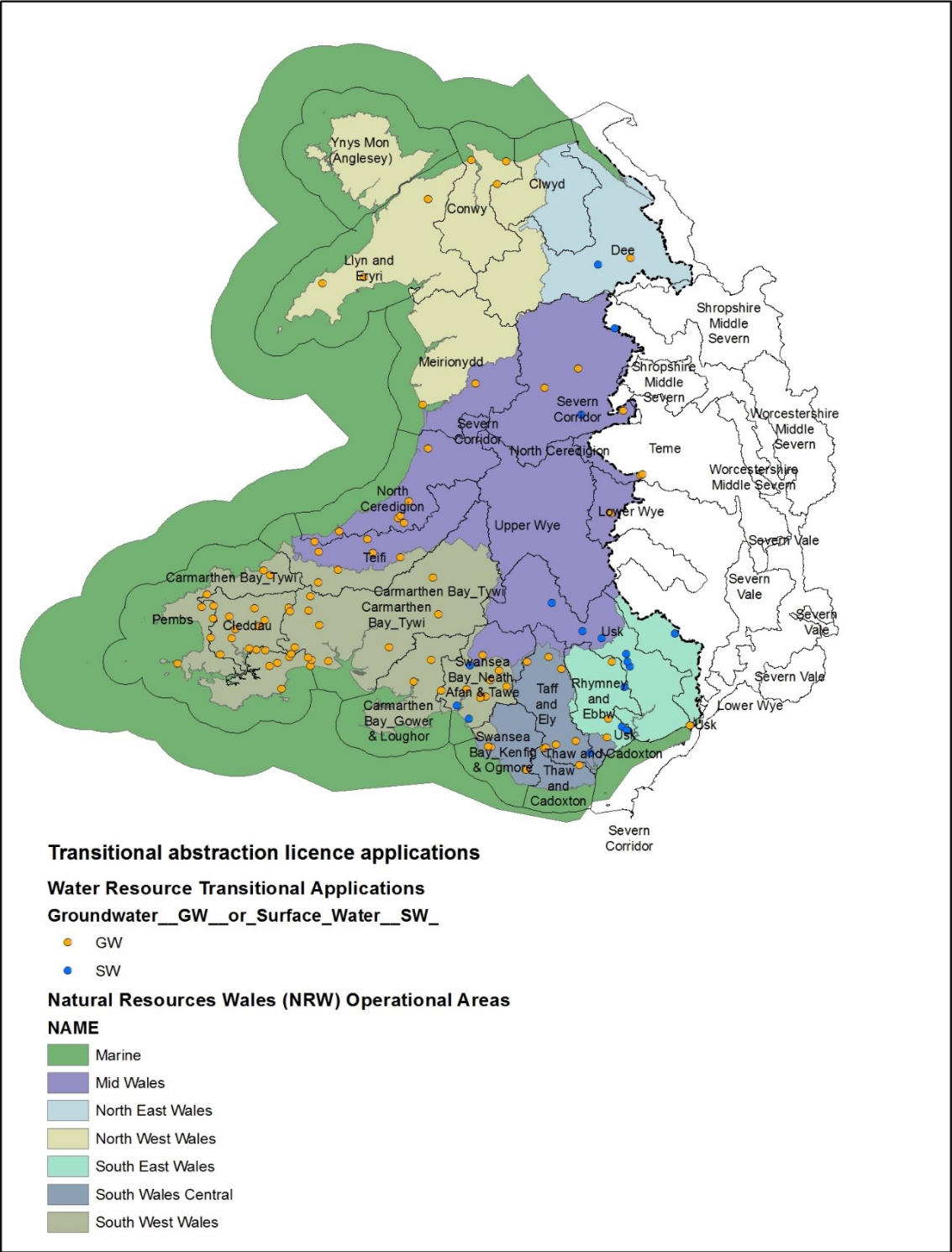
¹ [External briefing note: licensing of dewatering activities](#)

Appendix B: Abstraction Licence previously exempt areas in Wales

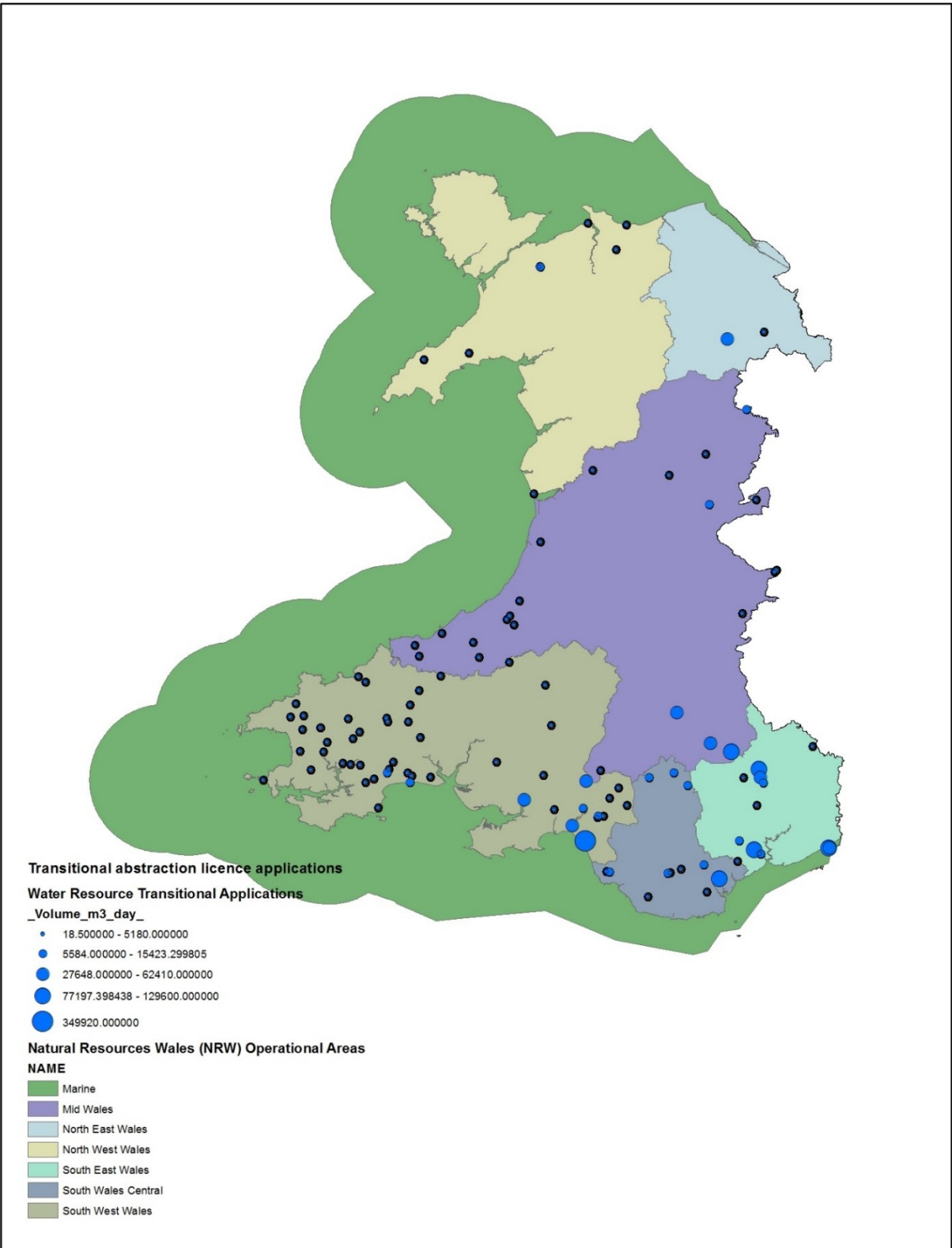


Appendix C: Maps to show valid Transitional Licence Applications in Wales

Map 1: GW and SW Transitional Licence Applications



Map 2: Transitional Licence Applications by abstraction quantity



Appendix D: MyMap screening radius for groundwater abstractions

Abstraction quantity (m ³ / day)	Normal screening radius
20 to 100 m ³ /day	250 m
100 to 500 m ³ /day	500 m
500 to 1,000 m ³ /day	1.0 km
1,000 to 3,000 m ³ /day	1.5 km
3,000 to 5,000 m ³ /day	2.0 km
Over 5,000 m ³ /day	2.0 to 4.0 km

Appendix E: CAMS Common End Dates

Catchment	Current Common End Date	Date to skip to next CED	Next Common End Date	No of NA applications within catchment
Conwy	31-Mar-28	31-Mar-22	31-Mar-40	3
Clwyd	31-Mar-29	31-Mar-23	31-Mar-41	1
Meirionydd	31-Mar-30	31-Mar-24	31-Mar-42	2
Llyn and Eryri	31-Mar-25	31-Mar-19	31-Mar-37	4
Ynys Mon (Anglesey)	31-Mar-26	31-Mar-20	31-Mar-38	0
Dee	31-Mar-27	31-Mar-21	31-Mar-39	2
South East Valleys	31-Mar-29	31-Mar-23	31-Mar-41	15
Usk	31-Mar-26	31-Mar-20	31-Mar-38	8
Wye	31-Mar-27	31-Mar-21	31-Mar-39	4
Thaw & Cadoxton	31-Mar-30	31-Mar-24	31-Mar-42	1
Teifi & North Ceredigion	31-Mar-28	31-Mar-22	31-Mar-40	13
Swansea Bay Rivers	31-Mar-29	31-Mar-23	31-Mar-41	15
Carmarthen Bay Rivers	31-Mar-30	31-Mar-24	31-Mar-42	15
Cleddau and Pembrokeshire Coastal Rivers	31-Mar-25	31-Mar-19	31-Mar-37	27
Severn Corridor (including Severn uplands)	31-Mar-22	31-Mar-16	31-Mar-34	5
Teme	31-Mar-25	31-Mar-19	31-Mar-37	2
TOTAL				117

*Note the NA abstraction within the Clwyd catchment has already been issued.

Appendix F: Extract from Optimum Water Use for Industry and Agriculture

Extract from Optimum Water Use for Industry and Agriculture Phase 3.
Table B3 – stock water requirements p134

Animal/person	Category	Cubic meters per day
People	Private domestic use	0.15
Dairy Cows	Cleaning non-power hose	0.014-0.022
	Cleaning power hose	0.027-0.045
	Drinking ¹	0.045-0.07
Calves	Drinking	0.015-0.025
Beef cows	Drinking	0.025-0.045
Pigs ²	Cleaning after each batch (10 pigs/pen)	0.016-0.024
	Lactating sows	0.015-0.03
	Pregnant sows and boars	0.009-0.014
	Weaners	0.005
Sheep	Drinking	0.0025-0.005
	Dipping (per dip)	0.0025
Poultry	Layers/100 birds	0.02-0.03
	Fattening/100 birds	0.013
Turkeys	Fattening/100 birds	0.055-0.075

¹ Higher value for lowland production in Southern England

² for outdoor pigs the maximum litres/day/animal should be increased by 50% to allow for wastage and wallows.

Irrigation quantities are best assessed via the system to be used (manufacturer's or advisers estimate of output), type of crop to irrigated, site – i.e. open ground or tunnels/greenhouses, acreage etc.

Appendix G: Recording and reporting requirements

Category of licence	Data to be provided ⁵	Meter readings/means of assessment to be undertaken
All licences held by the statutory water companies	Daily totals or meter readings	Daily
Electricity generation with a consumptive element	Daily totals or meter readings	Daily
Spray irrigators with two- part tariff agreements with daily quantities exceeding 2,500 cubic metres per day	Weekly ¹ totals or meter readings	Weekly ²
Spray irrigators with two- part tariff agreements with daily quantities equal to or less than 2,500 cubic metres per day.	Monthly ³ totals or meter readings	Monthly
Other licences with daily quantities exceeding 2,500 cubic metres	Weekly ² totals or meter readings	Weekly ⁴
Other licences with daily quantities greater than or equal to 100 cubic metres and less than or equal to 2,500 cubic metres.	Monthly ³ totals or meter readings	Monthly ³
Other licences with daily quantities below 100 cubic metres. Although this category doesn't provide any data, meter readings/assessment details are needed for compliance purposes and also for identifying licences that are not used. Although most licences have a return condition, if necessary, you can ask for returns on an ad hoc basis, using our powers under section 201 Water Resources Act 1991.	None	Monthly ³

¹ Meter readings should be taken on the same day each week.

² Meter readings should be taken on the same day each week.

⁵ Return information is requested annually

³ Meter readings should be taken on the last (working) day of the month.

⁴ Meter readings should be taken on the same day each week.

⁵ Return information is requested annually

Appendix H: Summary of basic HoF Conditions from the [2017 Government Response](#)

Table 1 – summary of how we propose basic HoF conditions will normally apply

Surface water status in abstraction licensing strategy (ALS/CAMS):	Flow / quantitative status supports WFD objectives	NAs HoF applied:
Water not available / Over abstracted catchments	Fail	Qn95
Restricted water available / Over licensed catchments	Pass	75% of Qn99
Water available	Pass	75% of Qn99

- Fail = flow / groundwater quantitative status '**does not support** Good Ecological Status' (GES)
- Pass = flow / groundwater quantitative status '**does support** Good Ecological Status' (GES).

Appendix I: Table to show how the various types of legal entity are to be shown on a licence document

Legal entity	Show on the licence as...
Firms and sole traders	Firms and sole traders should be the name of the person together with 'trading as xyz' if appropriate.
Companies	Limited companies are named 'X Limited' or 'PLC'.
Partnerships	Partnerships must have the names of the individual partners together with any trading name. List the partners' names vertically
Limited liability partnership (LLP)	A limited liability partnership (LLP) can be in the name of the partnership rather than the names of the partners, as an LLP is a body corporate (a legal entity in its own right). The name of the applicant will need to be 'X Limited Liability Partnership'. LLPs are registered at Companies House.
Statutory corporations	Bodies like the 'National Trust for Places of Historic Interest or Natural Beauty' are statutory corporations and can be named without reference to trustees.
Educational establishments	In most cases, they will be legal entities so the name of the establishment can appear on the licence. Some schools or colleges may be run by charities, religious organisations or local authorities. Check with the applicant if you are unsure
Local councils	Councils are statutory bodies and must always be named correctly. Such as 'X District Council' or 'Y County Council'. There are also parish, town, borough, metropolitan boroughs and city councils, check with the applicant if you are unsure.
Bodies corporate	Bodies like the Environment Agency for example are bodies corporate and need just their name.
Incorporated association	For incorporated associations just the name will do.
Unincorporated associations	An individual (or individuals) should be nominated to hold the licence. Where an individual holds a licence on behalf of, for example, a club, put the address as the club rather than their home address.
Trusts	Only include key post holders, for example, secretary, chairman or treasurer. Keep the

Legal entity	Show on the licence as...
	names of the post holder or trustees on file. If there are no such posts, then discuss with the NA WR Permitting lead, who may need to liaise with legal.

FINAL DRAFT

Operational Guidance Note

For Internal Use Only

Habitats Regulations Assessment of Projects

OGN 200

Document Owner: Protected Sites Team (EPP)

Version History:

Document Version	Date Published	Summary of Changes
1.0	March 2016	Document created
1.1	30 November 2017	References to the 2010 Habitats Regulations updated to reflect new consolidated version of the regulations which entered into force on 30 th November 2017; References to KSP and National Services Directorates updated to EPP
1.2	28 June 2018	With unsafe areas in light of ruling in CJEU case c-323/17 'People over Wind' highlighted in yellow.
1.3	27 June 2019	With unsafe areas in light of CJEU case c-323/17 highlighted in yellow. See Guidance here

Next review date: April 2019

What is this document about?

This document is about the procedures that NRW should follow when assessing the potential impacts of ‘projects’ on Natura 2000 sites (Special Areas of Conservation (SACs) and Special Protection Areas (SPAs)) in accordance with Article 6(3) and 6(4) of the EC Habitats and Species Directive and transposing Regulations. As a matter of Welsh and UK Government policy, Ramsar sites, though not legally subject to the Habitats Directive and Regulations, should be treated in the same way as SACs and SPAs. Therefore this document applies to projects affecting Ramsar sites as well as SACs and SPAs.

This document is not intended to provide detailed technical or legal guidance on the requirements and practice of HRA.

The assessment procedures covered by this document are generally referred to collectively as ‘Habitats Regulations Assessment’ (HRA). In many cases an ‘appropriate assessment’ is a key part of the HRA process, but the term ‘HRA’ also covers the process of deciding whether to carry out an appropriate assessment (sometimes called ‘screening’ for likely significant effects) and the consideration, following completion of an appropriate assessment, of whether a project should be carried out for imperative reasons of over-riding public interest.

This document includes guidance on what constitutes a ‘project’. In simple terms, any material intervention in the environment which is capable in principle of affecting a Natura 2000 site could be considered a project. However there is no exhaustive definition so whether or not there is a project depends on the particular circumstances concerned. Many different types of activity for which NRW and other authorities issue consent and which NRW and other authorities undertake, are projects under the Habitats Directive and Regulations and are therefore subject to HRA.

In addition to projects, HRA applies to many types of ‘plan’. However this document does not deal with the HRA of plans, which is covered by other OGNs also available on the Environmental Assessment pages of the NRW intranet.

Who is this document for?

This document is for NRW staff involved in:

- provision of advice, within NRW or to external bodies, on the potential implications of any type of projects for any SACs, SPAs or Ramsar sites;
- determination of applications made by external parties to NRW for any form of authorisation to undertake projects with the potential to affect one or more SACs, SPAs or Ramsar sites;
- decisions by NRW on whether to undertake, as part of any operational activities, projects with the potential to affect one or more SACs, SPAs or Ramsar sites, and decisions on whether to issue orders for the undertaking of such projects.

Not all sections of this document are relevant to all of these areas of work.

Contact

Protected Sites Team, EPP. Feedback/comments on this OGN or accompanying forms should be emailed to:

habitatsdirective@cyfoethnaturiolcymru.gov.uk

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1. Purpose of this Operational Guidance Note
2. Structure of this Operational Guidance Note
3. What NRW functions does this Operational Guidance Note apply to?
4. Key principles of HRA and other sources of guidance
5. HRA procedure for **Category 1 projects: those which are authorised or undertaken by other competent authorities where NRW's only role is appropriate nature conservation body**
6. HRA procedure for **Category 2 projects: those which NRW issues any form of authorisation to a third party**
7. HRA procedure for **Category 3 projects: those undertaken by NRW itself, where we 'self-consent' and where we apply to other authorities for consent**

List of Annexes:

- | | |
|----------|---|
| Annex 1: | Key elements of the legal framework for HRA of projects |
| Annex 2: | Map of Natura 2000 and Ramsar sites in Wales |
| Annex 3: | List of legacy body guidelines and procedural instructions that are withdrawn and replaced by this OGN *This section is under development* |
| Annex 4: | HRA procedure in relation to SSSI consents and 'assents' |
| Annex 5 | HRA procedures for types of consent not determined by the Permitting Service in EPP *This section is under development* |

List of Forms:

Editable copies of the following forms for carrying out HRAs can be downloaded separately from the relevant section of the NRW Intranet (Our work > Corporate > Environmental Assessment > Habitats Regulations Assessment).

- Form 1: Record of a Habitats Regulations Assessment for **Category 2** or **Category 3** projects
- Form 2: Provision of nature conservation advice for **Category 2** and **Category 3** projects
- Form 3: Article 6(4) 'Statement of Case'
- Form 4: Internal application for an NRW permission - Habitats Regulations Assessment by Permitting Service in EPP

1. Purpose of this Operational Guidance Note

This is an Operational Guidance Note (OGN) to help ensure that NRW carries out its functions in relation to Habitats Regulations Assessment of 'projects' in an efficient, effective, proportionate and legally robust manner.

The term Habitats Regulations Assessment (HRA) is used throughout this document to describe the process of assessing a plan or project in accordance with Article 6(3) and 6(4) of the Habitats Directive. HRA is one of the key mechanisms by which NRW and other statutory bodies deliver the appropriate management and safeguard of Natura 2000 sites¹. The Habitats Directive is largely transposed into law in Wales by the Conservation of Habitats and Species Regulations 2017², referred to throughout this OGN as the Habitats Regulations. The key elements of the legal framework for HRA are set out in **Annex 1**.

HRAs and the regulatory and operational decisions they support are frequently under close scrutiny by developers, NGOs, local communities and other authorities, including Welsh Government and UK Government and the European Commission, so it is essential that NRW has a robust, consistent, transparent and proportionate approach to HRA. Properly conducted HRAs support legally robust decision making.

This OGN is procedural guidance, describing principles, roles and governance arrangements for how NRW should conduct itself when advising others on, and carrying out, HRAs. There is a large amount of guidance and Government policy already available on the statutory requirements of HRA, legal interpretation and practical advice, which is referenced in section 4, but not repeated or summarised in this OGN, except to the extent necessary to explain the procedures that NRW should follow.

This OGN will be subject to periodic review, particularly in light of feedback from staff, and if external developments in policy, legislation or case law indicate that NRW's procedures relating to HRA need to be adjusted.

1.1 Relationship to other NRW guidance

Note that this OGN only covers HRA of 'projects' and does not address the HRA of 'plans'. There are separate NRW OGNs for HRA of plans available on the Environmental Assessment pages of the NRW intranet.

The meaning of the term 'project' in the context of HRA is explained in more detail in section 3 below. In the absence of a statutory definition of 'project' for the purposes of the Habitats Regulations, **any material intervention in the environment which is capable in principle of affecting a Natura 2000 site** should be considered to be a project. However there is no comprehensive definition of the term 'project', or exhaustive list of what activities constitute projects, so whether a matter involves a project depends on the particular circumstances.

¹ 'Natura 2000 sites' is used here to include designated SACs and SPAs, candidate SACs (those submitted formally to the EC but not yet adopted or designated), proposed SPAs and SACs (sites subject to consultation on whether they should be designated) and proposed and designated Ramsar sites, which are not Natura 2000 sites but under Welsh Government policy should have the same level of protection as SACs and SPAs. A map of the sites is given in **Annex 2** and further information is available on the NRW website.

² These regulations consolidated and repealed the 2010 Habitats Regulations.

In most cases the HRA of a project will form only part of NRW's advice to another authority deciding whether to authorise a project, or only part of the decision on whether NRW should issue an authorisation or undertake a project. Therefore this OGN applies alongside other OGNs or work instructions covering relevant NRW functions. It is not intended to replace or replicate other non-HRA related guidance covering NRW's numerous permitting, operational and planning/advisory functions.

However this OGN is intended to replace a large number of guidance documents, procedure notes, work instructions and templates specifically concerned with HRA which NRW inherited from the legacy bodies. These are, or will be, listed in Annex 3. The documents listed, or to be listed, in Annex 3 have been withdrawn and should no longer be used by NRW staff or presented to external bodies as current NRW policy or procedure.

If there are any conflicts between this OGN and any legacy body guidance relevant to HRA that has not yet been reviewed or withdrawn, this OGN should take precedence.

2. Structure of this Operational Guidance Note

The remainder of this OGN is set out as follows:

- Section 3 explains which NRW processes this OGN applies to.
- Section 4 outlines the key stages and general principles of HRA, and gives sources of detailed technical/legal guidance.
- Section 5 sets out the HRA procedure to be followed in NRW for **Category 1 projects: those which are authorised by decisions made by other competent authorities**, including in particular planning permissions determined by planning authorities. Section 5 does not cover projects undertaken by NRW for which we require the authorisation of another authority – these are dealt with in Section 7.
- Section 6 sets out the HRA procedure for **Category 2 projects: those for which NRW issues any form or authorisation to external parties**. Section 6 also covers the procedure for external projects which require authorisations from both NRW and other authorities.
- Section 7 sets out the HRA procedure for **Category 3 projects: those undertaken by NRW, including those where NRW requires authorisation issued by another authority**.

Between them, sections 5, 6 and 7 set out the requirements that apply to **all** NRW functions where project level HRA forms part of NRW's advice to another authority, or part of an NRW operational or regulatory decision (including where we 'self-consent'). However, there may also be additional operational instructions or guidance relating to HRA which are specific to particular NRW functions and which are not in the list of deleted/withdrawn documents in Annex 3, because they contain guidance or instruction that needs to be retained. The longer term intention is for any function-specific HRA guidance that needs to be retained, and which is not sufficiently covered by the guidance in the main body of this document, to be included in further Annexes to this OGN, which will be added as necessary following further ongoing review of extant legacy body guidance documents.

Many of the projects which are covered by this OGN are also subject to other types of legal obligations (for example Environmental Impact Assessment, SSSI consenting/assenting), which are or may be dealt with in other OGNs. Links between HRA and these other processes are noted where relevant.

3. What NRW functions does this Operational Guidance Note apply to?

In relation to the HRA of projects generally, there are several distinct roles envisaged under the Habitats Regulations:

- The **proponent of a project**, including the applicant for any form of statutory authorisation, or the team or department within a statutory body seeking internal approval to undertake a project;
- The **competent authority**, which can be a project proponent and/or the body determining whether a consent, permission or other authorisation should be given (which may be to another team or department within the same authority);
- The **appropriate nature conservation body** advising the competent authority;
- The **appropriate authority** in relation to damaging projects proceeding for imperative reasons of over-riding public interest (IROPI). In all cases, the 'appropriate authority' in relation to approval for IROPI projects is either the Welsh Ministers (for devolved matters) or the UK Secretary of State (for non devolved matters).

NRW variously exercises the first three of these roles (i.e. we are never the 'appropriate authority'). We are the appropriate nature conservation body for all Natura 2000 sites in Wales³ and hence for all HRAs affecting sites in Wales, regardless of who is the project proponent or competent authority. We are also a competent authority responsible for carrying out HRAs and determining applications for a wide range of types of statutory authorisation, and we are also a project proponent.

This OGN deals in turn with the three categories of project set out below, which are defined by reference to the various roles that NRW exercises.

3.1 Category 1 projects: those authorised or undertaken by other competent authorities where NRW's only role is appropriate nature conservation body

NRW is the appropriate nature conservation body for HRAs carried out by other competent authorities. This includes both where another competent authority is determining an application from a third party for a statutory permission of some kind, and where that authority is deciding whether to undertake a project itself. The main ones are (this not a comprehensive list):

- Planning permissions of any kind, including those issued by Local Planning Authorities, or Welsh Ministers (called-in applications, Developments of National Significance (DNS)), planning appeals and permitted development for which planning permission is granted by General Permitted Development Order 1995 (as amended);
- Transport and Works orders;
- Port and Harbour works (which may also be subject to marine licensing – see below);
- Consents for electricity, pipelines, oil and gas installations;

³ 'Wales' includes the sea out to the 12 mile limit of Territorial waters. For 'cross border' Natura 2000 sites, namely those straddling the Wales/England border or the limit of Territorial waters, the relevant NRW roles are exercised by NRW and Natural England and/or JNCC, as applicable.

- Development Consent Orders (DCOs) for Nationally Significant Infrastructure Projects (NSIPs);
- Any authorisations issued by English or UK authorities for projects taking place outside Wales which affect Natura 2000 sites in Wales;
- Projects in relation to grant applications (especially for EU funding).

3.2 Category 2 projects: those for which NRW issues any form of authorisation to a third party

NRW is the competent authority responsible for carrying out HRAs and determining applications made to NRW for many different forms of consent, permission or authorisation. A full list of these is available on the NRW intranet (Our work>Corporate>Permitting), but they include:

- Permits under the Environmental Permitting Regulations;
- SSSI consents;
- Section 15 / section 16 management agreements;
- Water abstraction/impoundment licences;
- Protected species licences⁴;
- Felling licences;
- Marine licences;
- Coast Protection Act consents;
- Fish stocking licences;
- Flood defence consents;
- Herbicide consents;
- Plant Health Notices.

3.3 Category 3 projects: those undertaken by NRW itself, where we ‘self-consent’ and where we apply to other authorities for consent

Where NRW is ‘self-consenting’, we exercise all three roles: that of project proponent (undertaking the project); competent authority providing a consent or authorisation to itself and carrying out the HRA as part of the determination of that consent or authorisation; and appropriate nature conservation body. In many cases, NRW needs to apply internally for one of the types of permission listed under Project category 2 above. Examples include:

- Operations on the WG Woodland Estate

⁴ Note that HRA of applications for licences seeking derogation from the protection of European protected species is a separate requirement to the assessment of the applications under the species derogation provisions. The implications of a proposed operation on a protected species may be different, or even completely unrelated to, its potential impact on a Natura 2000 site.

- NNR management works
- Flood defence/coast protection works
- Habitat restoration or enhancement works (including for example fish passes)
- Metal mine remediation works
- Hydrometry or telemetry improvement projects
- Monitoring projects (e.g. including groundwater boreholes, marine sampling)

For some types of Category 3 projects, NRW needs to obtain consent from another body (typically from a planning authority for works that constitute development under town and country planning legislation). In such cases, NRW will be both the applicant and a statutory consultee. In many cases a 'self-consent' will also be required. This is covered further in section 7.

4. Key principles of HRA and other sources of guidance

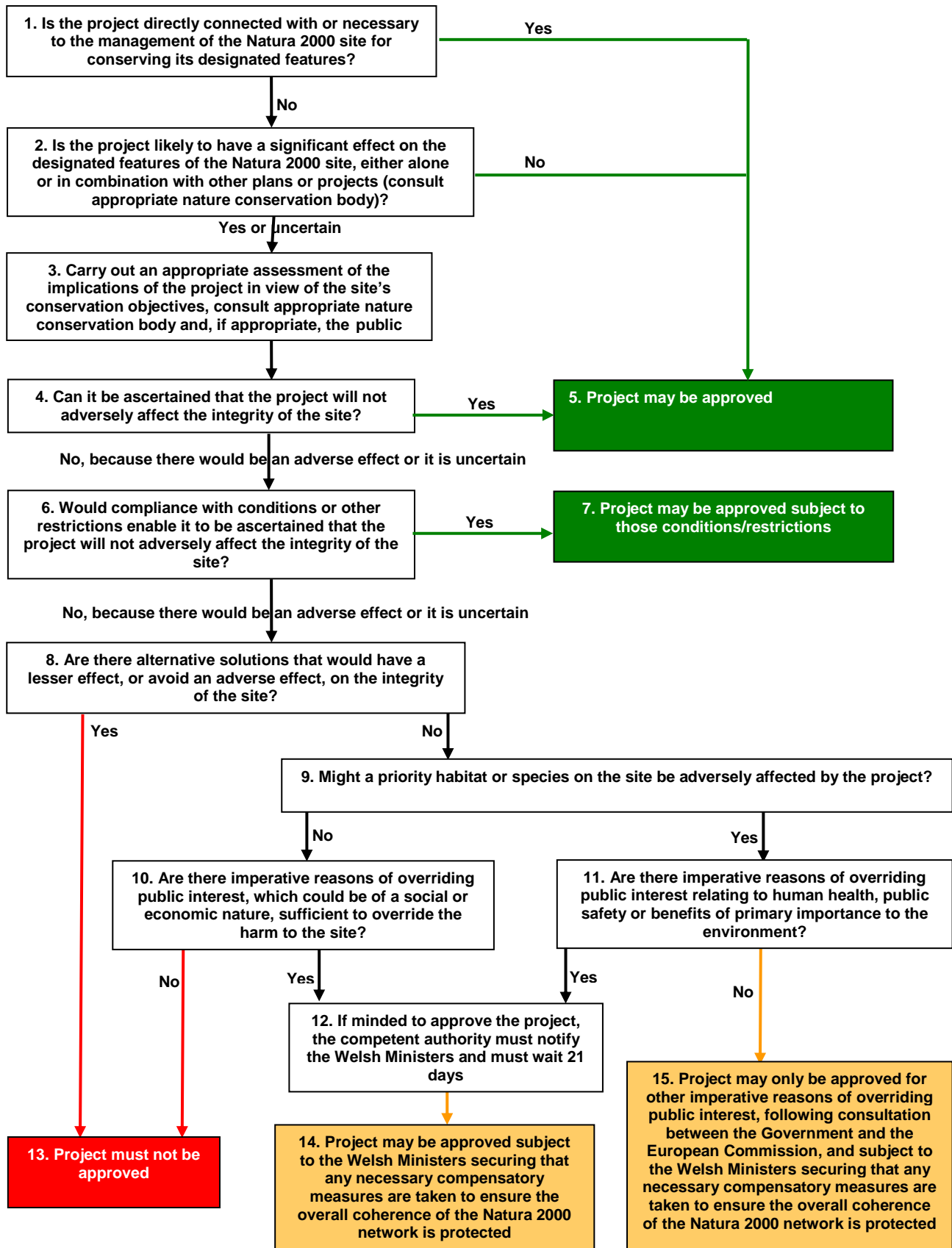
The purpose of this OGN is to set out the procedure that should be followed by NRW when carrying out or advising on the HRA of any type of project. This OGN is not intended to provide detailed technical or legal guidance on the requirements and practice of HRA, since a wide range of guidance produced by other bodies already exists. The most useful documents are referenced below.

4.1 Key principles

The term ‘Habitats Regulations Assessment’ (HRA) has become a widely used shorthand term to describe the whole process of assessing a plan or project under Article 6(3) and 6(4) of the Habitats Directive. It is important not to confuse HRA with the ‘appropriate assessment’ of a plan or project. The appropriate assessment is only one of the stages of HRA, albeit an important stage. Likewise the term HRA includes both the ecological assessment of the implications of a plan or project for the habitats or species for which a site is designated, and the separate stage of, in some cases, considering whether a plan or project should proceed for imperative reasons of over-riding public interest.

The legal framework for HRA is given in **Annex 1**. The key stages of HRA are set out in the flowchart in **Figure 1**. The process in Figure 1 applies to all types of project and is not specific to NRW. Sections 6 and 7 include text and flowcharts setting out the specific processes to be followed by NRW when carrying out HRA.

Figure 1
Consideration of projects affecting Natura 2000 Sites



Key points to note:

- **HRA is a potential ‘show stopper’.** Unless the provisions of relevant legislation are satisfied (Articles 6(3) or 6(4) of the Habitats Directive and Part 6 of the Habitats Regulations, as applicable), proceeding with a project, or granting consent for it, is unlawful and open to legal challenge. A related point is that the information requirements for HRA can in some cases ‘stop the clock’ on the period within which a permission normally has to be determined, for example if more information is required from the applicant for a consent in order to be able to carry out an HRA. If compliance with the source legislation for a particular consenting process requires a determination to be made within a given deadline, **approval can only be given if the necessary tests in the Habitats Regulations have been satisfied. Otherwise approval cannot be given.**
- **HRA is not an assessment of the general environmental effects of a project.** The only effects of a project that are relevant to an HRA are the effects on the features (habitats or species) for which Natura 2000 sites are designated, and only to the extent that the project might adversely affect the achievement of a site’s conservation objectives. The designated features are listed on the official designation documents, and the conservation objectives are set out in the NRW Core management plans for the sites and, for marine sites, the Regulation 33/35/37 advice documents. These are all available from the Protected sites section of the NRW website.
- **HRA embodies ‘the precautionary principle’.** The burden of proof is to show that the project will not adversely affect the integrity of any Natura 2000 sites. This precautionary burden of proof has been upheld in case law of the Court of Justice of the European Union.⁵

4.2 Other sources of guidance

There is a wide range of existing published guidance on the technical aspects of HRA and matters of legal interpretation, which are applicable to HRA generally rather than being specific to how NRW carries out its HRA functions. As a general principle, NRW does not formally endorse or ‘adopt’ any of this material as our own operational practice. However, we are clearly required to take careful account of those documents that constitute statements of Government policy (Wales and UK) and guidance issued by the European Commission. We need to keep in mind that other competent authorities, developers and their agents will often be using these guidance documents. All the documents listed below are readily available online to NRW staff.

- **Welsh Government guidance**

Welsh Assembly Government Planning Policy Technical Advice Note (TAN) 5: Nature conservation and planning is the most comprehensive and detailed

⁵ In particular the judgment of the Court of Justice of the EU in case C-127/02 (often referred to as the ‘Waddensea’ case).

statement of WG's position on project-level HRA (and also covers other matters). Although strictly speaking this applies only to decisions made under the town and country planning system, it can be taken as an authoritative statement of WG policy on HRA more generally.

Available on the Planning section of the WG website.

- **Nationally Significant Infrastructure Projects (NSIPs) advice notes published by the Planning Inspectorate (PINS)**

See in particular Advice Note 10: Habitats Regulations Assessment.

Available on the PINS website.

- **Other PINS Guidance**

PINS are also producing guidance on their pre-application advice service. This guidance will contain a chapter on HRA and will set out the procedural requirements that apply to Developments of National Significance (DNS) and HRA.

- **UK Government guidance**

Although guidance published by the UK government on devolved matters (which includes the implementation of the Habitats and Birds Directives) has no formal policy status in Wales, it can usefully be referred to if it provides guidance on matters which are not covered by policy or guidance issued by WG, and if dealing with cross-border Natura 2000 sites or projects with cross-border implications, since Natural England and other English competent authorities will be referring to UK policy and guidelines. However if there are any differences in the policy position between Wales and UK, or any doubt about the policy position in Wales, advice should be sought initially from the Strategic Assessment Team in Office of the Chief Executive (OCE), or Protected Sites Team in EPP Directorate. It may be necessary to also seek advice from the Habitats and Birds Directives policy leads in Welsh Government.

The UK government equivalent of TAN5 (referred to above) is *Circular 06/05: Biodiversity and geological conservation – statutory obligations and their impact within the planning system*.

Other useful guidance published by the UK Government includes:

Guidance on competent authority coordination under the Habitats Regulations (July 2012), which applies where a project requires approval of more than one competent authority.

Habitats and Wild Birds Directives: Guidance on the application of Article 6(4): alternative solutions, imperative reasons of overriding public interest (IROPI) and compensatory measures (December 2012).

All the above UK government guidance documents are available via the 'gov.uk' website.

- **European Commission guidance**

The European Commission (EC) has published a number of pieces of guidance on HRA. The main and most authoritative is *Managing Natura 2000 sites: the provisions of Article 6 of the Habitats Directive*. This is not detailed procedural guidance, but sets out how the EC interprets the requirements of Article 6, and includes chapters specifically dealing with Article 6(3) (appropriate assessment etc.) and Article 6(4) (plans or projects proceeding on IROPI grounds). Note however that this document is now 14 years old and a revised version is expected to be issued some time in 2016. The chapter dealing with Article 6(4) (IROPI) has already been replaced by an updated version issued in 2012.

The EC has also published a number of supplementary guidance documents dealing with the application of Article 6 of the Habitats Directive in particular sectors, including: wind energy, mining/quarrying, aquaculture, ports and forestry. Some of this sector specific guidance suggests slightly different interpretations or emphasis in some areas, compared to the guidance contained in *Managing Natura 2000*. The relevant chapters of *Managing Natura 2000* should always be referred to as the most definitive expression of the EC's interpretation of how Articles 6(3) and 6(4) of the Habitats Directive should be applied.

All the above are available on the Nature and Biodiversity section of the European Commission's website 'europa'.

- **The Habitats Regulations Handbook**

This is a detailed web-based 'manual' for HRA, published commercially by an independent environmental consultancy. This online document supersedes and updates guidance previously published by CCW on project level HRA (from which the flowchart in Figure 1 above has been adapted).

It is available to NRW staff via the 'Electronic journals' page under Library and Information Services on the NRW intranet.

- **Case law**

Another useful and authoritative source is case law, including judgments of both the UK courts and the Court of Justice of the EU, which have addressed questions over interpretation of the legal framework for HRA. Some important principles of HRA have been established through such cases, and many of the guidance documents referred to above have been written or updated to take into account relevant case law. Where case law has clarified the way in which legislation should be interpreted it is important to adopt that interpretation. However it can take some time for a judgment to be reflected in guidance documents, so you should seek advice from NRW Legal Services before taking into account any recent case law when carrying out or advising on HRAs. In some cases, court decisions are subject to appeals which can modify or even reverse their findings. Also it is necessary to consider

carefully to what extent a judgment given on the specific circumstances of a particular case has wider applicability. A good place to look for information on recent caselaw and its implications, is the Habitats Regulations Assessment Journal, which can be found on the same website as that described above for the Habitats Regulations Handbook.

5. HRA procedure for Category 1 projects: those authorised or undertaken by other competent authorities where NRW's only role is appropriate nature conservation body

Legal requirements:

Under Regulation 63(3)⁶ of the Habitats Regulations a competent authority:

'must for the purposes of the [appropriate] assessment consult the appropriate nature conservation body an appropriate assessment and have regard to any representations made by that body within such reasonable time as the authority may specify.'

As can be seen from Box 3 in Figure 1, the legal requirement on other competent authorities is to consult NRW for the purposes of the appropriate assessment stage of an HRA. However, in practice competent authorities also typically seek NRW advice on whether a project is likely to have a significant effect, and hence on whether an appropriate assessment is required.

Operational guidance for NRW's responses to development planning consultations, including applications for planning permission, and applications for a Development Consent Order (Nationally Significant Infrastructure Projects) are being developed, and when ready will be available on the Development Planning pages of the NRW intranet.

In addition to the information provided in this OGN, Case Managers should check any guidance provided in those documents relevant to HRA matters when compiling a development planning consultation response.

5.1 Roles and responsibilities

Our representations to other authorities as the appropriate nature conservation body in relation to the Natura 2000 implications of a project should be clearly distinguishable from our comments on other issues within our advisory remit. Meanwhile care must be taken to ensure that our advice in relation to whether a project is likely to have a significant effect or in relation to an appropriate assessment is not, and does not give the impression of being, unduly influenced by any advice we provide in relation to other areas of NRW's advisory remit. It is the responsibility of those preparing a consultation response to ensure that the basis of our advice as the appropriate nature conservation body under the Habitats Regulations is clear and transparent, whilst recognising, as outlined in section 4.1 above, that HRA can be a potential 'show stopper' for the project.

Where NRW is approached informally by a competent authority or an applicant (for example where a prospective applicant is seeking pre-application advice on what matters will be of interest to NRW), care should be taken not to pre-empt any formal advice that will need to be given in due course in relation to HRA issues. Advice from the relevant protected sites advisors should be sought at an early stage, and any advice or information provided to prospective applicants in relation to HRA issues should be transparent and reflect the independence of our role as the appropriate nature conservation body.

⁶ Formerly Regulation 61(3)

In some cases we may enter into an extended dialogue with another competent authority and an applicant/developer over HRA matters, involving meetings and exchange of correspondence, and particularly as part of 'pre-application' discussions. After an application has been received by the competent authority, it is particularly important to ensure that our statutory role as the appropriate nature conservation body advising the competent authority is carried out transparently. Therefore if, after an application has been submitted, direct contact between NRW and an applicant is considered necessary in order for us to properly discharge our functions, such contact can take place provided any meetings or correspondence are properly recorded, so that our representations to the competent authority under Regulation 63(3) of the Habitats Regulations are clear and transparent and distinct from any exchanges we have with the applicant.

The record of the HRA as prepared by the competent authority may undergo several iterations to take account of our comments. All correspondence with the competent authority containing our comments on HRA matters should be retained, since it constitutes our representations under the Habitats Regulations. In particular, our comments should be clearly distinguishable from the competent authority's own record of the HRA. We should not, for example, 'sign off' a competent authority's HRA by simply placing an NRW signature on the document, and we should discourage competent authorities from asking us to do this. If we agree with the findings of the HRA we should record that fact, along with any necessary qualifications, either in separate correspondence or, where the competent authority has provided us with a partially completed HRA record, in a section of that document specifically set aside for recording NRW's representations.

The officer (normally referred to as the case manager) preparing the consultation response to the competent authority (whether in Operations or EPP) should seek the input of the relevant protected sites advisors and specialists in Operations or EPP. In practice this may be through internal exchange of emails, or may include arranging meetings involving protected sites advisors and/or specialists and the competent authority (and in some cases the project proponent/applicant, although as noted above, after a formal application has been submitted this should only be where considered necessary for us to effectively carry out our functions).

There are statutory deadlines for NRW consultation responses under planning legislation, but under the Habitats Regulations (Regulation 63.3) it is for the competent authority to give NRW a 'reasonable' time to respond. In some cases the implications of a project for a Natura 2000 site may be more complex than other issues, in which case it may be necessary to seek the competent authority's agreement to extend the deadline for our response. Similarly, in some cases, the information provided by the competent authority may provide an insufficient basis for us to advise properly on the HRA, in which case we should request more information, which can also prolong the consultation process. The key point is that until we are satisfied either that the project is not likely to have a significant effect on any Natura 2000 sites or that, following an appropriate assessment, it will not adversely affect the integrity of any Natura 2000 sites, we should advise the competent authority that the project should not proceed. That includes situations where we consider there is insufficient information to rule out a significant effect or an adverse effect on site integrity.

5.2 Projects taken forward for ‘imperative reasons of over-riding public interest’

As outlined in section 4.1 above, some projects may proceed under Regulation 64⁷ of the Habitats Regulations, notwithstanding a negative assessment of their implications for Natura 2000 sites, if there are no alternative solutions, if they are necessary for imperative reasons of over-riding public interest (IROPI) and subject to any necessary compensatory measures being taken to secure the overall coherence of the Natura 2000 sites network.

For these projects, the decision on the existence of alternative solutions and IROPI is for the competent authority to make, subject to the requirement to notify the ‘appropriate authority’ (which for devolved matters is the Welsh Ministers) and wait 21 days before approving the project. There is no statutory requirement on the competent authority to consult NRW for the purposes of assessing a project under Regulation 64. However, in practice NRW is very likely to be asked to advise on the ecological implications of potential alternative solutions (if there are any), and on what form of compensatory measures may be required. It is not normally within NRW’s remit to advise on whether there are IROPI associated with a project for which another competent authority is responsible, except where the project is also subject to one or more statutory permissions issued by NRW. This is dealt with further in section 6.4.

Before agreeing to a plan or project on IROPI grounds, the competent authority responsible (i.e. not NRW in the case of category 1 projects) must give notice to WG (as the appropriate authority) of their intention to agree to the project. The competent authority must not agree to the project until 21 days have elapsed since the first day of notification, unless WG notifies them that they may do so. On receiving such notice from a competent authority, WG may ask NRW to confirm that we agree with the conclusions of the appropriate assessment, and the adequacy of the compensatory measures proposed. Therefore there is a requirement for NRW and WG to act quickly to meet the 21 day target, although WG may give directions to the competent authority prohibiting them from agreeing to the plan or project, either indefinitely or during such period as may be specified in the direction.

NRW’s advice to other competent authorities and to WG in relation to IROPI projects should ideally be provided by the same team or individual advising on the appropriate assessment under Regulation 63, and follow the same principles of consistency with advice on other matters raised by the consultation, and the provision of ‘single voice’ responses. It will be particularly important for the NRW team preparing the advice to seek appropriate specialist and protected sites input to any discussion of potential compensatory measures. Although it is not NRW’s responsibility to define or deliver compensatory measures, in practice we should, and will be expected to, engage constructively with the competent authority and the project proponent in the development of any package of compensatory measures that may be required.

⁷ Formerly Regulation 62.

6. HRA procedure for Category 2 projects: those for which NRW issues any form of authorisation to a third party

In terms of HRA, NRW's roles here are (i) competent authority and (ii) appropriate nature conservation body.

Legal requirements

This is a summary of the relevant provisions of the 2017 Habitats Regulations. For the actual text of the regulations, staff should consult the legislation itself (e.g. on the legislation.gov.uk website)

- Under Regulation 63 (formerly 61) NRW, before deciding whether to give any consent, permission or other authorisation for a project which is likely to have a significant effect on a Natura 2000 site, and which is not directly connected with or necessary to the management of that Natura 2000 site (for the purposes of conserving its qualifying features), must carry out an appropriate assessment of the implications of the project for the site, in view of the site's conservation objectives.
- The applicant for that authorisation must provide NRW with sufficient information for the assessment, or to determine whether an appropriate assessment is required.
- Regulation 63 stipulates that the competent authority must consult NRW for the purposes of an appropriate assessment and have regard to any representation that NRW makes.
- NRW may normally only give permission for the project after having ascertained that it will not adversely affect the integrity of any Natura 2000 site.
- If NRW is satisfied that there are no alternative solutions and the project must be carried out for imperative reasons of overriding public interest (IROPI), permission can be granted, provided we have notified WG and either 21 days have elapsed with no response, or WG has notified us that we may grant permission. WG must secure that the necessary compensatory measures are taken.
- Regulation 63 does not apply to SSSI consents determined by NRW under section 28 of the Wildlife and Countryside Act 1981 (as substituted). These are covered by Regulation 24 which, like Regulation 63, requires NRW to carry out an appropriate assessment if the operation concerned is likely to have a significant effect on a Natura 2000 site, and is not directly connected with or necessary to the management of that Natura 2000 site (for the purposes of conserving its qualifying features). However, NRW may only give consent if we have ascertained that the project will not adversely affect the integrity of any Natura 2000 site. That is, consent cannot be issued under Regulation 24 on IROPI grounds. The procedure for HRA of SSSI consents is explained further in Annex 4.

The purpose of this part of the OGN is to complement other NRW operational guidance on how all different types of applications to NRW are handled. Each consenting or permitting regime operated by NRW is different and involves different teams and procedures, but **this OGN sets out common elements of the procedure required for HRA in all cases.**

6.1 Roles and responsibilities

NRW itself, as a corporate entity, is the competent authority, but in practice the role of competent authority must be assumed by a specific function within the organisation. Responsibility for carrying out the HRA lies with the team/person responsible for determining the application, which is the team assuming the competent authority role on behalf of NRW. This role may be delegated to another part of the organisation (e.g. to technical specialists outside the team responsible for determining the application), but it should not be delegated to a team or individual that will be fulfilling the appropriate nature conservation body role, as this would remove the independence of function required between these two roles. With a very small number of exceptions, the competent authority role for this category of project is assumed by one of the teams within NRW's Permitting Service in EPP. Exceptions to this include SSSI consents, some flood defence consenting and a number of other types of permission, which are currently determined by teams in the Operations Directorates rather than in the Permitting Service. **The HRA procedure for SSSI consents is described in Annex 4.** Guidance on the HRA procedure for a range of other types of permissions which are determined within the Operations Directorates is under development and will be included in due course in Annex 5.

As noted above, it is the responsibility of the applicant for an NRW authorisation to provide such information as we may reasonably require to enable the HRA to be properly carried out. As noted in section 4 of this OGN, HRA is a potential 'show stopper' in that unless the provisions of the legislation are satisfied, authorisation cannot lawfully be granted. Therefore insufficient information to enable it to be established, for example, that a project will not adversely affect the integrity of a Natura 2000 site, requires refusal (if there is a statutory determination period), or may require the applicant to provide more information before a satisfactory HRA can be carried out.

In all cases, the responsibility for providing the protected sites advice lies with the relevant Natural Resource Management (NRM) team responsible for the Natura 2000 site concerned (the appropriate nature conservation body role). Whilst it is these teams that lead on the formal responses, they should also seek input from relevant technical specialists in EPP or elsewhere in Operations as required. The EPP technical specialists have a Wales and UK wide remit to ensure that a consistent approach is adopted, and to make sure that the most up to date evidence is used in the assessment.

A single lead protected sites advisor should be agreed between all to coordinate the advice being given to the permitting team, and to ensure that advice in relation to all Natura 2000 sites affected by the project is provided to the permitting team in a timely manner.

Under the Habitats Regulations the carrying out of the HRA of a project, and the resulting decision on whether to give any consent permission or authorisation, lies with the competent authority. It does not lie with the nature conservation body. The competent authority must have regard to the advice of the nature conservation body. That principle must also be applied where NRW exercises both roles. There must be a functional separation between NRW's roles as appropriate nature conservation body and competent authority, and each role must be exercised independently of the other. The fact that a

project is subject to HRA does not change where the responsibility lies within NRW for determining the application for consent for that project.

Where NRW is approached informally by a prospective applicant, for example seeking pre-application advice on what matters will be of interest to NRW, advice from the relevant protected sites advisors should be sought at an early stage, and any advice or information provided to prospective applicants in relation to HRA issues should be transparent and reflect the independence of our role as the appropriate nature conservation body. Likewise care should be taken when giving pre-application advice not to pre-empt formal consideration of HRA issues that may take place once the application is received.

Therefore unless there are clearly no implications for any Natura 2000 sites, advice from the relevant protected sites advisors should be sought at an early stage so that from the outset NRW is advising prospective applicants 'with one voice', and noting that HRA could represent a significant element in the determination of an application, and may even be a potential 'show stopper' for the project.

6.2 The standard process to be followed

Figure 2 summarises the steps to be followed when carrying out an HRA of an external application to NRW for some form of authorisation.

- A. On receipt of an application the permitting team should consider whether the project requires an HRA. It is the applicant's responsibility to provide the necessary information to enable NRW to determine if an HRA is required and properly carry out an HRA if it is required. If there is insufficient information to make this assessment, the applicant should be asked to provide additional information. The assessment should be based on the project as received, **and taking into account any mitigation measures already included within the project specification or methodology**. A decision not to carry out an HRA should be recorded, and this can be done either using existing procedures/forms for handling of applications, or by completing sections 1 and 2 of a Form 1 HRA report (see below).

There is no automatic requirement to obtain protected sites advice at this point, as there will be many projects (and possibly entire categories of projects) where the possibility of any effect on Natura 2000 sites can be ruled out. For example some types of permit (e.g. water abstraction licences) are issued for a fixed period and are subject to periodic renewal. Renewal applications are subject to the relevant legislation in the same way as new applications. **However as a general principle, a renewal can be automatically screened out as not likely to have a significant effect provided that a number of conditions are met including:-**

- **there being no outstanding or unresolved differences of view between permitting teams and protected sites advisors, including advice formerly provided by CCW, on the Natura 2000 implications of a consent which is up for renewal;**
- **the prevailing environmental conditions relating to the potential impact on a Natura 2000 site of the consent in question have not changed (for example, other completed consents in the vicinity could act cumulatively or there may be new monitoring/surveillance data showing negative effects on a relevant Natura 2000 site, from the consent in question, meaning a renewal should be considered more carefully);**

- there is no new generic evidence (as opposed to site/consent specific information) indicating previously unknown or underestimated effects;
- protected sites advisors or national technical experts have not flagged up any Natura 2000 issues during the lifetime of the expiring licence or permit;
- the renewal is on the same or more restrictive terms.

When **all** of these criteria are met, renewals can be automatically screened out as **not likely to have a significant effect**. If in doubt, seek advice from protected site staff and/or technical specialists. For water resource permit renewals a set of 'pre-screening' criteria has been adopted and will be used to determine whether each renewal application can be screened out of further consideration under the Habitats Regulations.

Otherwise, an HRA report should be drafted, using the standard template in **Form 1**. **This template should be used for all HRA records for all Category 2 projects in NRW, and replaces all previous forms and templates used for that purpose, including legacy Environment Agency 'Appendix 11' and 'Appendix 12' forms, the forms currently being used for the HRA of felling licences and by the Marine Licencing Team for marine licences, all of which are now withdrawn.**

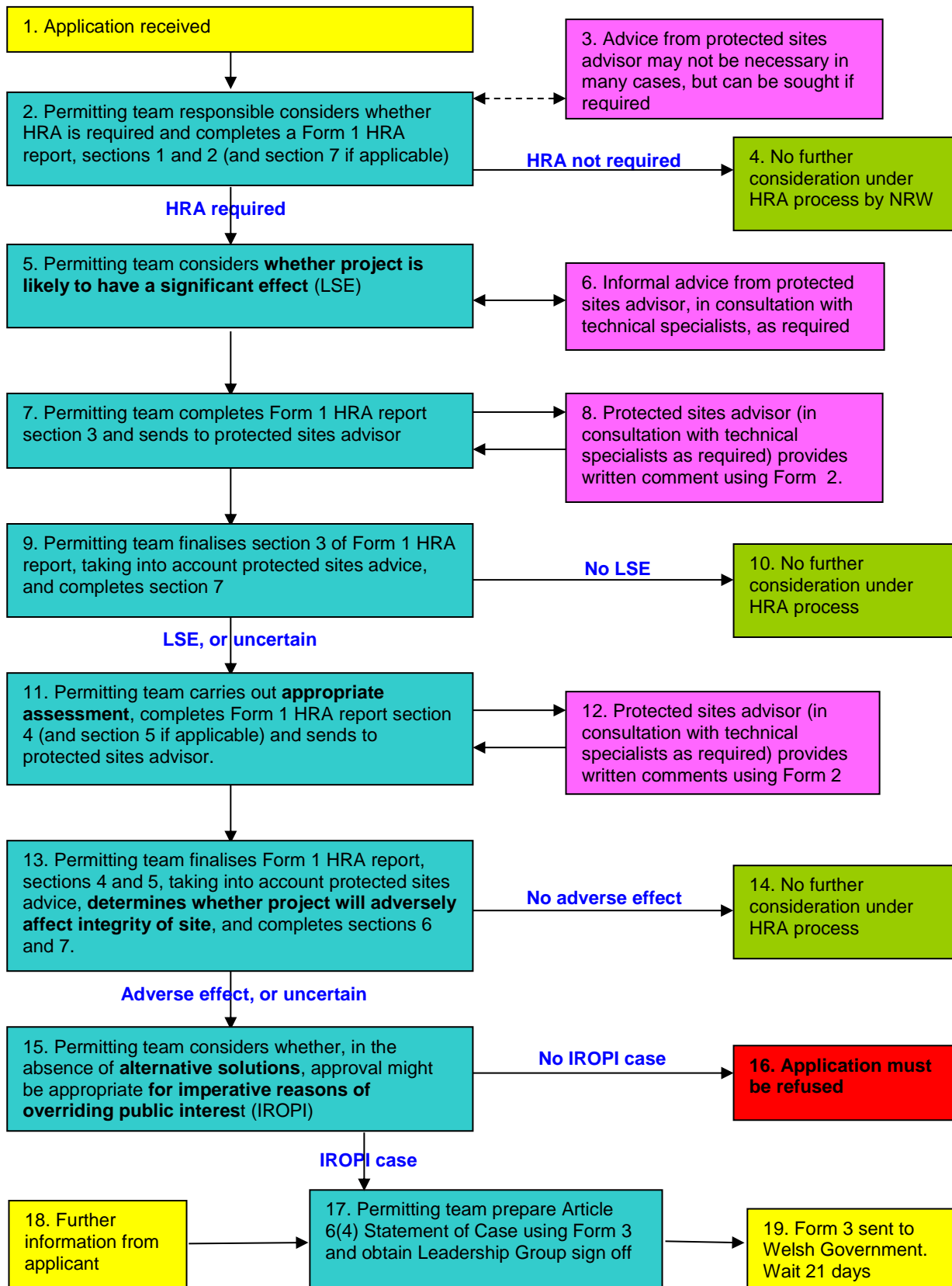
- B. Unless the risk of significant effects can be excluded without seeking protected sites advice, the permitting team should discuss the potential Natura 2000 implications of the project with the protected sites advisor prior to finalising section 3 of the **Form 1 HRA report**. There are various ways in which this can be facilitated, depending on the nature of the project and the potential Natura 2000 issues it raises, for example:
- permitting team completes section 3 of the HRA report in draft and asks for protected sites advisor's comments;
 - permitting team sends protected sites advisor details of the project (e.g. copy of relevant parts of the application) and asks for comments;
 - meeting or telecon is arranged to discuss the application.
- C. If the permitting team decides that the project is NOT likely to have a significant effect (and hence that the HRA will be completed without there being an appropriate assessment), they should send a dated copy of the Form 1 HRA report with section 3 completed to the protected sites advisor for comment, regardless of whether there has already been any verbal or informal input from the protected sites advisor (note that this does not apply to renewals as set out in A above).
- D. The protected sites advisor should provide written advice to the permitting team, using the standard form in **Form 2**. This form should also be used where discussions/meetings have been held or where draft versions of the HRA report have been exchanged. The permitting team must take careful account of this advice in completing the HRA report, and attach a copy of the Form 2 advice to the Form 1 HRA report to become part of the record of the HRA.
- E. If the permitting team concludes that significant effects cannot be ruled out and therefore that an appropriate assessment is required, there should be further consultation with the protected sites advisor in order to complete the remaining sections of the Form 1 HRA report, including in particular section 4 which will

constitute the formal record of the appropriate assessment. In all cases, and irrespective of any other verbal or written exchanges, a dated version of the HRA report with relevant sections completed should be sent to the protected sites advisor for final comment.

- F. The protected sites advisor should reply using Form 2, in particular highlighting whether they agree with the findings of the Form 1 HRA report, or noting any outstanding concerns. Again, the permitting team must take careful account of the advice in finalising the HRA report, and attach a copy of this advice to the HRA report to become part of the record of the HRA.
- G. The HRA may require dialogue between NRW (exercising the competent authority role) and the applicant, in particular because the Habitats Regulations specifically require the applicant to provide such information as the competent authority may reasonably require. In line with the 'one stop shop' principle and delivering customer focussed service, all requests to the applicant for information in support of the HRA should be handled by the permitting team carrying out the HRA. If, after an application has been submitted, direct contact between NRW protected sites advisors and an applicant over HRA matters is considered necessary in order for us to properly discharge our functions (for example in a complex case where significant discussions over the evidence base, or identification of potential mitigation measures are required), correspondence and records of any meetings with the applicant should be carefully documented so that the advice provided by the NRW team exercising the appropriate nature conservation body role to the NRW team exercising the competent authority role, is clear and transparent and distinct from any exchanges between NRW and the applicant.
- H. Where there is a need for applications to be determined within a certain timescale (for example to comply with statutory determination periods), protected sites advisors should endeavour to respond as soon as is reasonable, meet reasonable deadlines, and ideally the teams involved should establish a mutually agreed timetable, recognising that HRA is part of wider decision making process and HRA needs to reflect the timelines of the consenting process. A default of 15 working days for provision of the protected sites advice is suggested, unless circumstances dictate a shorter or longer deadline. Early engagement between applicant, permitting team and protected sites advisors should help identify information requirements so that these can be built into the timetable early on, rather than arising later in the process when information requests will be harder to accommodate. However, given the requirement to establish that projects will NOT adversely affect Natura 2000 sites before authorisations can be given, the requirements of the HRA may in some cases necessitate agreeing longer timescales for internal consultation. For example, if at the point at which an application determination deadline has been reached, the HRA has not been completed, or is still inconclusive, permission cannot be given. All parties should be aware of this from the outset and plan accordingly.
- I. The Regulations do not require consultation with the public for the purposes of carrying out an HRA. In line with NRW's Public Participation Scheme, NRW may consult the public on draft permitting decisions which we consider have a significant degree of public interest, due to the nature of the application and/or the location.

Where it is decided to consult the public, the consultation should cover the HRA. There is no need for us to carry out separate public consultation on the HRA. Meanwhile the degree of public interest in an application may or may not be related to its implications for Natura 2000 sites.

Figure 2: HRA procedure for Category 2 projects: those for which NRW issues any form of authorisation to a third party



6.3 Where the permitting team and protected sites advisors do not agree

In most cases it is expected that the conclusions of the HRA will reflect the advice of the protected sites advisors. However, given the separation of roles of competent authority and nature conservation body, in principle it is possible that the permitting team determining an application could do so against the protected sites advice. Nevertheless, in all cases there is a clear responsibility on the permitting team to demonstrate how they have had regard to the protected sites advice, and this applies particularly if they are minded not to follow that advice.

In these cases it is important that the protected sites advice documented in Form 2 clearly sets out the protected sites advisor's views on the implications of the project for the designated Natura 2000 features concerned and that section 7 of Form 1 clearly documents how that advice has been considered by the permitting team and why the conclusion of the HRA does not reflect that advice. The finalised HRA report should be sent to the protected sites advisor for information.

Where the protected sites advisor does not agree with a conclusion of no likely significant effect or no adverse effect on site integrity, the permitting team should refer the case to their Leadership Group manager. The Leadership manager will then consider how to proceed, in discussion with the relevant Leadership manager for the protected sites advisor concerned. They may decide to proceed in a number of ways, including:

- accepting the position of one or other team and instructing the permitting team to proceed accordingly;
- convening further discussions between the two teams (and involving technical specialists as appropriate), in an effort to resolve the difference of view;
- asking for the case to be independently reviewed.

The final decision and responsibility for signing off the HRA in these circumstances rests with the Leadership manager of the team exercising the competent authority role. Particularly difficult or sensitive cases can be referred to Executive Team if necessary.

It is not necessary to refer to Leadership unresolved differences of detail or emphasis that would not affect the overall conclusions of the HRA. In these circumstances after reasonable efforts have been made to accommodate the advice of the protected sites advisor, the permitting team should complete the Form 1 HRA report according to their best judgement.

Where, following the escalation process, the conclusion of the HRA is contrary to the protected sites advice, a brief record of the case should be added to a centrally held register of such cases held on the DMS. This should be done once the Leadership Manager has signed off the final HRA, even if the final decision on whether to issue the permit has not yet been made, and irrespective of whether the consent is subsequently refused for any reason.

[Click here to open the register](#)

6.4 Procedure for 'IROPI projects'

NRW may on occasion receive applications for consent for projects which, despite a negative outcome of the appropriate assessment, are necessary for imperative reasons of over-riding public interest (IROPI). Provided there are no alternative solutions, and provided that any necessary compensatory measures are taken to ensure that the overall coherence of the Natura 2000 network is protected, such projects may proceed under the derogation allowed by Article 6(4) of the Habitats Directive (as transposed by Regulation 64 of the 2017 Habitats Regulations).

The determination of whether a project in this category should proceed for IROPI is a decision for NRW to make, subject to notifying Welsh Government that we intend to authorise the project. Once WG have been thus notified we must wait 21 days before giving authorisation unless WG notify us that we may do so. WG may prohibit us from giving authorisation, or from doing so within a specified time period.

There is a substantial amount of guidance on what constitutes IROPI in the various documents referenced in section 4.2 of this OGN. Deciding whether a project satisfies the Article 6(4) tests can be a complex matter, as it involves weighing the harm, or likely harm that the project will have on the Natura 2000 site, against its anticipated benefits, which may be entirely socio-economic, or relate to environmental objectives other than the Natura 2000 site conservation objectives, or a mixture. Where a SAC feature likely to be affected by a project is identified in Annexes to the Habitats Directive as a 'priority' habitat type or species⁸, the only reasons which may constitute IROPI are those relating to public health, public safety, environmental benefits of primary importance, or other reasons which a competent authority considers to be IROPI having sought and had regard to the opinion of the European Commission. If NRW wishes to seek the opinion of the European Commission on whether there are imperative reasons of over-riding public interest, we can submit a request to WG who may then seek the EC's opinion and relay it back to NRW.

A project can only be considered for IROPI if it has undergone an appropriate assessment which has concluded that there will be adverse effects on the integrity of one or more Natura 2000 sites, or that such effects cannot be excluded. Therefore, in all cases, the relevant permitting team must have completed and signed off an appropriate assessment.

If giving consent to a project on IROPI grounds is being contemplated, a detailed 'Article 6(4) Statement of Case' (SoC) covering the tests in Article 6(4) of the Habitats Directive should be prepared by the team determining the application (i.e. the team that has assumed the role of competent authority). A generic template for this is given in **Form 3**. In practice, completing this form is likely to require extensive dialogue between NRW (in its competent authority role) and the project applicant, and provision of additional information that has not formed part of the HRA up to this point, including on the availability of alternative solutions, the social or economic importance of the project, and the package of compensatory measures. The relevant protected sites advisors will need to advise the NRW team exercising the competent authority role, on the potential impact of any

⁸ 'Priority' habitat types and species are relevant only in relation to SACs. They do not apply to SPAs or Ramsar sites.

alternative solutions (which might include different locations for the project), and on the requirements for compensatory measures.

The completed Form 3 SoC should be signed off at Leadership group level, copied to Executive Directors for information, and sent to WG. Copies should be emailed to both the Welsh Government Biodiversity & Nature Conservation Team and Marine Conservation and Biodiversity Team. Those teams will liaise, as required, with other WG departments.

As noted above, authorisation for the project may then only be given if either 21 days have elapsed since WG received the Form 3 SoC, or WG has notified us that we may give authorisation. Within that 21 day period WG may prohibit us from authorising the project either indefinitely or within a specified time period.

WG is required to inform the European Commission of the compensatory measures taken for projects which are approved on IROPI grounds, and will use the information provided in the SoC for this purpose. Under the Habitats Regulations, it is WG's responsibility to ensure that any necessary compensatory measures are taken. Therefore, it is important that the notice given to WG using Form 3 contains sufficient information about the compensatory measures. The development of the compensatory measures will in most cases be a substantial task to be carried out before any SoC submission to WG can be made. It is beyond the scope of this OGN to provide further guidance on developing compensatory measures, but further guidance may be developed in future.

In some cases, the likelihood that a project will need to be considered under Article 6(4)/Regulation 64 will be apparent at an early stage in the HRA process, possibly even during 'pre-application' discussions. If so, the applicant should be encouraged to consider gathering, during the earlier stages of the HRA, the information that will be needed to support an Article 6(4) assessment, but it should be made clear that this is without prejudice to the conduct or conclusions of the HRA. In particular, applicants should be clearly informed that early consideration of the information needed to support an assessment under Article 6(4), including in relation to possible compensatory measures, is without prejudice to the determination of whether the project would meet the tests in Article 6(4).

6.5 Projects requiring multiple permissions

6.5.1 Where multiple NRW permissions are required

A single HRA (covering all Natura 2000 sites affected) should be produced to support the determination of all applications, and covering all potential impacts of the whole project on Natura 2000 features where possible. If different permissions are the responsibility of different NRW teams, a lead team should be agreed to prepare the HRA on behalf of the others and carry out the internal consultation with the protected sites advisor. This should normally be the team responsible for the application covering the elements of the project that are likely to have the most significant impact. However, in many cases, applicants may seek permissions sequentially, with an expectation of obtaining one permission and then applying for the next. This makes conducting an HRA of an entire project more difficult, and applicants should be encouraged to provide all the information necessary to enable a

single HRA of the whole scheme to be carried out, even if they intend to submit formal applications for the subsequent consents at a later stage.

If the relevant permitting legislation requires an application to be determined within a timescale that precludes carrying out an HRA of the whole project, and/or where the applicant is unwilling or unable to provide all the necessary information from the outset, NRW should ensure that it at least has enough information to do an in-combination test with the other permissions that will be required, and the application will need to be determined on the basis of this more limited-scope HRA. If permissions are given in these circumstances, the applicant should be clearly informed that the granting of an authorisation for one element of a project does not in any way create a presumption that later permissions will be granted, or prejudice the conclusions of subsequent HRAs.

6.5.2 Where a project requires permissions from NRW and another competent authority

Many projects require both a permission from NRW and a permission from another competent authority. A common example is a development requiring planning consent from the local planning authority, and an Environmental Permit from NRW. In these cases, as well as needing to carry out an HRA of the application, NRW will also be the appropriate nature conservation body and will need to advise the other competent authority for the purposes of their HRA.

Each competent authority determining an application for permission of any kind is responsible for carrying out its own HRA and reaching its own conclusions. However, in practice it is possible for NRW and the other authority to work together and to share information so as to avoid duplication of work, and ideally reach the same conclusion in relation to the HRA, while respecting each other's autonomy and independence of decision-making. Although a competent authority cannot delegate or transfer its statutory responsibility for HRA to another authority, one authority may rely on the findings of another's HRA in making its own determination. In many cases, because of NRW's technical competence in relation to the environmental, and particularly the ecological implications of many types of project, other competent authorities will generally give considerable weight to the findings of HRAs carried out by NRW. It is also possible for two or more competent authorities to agree that one will assume the role of 'lead competent authority' and carry out a central coordinating role, for example leading the preparation of jointly agreed documents to support the HRA, liaising with applicants over information requirements and coordinating any publicity or wider stakeholder engagement in relation to the HRA of the project. It is beyond the scope of this OGN to provide detailed guidance on the appointment and roles of a 'lead' authority, but guidance on this may be developed in future. Note also that under Regulation 67⁹ of the Habitats Regulations a competent authority is not required to assess any implications of a plan or project that would be more appropriately assessed by another authority.

Under various enactments, applicants may apply for various permissions at different times, which makes it very difficult to carry out a single HRA dealing with all the implications of the project at the same time (as noted above). Wherever possible, NRW's planning consultation response and NRW's HRA of the permit application, although distinct roles,

⁹ Formerly Regulation 65.

should be progressed in parallel, with the teams responsible working closely together, and supported by consistent advice from the protected sites advisors. In practice, this will depend on whether the timing of the two application processes enables parallel tracking or whether it is necessary for one process to precede the other, as is often the case. However, as a general principle it is preferable for HRAs to be carried out on projects in their entirety rather than sequentially on individual components of a project subject to different permissions. Therefore we should strongly encourage applicants to provide all the information necessary to carry out an HRA of the entire project, even if they intend to seek further consents at a later stage, and encourage planning authorities to do likewise. At the very least, any subsequent planning application anticipated should be considered in combination with a permit application.

Where for any reason HRAs for multiple-consent projects need to be carried out on individual component parts of the project rather than considering the implications of the entire scheme, applicants should be clearly informed that the granting of an authorisation for one element of a project does not in any way create a presumption that later permissions will be granted, or prejudice the conclusions of subsequent HRAs.

In all cases the nature conservation advice will be provided by the same protected sites team to both the NRW team determining the NRW permission(s), and to the other competent authority, via the team responsible for providing NRW's consultation response. It is the responsibility of the protected sites advisor and the planning team to ensure that the advice given on both HRAs is consistent, regardless of the timing of the respective consultations. For example any protected sites advice provided to the permitting team on Form 2 should be copied to the team preparing NRW's consultation response.

Where NRW or another competent authority is considering approving a project which requires authorisations from both bodies, on IROPI grounds, NRW and the other authority must each consult the other and have regard to the other's views on whether the project should proceed on IROPI grounds, before making that determination (Regulation 67(5)).

6.6 HRA and 'emergency works'

The following guidance is given in recognition of the fact that NRW may receive applications for consent where urgent action is needed (for example to protect human life or to prevent damage to property or environmental assets) within a timescale which does not enable any meaningful HRA to be conducted prior to a decision to proceed. However, there are no explicit provisions in the Habitats Directive or Regulations for projects to escape scrutiny under HRA provisions on the grounds that they constitute 'emergencies'. Therefore, notwithstanding the following guidance, wherever possible legal advice should be sought before issuing any form of approval for an 'urgently needed' project without prior application of the HRA requirements.

Provided the idea of 'emergency' is understood as incorporating **all** three of the following:

- a significant degree of public interest (e.g. protecting human life or health or preventing serious and irreparable damage to property or to natural assets), AND
- urgency of action required to protect those interests, AND
- absence of alternative courses of action capable of protecting those interests

then 'emergency works' can reasonably be considered as a type of IROPI capable in principle of satisfying the tests in Article 6(4) of the Habitats Directive. However, by definition it is not possible to carry out the HRA before the approval for the project can be given. Therefore the best that can reasonably be done in these circumstances is for the operation to be undertaken in a way that causes as little damage as possible, and then to document an HRA retrospectively. This should include establishing as clearly as possible the scale and nature of any adverse effects on site integrity that occurred and to what extent they can be mitigated through further intervention (e.g. habitat restoration works) or through natural regeneration (or a combination of both). In some cases, damage to Natura 2000 features may be only temporary and amenable to rapid restoration, in which case the conclusion of a retrospective HRA could in principle be 'no adverse effect', provided any necessary restoration or reinstatement measures are taken and shown to be effective within a short period of time following the damage. Where rapid restoration or repair is not possible, the retrospective HRA will need to accept that damage has occurred, and to document the lack of alternative solutions to the course of action that was taken, the existence of IROPI that justified the works being undertaken, and what compensatory measures are needed.

7. HRA procedure for Category 3 projects: those undertaken by NRW itself, where we ‘self-consent’ and/or where we apply to other authorities for consent

In terms of HRA, NRW’s roles here are (i) project proponent/’applicant’, (ii) competent authority and (iii) appropriate nature conservation body.

Legal requirements

This is a summary of the relevant provisions of the 2017 Habitats Regulations. For the actual text of the regulations, staff should consult the legislation itself (e.g. on the legislation.gov.uk website)

- Under Regulation 63 (formerly 61), NRW, before deciding whether to undertake a project which is likely to have a significant effect on a Natura 2000 site, and which is not directly connected with or necessary to the management of that site (for the purposes of conserving its features) must carry out an appropriate assessment of the implications of the project for the Natura 2000 site(s), in view of the Natura 2000 site’s conservation objectives.
- Regulation 63 stipulates that the competent authority must consult NRW as the appropriate nature conservation body, for the purposes of an appropriate assessment and have regard to any representation that NRW makes. The situation of NRW ‘consulting itself’ is not explicitly provided for in Regulation 63, but in order to ensure, and be able to demonstrate, that we are properly carrying out our distinct duties as (i) a competent authority deciding whether to undertake works, and (ii) the appropriate nature conservation body in Wales, we must in effect ‘consult ourselves’.
- Subject to the IROPI provisions, NRW may only undertake the project after having ascertained that it will not adversely affect the integrity of any Natura 2000 site.
- Where the project constitutes ‘development’ and would normally be undertaken under NRW’s permitted development rights, the Regulations do not allow us to apply the IROPI provisions. Therefore, unless adverse effects on the integrity of any Natura 2000 sites can be ruled out, we must submit a planning application to the relevant local planning authority, who will conduct a HRA.
- Where a project does not constitute ‘development’ NRW can in principle apply the IROPI provisions. If we are satisfied that there are no alternative solutions and the project must be carried out for IROPI, we can undertake the project provided we have notified WG and either 21 days have elapsed with no response, or WG has notified us that we may proceed. WG must secure that the necessary compensatory measures are taken.

Projects in this category may be ‘stand alone’, or may be works which are planned and undertaken under the terms of different types of land use plans or resource plans (for example Forest Design/Resource Plans, National Nature Reserve management plans, Flood Risk Management plans/strategies). These plans are themselves subject to HRA,

but plan-level HRA rarely if ever addresses the Natura 2000 implications of any consequential projects to the level of detail that would enable those projects to escape further HRA altogether. Rather it will normally be the case that a plan can satisfy the requirements of HRA and be adopted on the basis that lower tier projects arising from that plan will themselves be subject to HRA (deferring down). In such cases, each project deferred down will need to undergo HRA before it can be approved, although the project level HRA will be more straightforward if many of the issues have already been addressed at the plan level, for example if the plan prescribes the location of projects so as to avoid significant effects on Natura 2000 sites, or establishes that only projects satisfying certain criteria will be taken forward under the plan.

Meanwhile of course, any NRW-instigated project that does not arise specifically from an approved plan that has been subject to HRA, needs to undergo HRA before approval is given.

7.1 Roles and responsibilities

The relevant project manager (i.e. the project proponent) assumes the competent authority role and is responsible for carrying out HRA for this category of project. They may be assisted in this, if required, by the Environmental Assessment Team (EAT) in EPP, who provide an internal advisory service. In terms of project level HRA, EAT undertakes or advises on HRA of NRW projects where they are also undertaking Environmental Impact Assessment (EIA) of the project (high risk projects). Assistance may also be provided by Biodiversity officers in Operations teams, **although if these officers are in the same team as the protected sites advisors who will be exercising the appropriate nature conservation body role in relation to the project concerned, care should be taken to ensure that the HRA itself, and the nature conservation advice on the HRA, are clearly and transparently documented, so that we can in all cases demonstrate separation of roles between competent authority and appropriate nature conservation body.**

Where NRW's proposed projects require NRW permissions (i.e. 'self-consenting'), the relevant permitting team in EPP will also exercise the role of competent authority and will **also** need to carry out its own HRA. Whilst this may appear to create unnecessary duplication, it is necessary in order to reflect the principle in the Habitats Regulations that a competent authority is subject to the HRA provisions both when deciding whether to undertake projects itself, and when deciding whether to issue authorisations to undertake projects. Even though for this category of projects NRW is exercising both roles, it is necessary to maintain a clear distinction between them. Duplicated or unnecessary work can in practice be avoided in most cases since the HRA carried out by the project team (or EAT or Biodiversity officers where relevant) prior to internal applications for permission being submitted, should provide much of the information needed for the HRA to be done by the permitting team. The permitting team must either satisfy itself that the HRA carried out by or on behalf of the project team is sufficiently robust to inform the permitting decision, or it must conduct a new HRA before determining the internal permit application.

In all cases, the responsibility for providing the protected sites advice lies with the relevant Natural Resource Management (NRM) team responsible for the Natura 2000 site concerned (the appropriate nature conservation body role). Whilst it is these teams that lead on the formal responses, they should also seek input from relevant technical

specialists in EPP or elsewhere in Operations as required. The EPP technical specialists have a Wales and UK wide remit to ensure that a consistent approach is adopted, and to make sure that the most up to date evidence is used in the assessment.

Where a project affects more than one Natura 2000 site within a single Operations region or in both Operations regions, different protected sites advisors may need to be involved. A single lead protected sites advisor should be agreed between all to coordinate the advice being given to the project team, and to ensure that advice in relation to all Natura 2000 sites affected is provided.

For marine HRAs with marine issues, the project proponent should contact EPP Evidence and Analysis Group marine staff where appropriate for informal and formal nature conservation advice.

An important principle in the Habitats Regulations is that the conclusion of the HRA of a project, and the resulting decision on whether to approve it, lies with the competent authority. It does not lie with the appropriate nature conservation body. The competent authority must have regard to the advice of the nature conservation body. That same principle is to be applied where NRW exercises both of roles. The fact that a project is subject to HRA does not change where the responsibility lies within NRW for determining the application for consent for that project. Similarly, the fact that a project team has reached a particular conclusion on the HRA of a project does not pre-judge the outcome of the HRA conducted by the permitting team.

7.2 Standard process to be followed

Figures 3(a)-(c) set out the process to be followed when carrying out an HRA of a project where NRW is the project proponent or ‘applicant’:

- Figure 3(a) applies where the project falls within NRW’s permitted development rights.
- Figure 3(b) applies where the project requires NRW to apply for consent from another competent authority (e.g. planning applications).
- Figure 3(c) applies where the project requires the granting of some form of permission by one of the teams in the EPP Permitting Service.

Note that the role of the project team in carrying out the HRA may be fulfilled by the Environmental Assessment Team (EAT) in EPP or others acting on the project team’s behalf. However to avoid repetition only the term ‘project team’ is used below and in Figures 3(a)-(c).

- A. The potential implications of a project for any Natura 2000 sites should be considered as early as possible in the project planning process, and ideally project specifications and option selection should be designed to avoid the risk of significant effects on Natura 2000 sites. Project teams should therefore discuss proposed projects with the relevant protected sites advisors at an early stage, and take their advice into account in project design and options appraisal.
- B. This paragraph (step B) applies only if the project constitutes ‘development’ which comes under NRW’s permitted development rights.

The project team should at this point write to the relevant local planning authority (LPA):

- briefly describing the project;
- stating that we consider it to fall within our permitted development rights;
- stating that, as a competent authority proposing to undertake a project, we intend to carry out a Habitats Regulations Assessment of the project ourselves, in accordance with Regulation 63 of the 2017 Habitats Regulations;
- making clear that unless the conclusion of our HRA is either that the project is not likely to have a significant effect either alone or or in combination with other plans or projects, or, following an appropriate assessment, that it will not adversely affect the integrity of any European site, we cannot take it forward as permitted development and therefore we would not seek approval of the LPA under Habitats Regulations 75-77¹⁰, but would need to consider submitting a planning application;
- stating that we will be happy to provide the LPA with a record of our HRA when completed;
- inviting any observations the LPA may wish to make at this stage.

- C. If the possibility of any impact on Natura 2000 sites can be readily ruled out (either due to the inherent nature or location of the project, or because it has been specifically designed to avoid significant affects on any Natura 2000 sites), it is not necessary to carry out an HRA. A decision not to carry out an HRA at this point should be clearly recorded. This can either be done within the relevant project documentation, or can be done by completing sections 1 and 2 of an HRA report (see next paragraph).
- D. In all other cases, namely for any project where there is a reasonably foreseeable possibility that it could affect any Natura 2000 site features, or where the protected sites advisor does not agree that no HRA is required, an HRA report should be drafted by the project team, using the template in **Form 1. This template should be used for all HRA records for all Category 3 projects in NRW, and replaces all previous forms and templates used for that purpose, including legacy Environment Agency 'Appendix 11' and 'Appendix 12' forms, the forms used for the HRA of felling licences and by the Marine Licencing Team for marine licences, all of which are withdrawn.**
- E. The project team should discuss the potential Natura 2000 implications of the project with the protected sites advisor(s) prior to completing section 3 of the Form 1 HRA report. There are various ways in which this can be facilitated, depending on the nature of the project and the potential Natura 2000 issues it raises, for example:
- project team completes section 3 of the HRA report in draft and asks for the protected sites advisor's comments;
 - project team sends the protected sites advisor details of the project and asks for comments;
 - meeting or telecon is arranged to discuss the proposal.

¹⁰ Formerly Regulations 73-75

- F. The protected sites advisor should provide written advice to the project team, using the template in **Form 2**. This form should also be used where discussions/meetings have been held or where draft versions of the HRA report have been exchanged.
- G. If, taking account of the advice provided by the protected sites advisors, the project team decides that the project is NOT likely to have a significant effect (and hence that the HRA will be completed without there being an appropriate assessment), they should send a dated copy of the Form 1 HRA report, with sections 1 to 3 completed, to the protected sites advisors for final comment (regardless of whether there has already been any input from the protected sites advisor).
- H. If the project team concludes that significant effects cannot be ruled out and therefore that an appropriate assessment is required, there should be further consultation with the protected sites advisors (as in paragraph D above) in order to complete the HRA. In all cases, and irrespective of any other verbal or written exchanges, a dated version of the Form 1 HRA report with all relevant sections completed should be sent to the protected sites advisors for final comment.
- I. The protected sites advisors should provide their final comment, again using Form 2, in particular highlighting whether they agree with the conclusions of the HRA, or noting any outstanding concerns. The project team should attach a copy of this advice, and any previous advice received, to the Form 1 HRA report to become part of the record of the HRA.
- J. Where there is a need for projects to be approved within a certain timescale (for example to comply with timeframes for approval of funding, or because there is a degree of urgency to the work being undertaken), protected sites advisors should endeavour to respond as soon as is reasonable, meet reasonable deadlines, and ideally the teams involved should establish a mutually agreed timetable, recognising that HRA is part of wider decision making process and HRA needs to reflect the timelines of the project approval process. A default of 15 working days for provision of the protected sites advice is suggested, unless circumstances dictate a shorter or longer deadline. Early engagement by the project team with the protected sites advisors should help identify information requirements so that these can be built into the timetable early on, rather than arising later in the process when information requests will be harder to accommodate. However, given the requirement to establish that projects will NOT adversely affect Natura 2000 sites before projects can be undertaken, the requirements of the HRA may in some cases necessitate agreeing longer timescales for internal consultation. For example, if at the point at which a project deadline has been reached, the HRA has not been completed, or is still inconclusive, approval for the project cannot be given. Project teams and nature conservation advisors should be aware of this from the outset and plan accordingly.
- K. The Habitats Regulations do not require consultation with the public for the purposes of carrying out an HRA, rather they allow it. Where it is decided to consult the public (for example if there is a high degree of public interest, or where we routinely publicise certain categories of project, such as under EIA regulations), the consultation should ideally include the HRA: there is no need in these cases for us to carry out separate public consultation on the HRA. Meanwhile the degree of

public interest in an application may or may not be related to the implications for Natura 2000 sites.

- L. For any project valued at over £50,000, the Form 1 HRA record should accompany the business case required to be submitted to NRW's Project Assurance Board (PAB). Where sufficient detail is not available to complete an HRA in time for PAB submission (for example for capital schemes where PAB approval is sought at outline design stage), sufficient information must nevertheless be included to show that the preferred option is likely to be acceptable in terms of effects on protected sites, particularly Natura 2000 sites. In the event of significant changes to a project being made post-PAB approval, the HRA will need to be reviewed through further consultation with protected sites advisors.

From this point onwards, the process to be followed depends on whether an NRW project:

- comes under NRW's permitted development rights, in which case **steps M.1 to M.3 and Figure 3(a)** apply;
- or
- requires NRW to submit an application to another competent authority (e.g. for planning permission), in which case **steps N.1 to N.3 and Figure 3(b)** apply;
- or
- requires NRW to 'self-consent', in which case **steps O.1 to O.2 and Figure 3(c)** apply.

- M. Process to be followed from this point onwards where a project falls within NRW's permitted development rights (see Figure 3(a)):

M.1 Any observations or comments made by the local planning authority in response to the initial letter from NRW informing them of our intentions (see step B above), should be taken into account by the project team, especially if the local planning authority has expressed any concerns or doubts about the project being within our permitted development rights.

M.2 If the conclusion of the HRA is either that the project is not likely to have a significant effect, or that it will not adversely affect the integrity of any Natura 2000 site, a copy of the HRA should be sent to the LPA under covering letter:

- stating that on the basis of the HRA we have carried out, we do not consider that the project is likely to have a significant effect and therefore we do not consider that we are required to obtain the written approval of the LPA under Regulation 75¹¹ of the Habitats Regulations;
- inviting them to submit any observations on this position or on the enclosed record of the HRA.

M.3 In all other cases, the project cannot proceed as permitted development. If we consider that the project should nevertheless proceed on IROPI grounds,

¹¹ Formerly Regulation 73

we will need to prepare an Article 6(4) 'statement of case' (see section 7.4 below) and submit it to the LPA as part of a planning application, following steps N.1 to N.3 below.

- N. Process to be followed where a project requires NRW to obtain consent from another authority - see Figure 3(b):
- N.1 For NRW projects requiring planning permission (including most capital projects), the overall aim is that before a planning application is submitted, all significant issues should have already been addressed. It is especially important that environmental issues, in particular Natura 2000 implications, have been adequately addressed before planning applications are made, since NRW will be a statutory consultee in relation to its own applications.
 - N.2 The completed HRA should be submitted to the planning authority as part of NRW's planning application. The planning authority will then consult NRW as part of its consideration of the application, including in particular in carrying out its own HRA as required by the Habitats Regulations. In most cases we would expect the authority to follow the reasoning and conclusions of NRW's HRA, but this cannot be assumed to be the case, so our representations as the appropriate nature conservation body under Regulation 63(3) are still an important function, being distinct from our roles as a competent authority and a 'developer' applying for permission. These representations will be provided to the planning authority by the relevant planning consultation team, incorporating the protected sites advice.
 - N.3 Therefore NRW should only submit planning applications for projects where an HRA has been completed following steps A to L above (as applicable), or determined as not necessary. The HRA conclusions (or a decision not to carry out an HRA) must either be in accordance with the representations from the relevant protected sites advisors, or have been determined through the escalation process described in section 7.3 below. The planning authority will consult NRW for the purposes of the HRA which it will carry out as the competent authority responsible for determining the application. NRW's representations to the planning authority as the appropriate nature conservation body will in all cases reflect the protected sites advice, **including for a project which has been through the escalation process the outcome of which was a decision by NRW (its competent authority role) which did not accord with the protected sites advice.** Therefore, to avoid putting ourselves in the highly undesirable position of needing to object to our own planning application (in the interests of ensuring that we properly and transparently fulfil our role as appropriate nature conservation body under the Habitats Regulations), every effort should be made to ensure that a project is only taken forward to planning application stage in accordance with the protected sites advice.
- O. Process to be followed where a project requires NRW to 'self consent' - see Figure 3(c):

- O.1 The Form 1 HRA report should be included as part of any internal applications for NRW-issued permits or consents (following PAB approval if applicable). The permitting team will use this information to prepare their HRA as part of the permitting decision.
- O.2 On receipt of an internal application accompanied by a Form 1 HRA report signed off by the project team, the permitting team should consider that report as information to inform their own HRA. If they are satisfied that the Form 1 HRA report properly addresses the potential impact of the project on any Natura 2000 sites, properly reflects any representations made by the protected sites advisors, and comes to the correct conclusion, the permitting team should record that fact and the reasons for it, using **Form 4**, and determine the application accordingly. Otherwise they should complete Form 4 accordingly, seek further information from the project team and protected sites advisor, and complete their own HRA report using Form 1 and following **steps A to I in section 6.2 of this OGN** (i.e. as if it was an application to NRW by an external party).

Figure 3(a): HRA procedure for Category 3 projects: those undertaken by NRW and which fall under our permitted development rights

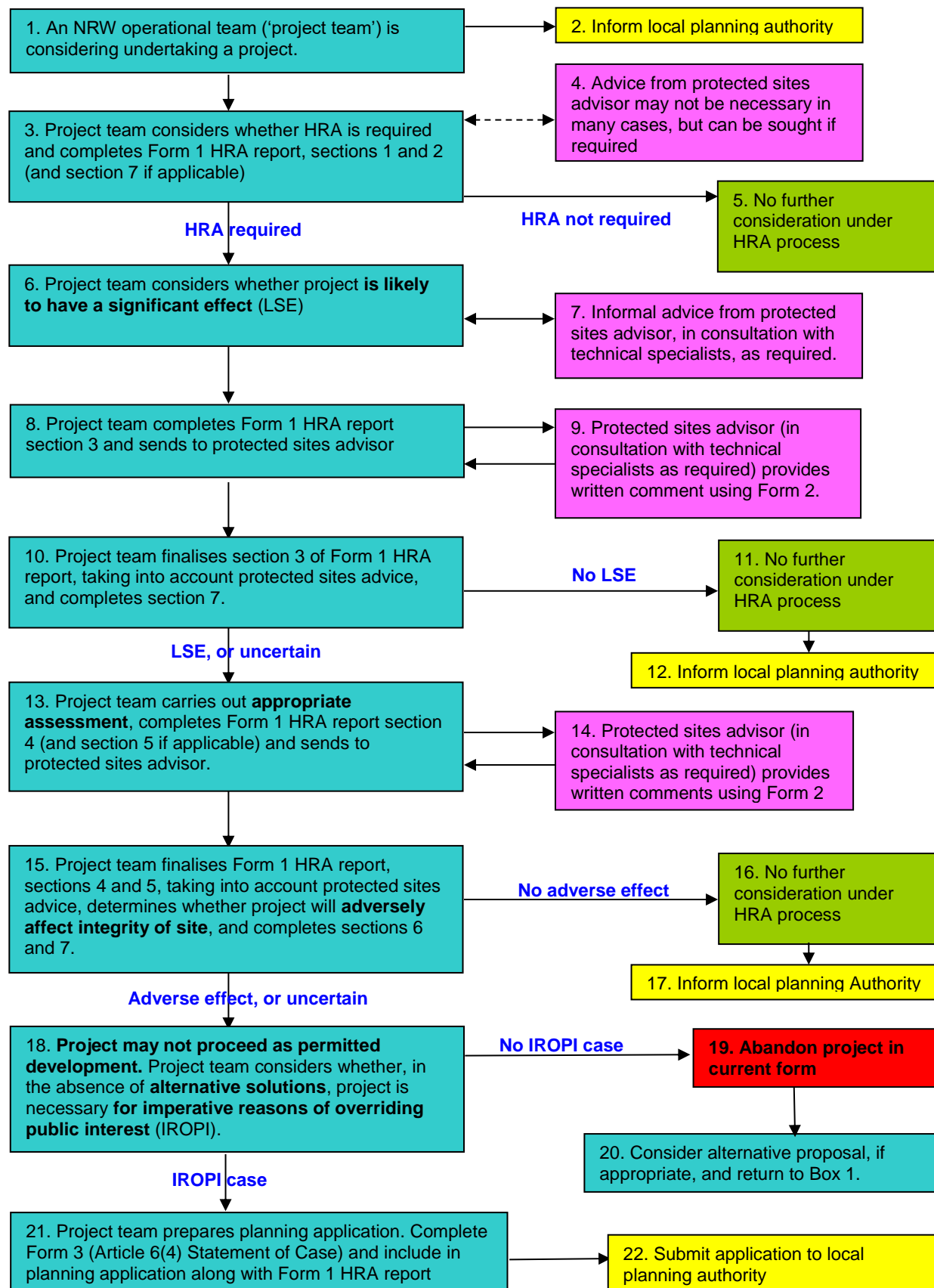


Figure 3(b): HRA procedure for Category 3 projects: those undertaken by NRW and which require consent from another competent authority (e.g. planning permission)

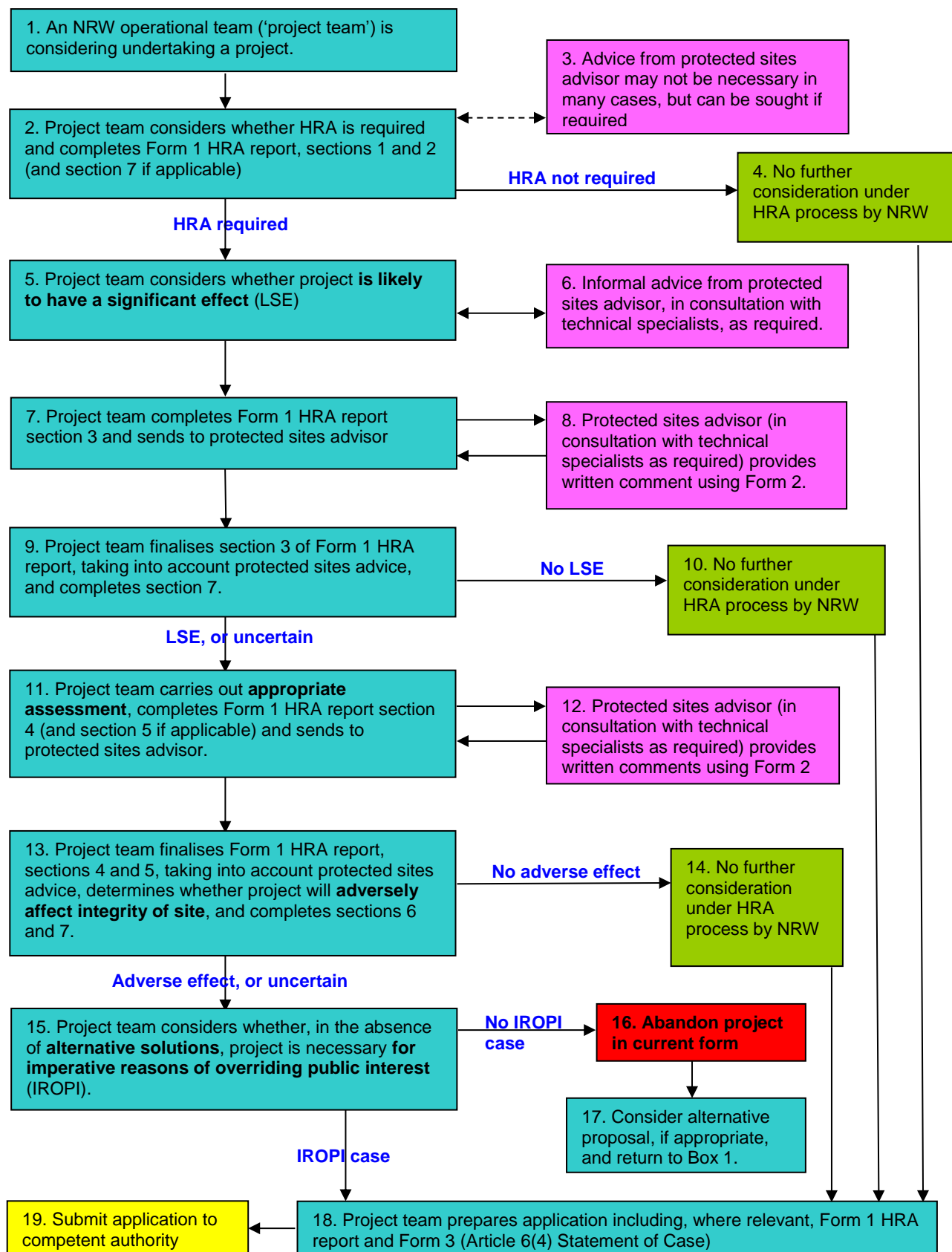
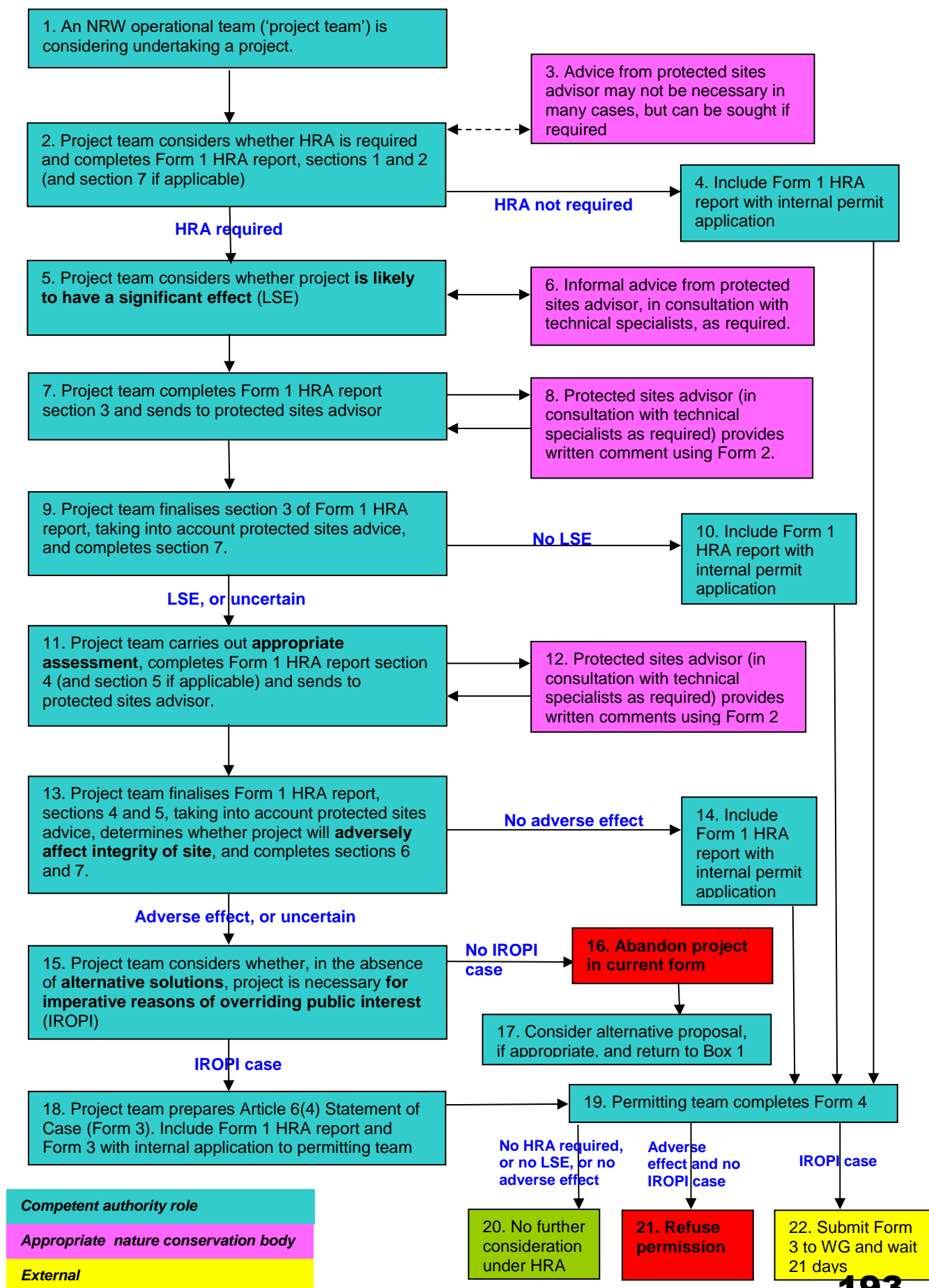


Figure 3(c): HRA procedure for Category 3 projects: those undertaken by NRW, which only require us to ‘self-consent’



7.3 Where the project team and/or permitting team do not agree with the advice from the protected sites advisor, or where the HRAs conducted by the project team and permitting team reach different conclusions

In most cases, it is expected that the conclusions of the HRAs conducted by the project team (or others preparing HRAs on their behalf, such as EAT or Biodiversity officers in the Natural Resource Management (NRM) teams), and the permitting team will come to the same conclusion, and will reflect the protected sites advice. However, given the separation of roles of competent authority and nature conservation body, in principle it is possible that the project team and/or permitting team and/or protected sites advisors can reach different conclusions. In all cases there is a clear responsibility on the project team and permitting team to demonstrate how they have had regard to the protected sites advice, and this applies particularly if they are minded not to follow that advice. Where the HRA is prepared on behalf of a project team by Biodiversity officers within the Natural Resource Management (NRM) teams in Operations Directorates, it is particularly important that the HRA documents show clearly what the protected sites advice is and how it has been taken into consideration.

In these cases, the protected sites advice documented in Form 2 should clearly set out the protected sites advisor's views on the implications of the project for the designated Natura 2000 features concerned, and section 7 of Form 1 should clearly document how that advice has been considered by the project team and permitting team and why the conclusion of the HRA does not reflect that advice. The finalised HRA report should be sent to the protected sites advisor for information.

Where the protected sites advisor does not agree with a conclusion of no likely significant effect or no adverse effect on site integrity, the project team and permitting team should refer the case to their respective Leadership Group managers. The Leadership managers will then consider how to proceed, in discussion with the relevant Leadership manager for the protected sites advisor concerned. They may decide to proceed in a number of ways, including:

- accepting the position of one or other team and instructing the project team and permitting team accordingly;
- convening further discussions between the teams (and involving other technical specialists as appropriate), in an effort to resolve the difference of view;
- asking for the case to be independently reviewed.

The final decision and responsibility for signing off the HRA in these circumstances rests with the Leadership manager of the team exercising the competent authority role. It is not necessary to refer to Leadership unresolved differences of detail or emphasis that would not affect the overall conclusions of the HRA. In these circumstances after reasonable efforts have been made to reach agreement, the project team or permitting team should complete the Form 1 HRA report according to their best judgement.

Where, following the escalation process, the conclusion of the HRA is contrary to the protected sites advice, a brief record of the case should be added to a centrally held register of such cases held on the DMS. This should be done once the Leadership Manager(s) have signed off their teams' final HRAs, even if the final decision on whether to approve the project has not yet been made, and even if approval is subsequently refused or withheld for any reason.

[Click here to open the register](#)

7.4 Procedure for 'IROPI projects'

NRW, as a competent authority, may on occasion wish to take forward projects which, despite a negative outcome of the appropriate assessment (and where the project's adverse effects have been mitigated as far as is reasonably possible), are necessary for imperative reasons of over-riding public interest (IROPI). Provided there are no alternative solutions, and provided that any necessary compensatory measures are secured to ensure that the overall coherence of the Natura 2000 network is protected, such projects may proceed under the derogation allowed by Article 6(4) of the Habitats Directive (as transposed by Regulation 64¹² of the Habitats Regulations).

Where an NRW project does not require any form of permission from another authority, the determination of whether it should proceed for IROPI is a decision for NRW to make, subject to notifying Welsh Government that we are minded to authorise the project. Once WG have been notified we must wait 21 days before giving authorisation unless WG notify us that we may do so. WG may prohibit us from giving authorisation at all, or from doing so within a specified time period.

Where the project constitutes 'development' (as defined under town and country planning legislation) and falls within NRW's permitted development rights, it can only be taken forward as permitted development if the conclusion of NRW's HRA is either that it is not likely to have a significant effect on any Natura 2000 site or, following an appropriate assessment, that it will not adversely affect the integrity of any Natura 2000 site. Otherwise it cannot be taken forward as permitted development and requires NRW to submit a planning application.

Where the project requires NRW to obtain consent from another competent authority (e.g. planning permission), the determination of whether it should proceed for IROPI is a decision for that competent authority to make, again subject to notifying WG that they are minded to authorise the project. Once WG have been notified the competent authority must wait 21 days before giving authorisation unless WG notify them that they may do so. WG may prohibit the competent authority from giving authorisation at all, or from doing so within a specified time period.

There is a substantial amount of guidance on what constitutes IROPI in the various documents referenced in section 4.2 of this OGN. Deciding whether a project satisfies the Article 6(4) tests can be a complex matter, as it involves weighing the harm, or likely harm that the project will have on the Natura 2000 site, against its anticipated benefits, which may be entirely socio-economic, or relate to environmental objectives other than the Natura 2000 site conservation objectives, or a mixture. Where a SAC feature likely to be affected by a project is identified in Annexes to the Habitats Directive as a 'priority' habitat type or species¹³, the only reasons which may constitute IROPI are those relating to public

¹² Formerly Regulation 62.

¹³ 'Priority' habitat types and species are relevant only in relation to SACs. They do not apply to SPAs or Ramsar sites.

health, public safety, environmental benefits of primary importance, or other reasons which a competent authority considers to be IROPI having sought and had regard to the opinion of the European Commission. If NRW wishes to seek the opinion of the European Commission on whether there are imperative reasons of over-riding public interest, we can submit a request to WG who may then seek the EC's opinion and relay it back to NRW.

A project can only be considered for IROPI if it has undergone an appropriate assessment which has concluded that there will be adverse effects on the integrity of one or more Natura 2000 sites, or that such effects cannot be excluded. Therefore, in all cases, the relevant project team (or the team carrying out the HRA on their behalf) must have completed and signed off an appropriate assessment.

If approval of an NRW-owned project on IROPI grounds is being contemplated, or where NRW needs to submit a planning application for such a project (as described in steps N.1-N.3 above), a detailed 'Article 6(4) Statement of Case' (SoC) covering the tests in Article 6(4) of the Habitats Directive should be prepared by the project team (and permitting team where relevant). A generic template is given in **Form 3**. In practice, completing this form is likely to require the provision of additional information that has not formed part of the HRA up to this point (for example on the availability of alternative solutions, the social or economic importance of the project and the package of compensatory measures). The relevant protected sites advisors should be consulted as required on the potential impact of any alternative solutions, and to advise on the requirements for compensatory measures. In some cases, the likelihood that a project will need to be considered under Article 6(4)/Regulation 62 will be apparent at an early stage in the HRA process. Ideally, the early stages of project inception and discussion with the protected sites advisor (step A above) should identify whether a project is likely to need to progress on grounds of IROPI. In these cases the project team should not wait until the conclusion of the appropriate assessment before starting to assemble the information that will be needed to satisfy the requirements of Article 6(4).

For projects for which NRW is the competent authority and entitled to approve on IROPI grounds, the completed Form 3 SoC should be signed off at Leadership group level, copied to Executive Directors for information, and sent to Welsh Government. Copies should be emailed to both the Biodiversity and Nature Conservation Team and the Marine Conservation and Biodiversity Team in WG. Those teams will liaise, as required, with other WG departments. As noted above, approval for the project may then only be given if either 21 days have elapsed since WG received the SoC, or WG has notified us that we may approve the project. Within that 21 day period WG may prohibit us from approving the project either indefinitely or within a specified time period.

For IROPI projects which require planning permission (including development which cannot be taken forward as permitted development), the completed Form 3 SoC as prepared by the project team (and permitting team where relevant) should be submitted to the planning authority as part of the planning application (along with the other HRA documents). If the planning authority, after carrying out its own HRA, agrees that the project should proceed for IROPI, they will need to notify WG accordingly, and may use NRW's SoC as the basis for their own submission to WG.

WG is required to inform the European Commission of the compensatory measures taken for projects which are approved on IROPI grounds, and will use the information provided in

the SoC for this purpose. Under the Habitats Regulations, it is WG's responsibility to ensure that any necessary compensatory measures are taken. Therefore, it is important that the notice given to WG using Form 3 contains sufficient information about the compensatory measures. The development of the compensatory measures will in most cases be a substantial task to be carried out before any SoC submission to WG can be made. It is beyond the scope of this OGN to provide guidance on developing compensatory measures, but further guidance may be developed in future.

7.5 HRA and 'emergency works'

The following guidance is given in recognition of the fact that NRW may encounter situations where urgent action is needed (for example to protect human life or to prevent damage to property or environmental assets) within a timescale which does not enable any meaningful HRA to be conducted prior to a decision to proceed. However, there are no explicit provisions in the Habitats Directive or Regulations for projects to escape scrutiny under HRA provisions on the grounds that they constitute 'emergencies'. Therefore, notwithstanding the following guidance, wherever possible legal advice should be sought before undertaking any 'urgently needed' project without prior application of the HRA requirements.

Provided the idea of 'emergency' is understood as incorporating **all** three of the following:

- a significant degree of public interest (e.g. protecting human life or health or preventing serious and irreparable damage to property or to natural assets), AND
- urgency of action required to protect those interests, AND
- absence of alternative courses of action capable of protecting those interests

then 'emergency works' can reasonably be considered as a type of IROPI capable in principle of satisfying the tests in Article 6(4) of the Habitats Directive. However, by definition it is not possible to carry out the HRA before the approval for the project can be given. Therefore the best that can reasonably be done in these circumstances is to undertake the operations in a way that causes as little damage as possible, and then to document an HRA retrospectively. This should include establishing as clearly as possible the scale and nature of any adverse effects on site integrity that occurred and to what extent they can be mitigated through further intervention (e.g. habitat restoration works) or through natural regeneration (or a combination of both). In some cases, damage to Natura 2000 features may be only temporary and amenable to rapid restoration, in which case the conclusion of a retrospective HRA could in principle be 'no adverse effect', provided any necessary restoration or reinstatement measures are taken and shown to be effective within a short period of time following the damage. Where rapid restoration or repair is not possible, the retrospective HRA will need to accept that damage has occurred, and to document the lack of alternative solutions to the course of action that was taken, the existence of IROPI that justified the works being undertaken, and what compensatory measures are needed.

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Annex 1

Key elements of the legal framework for HRA of projects

- **Habitats and Species Directive (Council Directive 92/43/EEC)
Article 6(3)**

“Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.”

Article 6(4)

“If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.

Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest.”

- **Conservation of Habitats and Species Regulations 2017 (SI 2017, No. 1012), the ‘Habitats Regulations’¹⁴**

These are the main regulations transposing Article 6 of the Habitats Directive in Wales. The full text of the Habitats Regulations is available from the legislation.gov.uk website. The main regulations dealing with the assessment of projects are:

Regulation 24 (which applies to SSSI consents);

Regulations 61-69 (which apply to almost all other types of authorisations or decisions to approve projects);

Regulations 70-104 (which make various additional provisions concerning the assessment requirements for a range of consenting regimes);

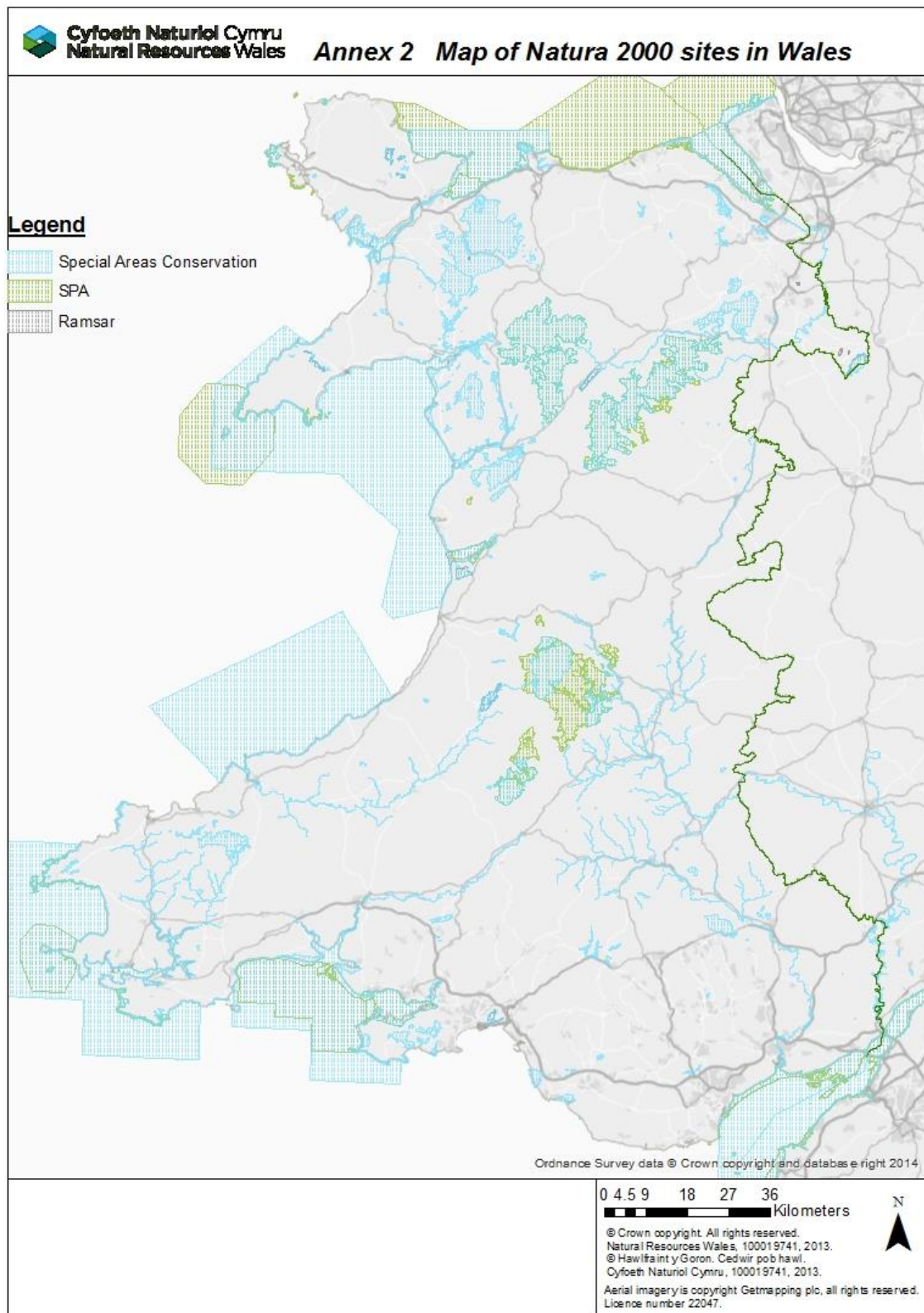
¹⁴ These regulations repealed and consolidated the 2010 Habitats Regulations

Regulations 75-78 (which apply to projects that may be carried out under permitted development rights).

OGN200 Habitats Regulations Assessment of Projects

Annex 2

Map of Natura 2000 and Ramsar sites in Wales



OGN 200 Habitats Regulations Assessment of Projects

Annex 3

NRW legacy body guidelines and procedural instructions that are withdrawn and replaced by this OGN

This section is currently being developed

This OGN and its accompanying forms are intended in due course to replace a significant amount of extant legacy body guidance and templates relating to HRA.

However it is recognised that there may be a need for some function-specific guidance documents relating to HRA to be retained, updated and rebranded as NRW operational guidance. This may be the case for example where the legal or practical requirements of a given regime cannot be accommodated within the generic processes described in sections 5, 6 or 7 of this OGN.

The review process required to determine which legacy body HRA guidance/instruction can be withdrawn and which needs to be retained and updated is likely to take some time and require input from the teams and individuals involved.

Therefore users of this OGN are invited to identify any extant guidance or forms whose function is effectively covered by this OGN and which could therefore be withdrawn. Likewise users are invited to identify any function-specific HRA operational guidance which needs to be retained and updated and which could ideally be included in due course as additional Annexes to this OGN.

All suggestions should be emailed to the '**Habs Regs Assessment OGN**' mailbox. The information received will be used to periodically update the list of withdrawn guidance below, and to inform the future preparation of any function-specific Annexes to this OGN.

If there are any conflicts between this OGN and any legacy body guidance relevant to HRA that has not yet been reviewed or withdrawn, this OGN should take precedence.

Guidance and forms which are withdrawn and should no longer be used:

- Conservation screening policy: taking nature conservation into account when screening consents, licenses and Environment Agency works (EA) 2007 - 325_07.doc
- Habitats Directive: Habitats and Species protected under the Habitats Directive - 42_06.doc
- Habitats Directive: Appropriate assessment for new applications - 220_04_SD01.doc
- Former Environment Agency Wales 'Appendix 11' and 'Appendix 12' forms, and any other forms or templates currently in use for recording HRAs (or particular stages thereof). These are all replaced by OGN 200 Form 1. This does not affect any HRAs already recorded on legacy forms and deemed to have been completed (signed off).
- Any forms or standard letters currently in use for providing protected sites advice to inform HRAs carried out by NRW. These are all replaced by OGN 200 Form 2

OGN 200 Habitats Regulations Assessment of Projects

Annex 4

HRA procedure in relation to SSSI consents and ‘assents’

A4.1 SSSI consents issued by NRW to third party land owners/occupiers

SSSI consents are determined by teams in NRW Operations Directorates rather than by the Permitting Service in EPP. As long as these arrangements are retained, the procedural arrangements set out in section 6 of this OGN do not apply.

HRA of applications for SSSI consents is required under Regulation 24¹⁵ of the Habitats Regulations rather than under Regulation 63, which covers all other types of project. Under Regulation 24, where NRW considers that an application from a land owner or occupier for consent to carry out a notifiable operation in an SSSI, is likely to have a significant effect on a SAC or SPA and is not directly connected with the management of that Natura 2000 site for conserving its features, NRW must carry out an appropriate assessment and can only give consent after having ascertained that the project will not adversely affect the integrity of the site. NRW cannot issue consents under Regulation 24 for imperative reasons of over-riding public interest (IROPI). Therefore unless it is determined either that the proposed operation is not likely to have a significant effect on a Natura 2000 site or, following appropriate assessment, that it will not adversely affect the integrity of a Natura 2000 site, consent must be refused.

Applications by SSSI owners/occupiers for consent under section 28E of the Wildlife & Countryside Act are made to the appropriate nature conservation body. For this reason, unlike in Habitats Regulation 63, there is no requirement under Regulation 24 to ‘consult the appropriate nature conservation body.’ Therefore there is no explicit or implicit statutory requirement to separate out the competent authority and nature conservation body roles in relation to HRA of SSSI consents. In practice therefore, applications for SSSI consent are received and determined by the relevant team in Operations responsible for the site concerned, normally the Natural Resource Management (NRM) team, which also assesses the nature conservation implications of the proposed operations, including in relation to Natura 2000 features where the SSSI is within a SAC or SPA. SSSI consents also require signing off by Conservation Technical Specialists.

Therefore the HRA of an application for SSSI consent should be carried out and recorded by the relevant NRM team, using the form 1 HRA Report section 1(a) and whichever of sections 2 to 6 are relevant. Any references to ‘consultation with protected sites advisors’ should be disregarded and section 7 of the form deleted. It is of course open to the team carrying out the HRA to seek advice from others, if required, for example specialists in EPP or other Operational teams.

A decision not to carry out an HRA should be recorded, and this can be done either using existing procedures/forms for handling of SSSI notices of intent, or by completing sections 1(a), 2 and 6 of a Form 1 HRA report and deleting the remaining sections. Some SSSI consents are issued to owners/occupiers for carrying out positive management activities

¹⁵ Formerly Regulation 21.

on sites. Where those activities are entirely directed at the conservation management of a site's Natura 2000 features, the HRA requirements (if they are relevant at all) are complied with by determining that the project is directly connected with or necessary for site management, assuming that there are no conflicts between management of the site and the conservation of the features of another Natura 2000 site. In these cases, section 1(a), 2 and 6 of a Form 1 HRA report should be completed and the other sections deleted.

The HRA report (or other record of decision not to carry out an HRA) should be sent to the relevant Conservation Technical Specialist for comment and countersigning (section 8), as part of the process for signing off the SSSI consent itself. An HRA (where required) should not be deemed to have been completed until the Conservation Technical Specialist has confirmed that it is satisfactory.

A4.2 Applications for SSSI 'assent' under Wildlife & Countryside Act, section 28H (internal and external)

Under section 28H of the Wildlife & Countryside Act (WCA) 1981 (as substituted), a 'section 28G authority' must give notice to the appropriate nature conservation body before carrying out, in the exercise of its functions, operations likely to damage the features of an SSSI. In response to receiving such notice, the nature conservation body may either give its 'assent' to the operations, or say that it does not assent to the operations. Since NRW is itself a section 28G authority, it should apply a similar procedure when proposing to carry out, in the exercise of its functions, operations likely to affect SSSIs. Such applications for 'assent' from operational teams within NRW should be treated in a similar way to applications for NRW assent made by other section 28G authorities.

It is the responsibility of the relevant Natural Resource Management (NRM) team to decide whether to give assent, whether the 'applicant' is another part of NRW or another section 28G authority. In either case, it is not necessary for a decision on whether to issue section 28H assent to be subject to HRA, even where the proposed operations are likely to significantly affect a Natura 2000 site. Responsibility for carrying out the HRA in such circumstances lies with the section 28G authority seeking assent. All section 28G authorities are also competent authorities under the Habitats Regulations, and therefore required under Regulation 63 to apply the HRA provisions to their own operations. Therefore where the project proponent is NRW itself, the relevant operational/project team – not the NRM team – is ultimately responsible for conducting the HRA (noting that they may be supported in this by other teams) and therefore the procedure in **section 7** of this OGN should be followed.

Where the project proponent is another authority (for example a highways authority), unless the project requires some form of statutory authorisation from NRW, that authority is responsible for conducting the HRA and consulting with NRW as the nature conservation body, and **section 5** of this OGN applies. The consultation in such cases should cover both the provision of nature conservation advice in accordance with Regulation 63(3) of the Habitats Regulations, and assent (or the withholding of assent if applicable) under section 28H of the Wildlife and Countryside Act, while making clear the distinction between advice in relation to Natura 2000 features and in relation to SSSI features.

A4.3 Notifications under Wildlife & Countryside Act, section 28I (internal and external)

Under section 28I of the Wildlife & Countryside Act, a section 28G authority must give notice to the appropriate nature conservation body before issuing any form of permission for operations likely to damage the features of an SSSI, and have regard to the nature conservation body's advice in deciding whether to permit the operations. As with section 28H assents in section A4.2 above, NRW is itself a section 28G authority which issues permissions which may affect SSSIs, so in order to ensure transparency, section 28I should also be applied to NRW's own permitting functions, where they affect SSSIs.

As with section 28H 'assents', the representations, under section 28I, of NRW to another section 28G authority, or of an NRW protected sites advisor to an NRW permitting team, do not themselves constitute a form of permission and are therefore not themselves subject to HRA. Rather they constitute NRW's advice to another authority, or internal advice. Therefore, where another authority is considering issuing any kind of permission and potential impacts on a Natura 2000 site need to be considered, **section 5** of this OGN applies. Where a permitting team in NRW is considering any such application, **section 6** of this OGN applies. In both cases, the protected sites advice should cover both advice under section 28I of the WCA in relation to any impacts on SSSI features, and advice in relation to Natura 2000 impacts under Regulation 63 of the Habitats Regulations, while making clear the distinction between advice in relation to Natura 2000 features and in relation to SSSI features.

OGN 200 Habitats Regulations Assessment of Projects

Annex 5

HRA procedure in relation to consents not determined in National Services

** This section is currently being developed. **

OGN 200 Habitats Regulations Assessment of Projects

Form 1

Record of a Habitats Regulations Assessment for Category 2 or Category 3 projects

The version of the form below is shown here for information and guidance only. An editable template is available separately on the NRW intranet.

This form should be used to record HRAs of all **Category 2** and **Category 3** projects. Note that not all sections will be need to be completed in every case, and unused sections of the form should be deleted.

Record of a Habitats Regulations Assessment of a project

OGN 200 Form 1

Document owner: Protected Sites Team, EPP

Version History:

Document Version	Date Published	Summary of Changes
1.0	March 2016	Document created
1.1	30 November 2017	References to the 2010 Habitats Regulations updated to reflect new consolidated version of the regulations which entered into force on 30 th November 2017; References to KSP and National Services Directorates updated to EPP
1.2	28 June 2018	With marked up changes in light of ruling in CJEU case c-323/17 'People over Wind'.
1.3	27 June 2019	With marked up changes in light of ruling in CJEU case c-323/17 'People over Wind'. See Interim Guidance here

Review Date: April 2019

Notes on completing this form

- *This form should be used for recording all project-level HRAs carried out NRW. It should be read in conjunction with section 6 or 7 (as applicable) of OGN 200.*
- *All text in blue italic (this colour) throughout this form, including these notes, is guidance on completing the form, and should be deleted when using the form to record an actual HRA. All other text in this template, where relevant to the individual case concerned, should be retained in the record of an HRA.*
- *The term 'project' covers both operations which are the subject of an application for any kind of permission, and proposed operations to be undertaken by NRW. It also includes statutory orders issued by NRW.*
- *In this form, the term 'Natura 2000 site' covers SACs, SPAs and, as a matter of Welsh and UK Government policy, Ramsar sites. It also includes proposals for any such sites, or for extensions to existing sites, from the start of a formal public consultation on the proposal agreed to by WG or UK Government.*
- *Not all sections of this form will need to be completed in every case. Only relevant sections should be completed and irrelevant sections can be deleted. There are guidance notes on this throughout the form.*
- *If necessary you can insert additional rows in any of the Tables. If any separate documents are to form part of the record of this HRA, they should be clearly referenced at the relevant point(s) in this form.*
- *There are different stages at which the HRA can be considered to have been completed and can be 'signed off'. In all cases responsibility for signing off the HRA is at the same grade/level as responsibility for approving the project/permission itself. Sections 6 and 7 (whichever applies) of OGN 200 contain further guidance on the circumstances when signing off an HRA should be escalated.*

Record of a Habitats Regulations Assessment of a project

Contents

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8. *Conservation Technical Specialist's comments (only needs to be completed only where HRA sign off and protected sites advice are done by the same team)*

1. Project Details

If this HRA relates to an application by an external party, complete section 1(a), delete section 1(b) and go to section 2.

If an NRW team is the proponent/instigator of the project, delete section 1(a), complete section 1(b) and go to section 2.

1(a): Project details where an external party has applied to NRW for any form of authorisation	
Application reference number (if applicable)	
Date application received	<i>dd/mm/yyyy</i>
Applicant details	<i>Name of applicant</i>
Activity proposed	<i>Brief description of the activity for which authorisation is being sought</i>
Relevant legislation	<i>Specify the legislation under which the authorisation would be issued Also note here any other permissions that are or may be required (from NRW or from other authorities), as far as you are aware</i>
Location	<i>As appropriate: name of application site, and/or grid reference, and/or longitude/latitude</i>
Application documents	<i>Reference the application documents</i>
Environmental Statement	<i>If an ES has been prepared, give reference. Otherwise <u>'N/A'</u></i>
Pre-application correspondence	<i>Reference any pre-application correspondence between NRW (and/or legacy body if applicable) and the applicant or their agent. Otherwise <u>'N/A'</u></i>
NRW team responsible for drafting this HRA report, and name of lead officer	<i>Name of team and officer</i>
1(b): Project details where NRW is the project proponent/instigator	

NRW Project reference	<i>If projects undertaken in the operational area concerned use a referencing system, give it here. Otherwise provide other information identifying unambiguously which project is the subject of this HRA</i>
Activity proposed	<i>Brief description of the activity</i>
Statutory basis	<i>Identify the statutory function under which this project would be undertaken</i>
Location	<i>Identify the location of the project (i.e. site name and /or grid reference and/or longitude/latitude, as appropriate)</i>
NRW team responsible for carrying out the project, and name of lead officer	<i>Name of team and officer</i>
NRW team responsible for drafting this HRA report, and name of lead officer	<p><i>This will in all cases be the project team or another team delegated to act on their behalf in carrying out the HRA (e.g. Environmental Assessment Team).</i></p> <p><i>For NRW projects which require an NRW <u>statutory</u> authorisation, the team responsible for issuing that authorisation (normally one of the teams in Permitting Service in EPP) will need to carry out its own HRA, which may require completing its own HRA report in addition to the one completed by the project team. See section 7.1 of OGN 200</i></p>
Project documents	<i>Reference any relevant documents defining what the project is, as required</i>
Environmental Statement	<i>If an ES has been prepared, give reference. Otherwise <u>'N/A'</u></i>

2. Determining the need for a Habitats Regulations Assessment

<p>2.1 Is the whole of the project directly connected with or necessary to the management of one or more Natura 2000 sites, for the purposes of conserving the habitats or species for which the Natura 2000 site(s) is/are designated?</p>	<p>Insert '<u>YES</u>' or '<u>NO</u>'. Seek advice from protected sites advisors as required.</p> <p>If Yes, provide brief explanation here and go to row 2.2.</p> <p>If No, go to row 2.3</p>
<p>2.2 Is there a possibility that the project could affect a different Natura 2000 site to the one(s) the project is intended to conserve?</p>	<p>Insert '<u>YES</u>' or '<u>NO</u>'. Seek advice from protected sites advisors as required.</p> <p>If <u>YES</u>, go to row 2.3.</p> <p>If <u>NO</u>, HRA is not required. Strike out section 2.3, delete sections 3, 4, and 5 of the form and <u>complete section 6</u>. If any protected advice has been sought, complete section 7, and section 8 if applicable.</p>
<p>2.3 Is it necessary to carry out an HRA?</p>	<p>'Insert '<u>YES</u>' or '<u>NO</u>'</p> <p>If <u>YES</u>, go to section 3 of the form</p> <p>If <u>NO</u>, provide brief explanation (e.g. no conceivable impact on any Natura 2000 site, by virtue of the scale or location or nature of the project), delete sections 3, 4, and 5 of the form and <u>complete section 6</u>. If any protected advice has been sought, complete section 7, and section 8 if applicable.</p> <p>NB Screening of <u>permit renewals on the same or more restrictive terms</u> should be dealt with by answering '<u>YES</u>' here, and completing section 3.1 of this form</p>

3. Considering the likelihood of a significant effect (LSE)

The first stage of an HRA is a test of Likely Significant Effect (LSE), which is a ‘screening’ assessment to determine if an appropriate assessment is required.

Unless the LSE test enables significant effects on any Natura 2000 site to be ruled out, the project will need to be subject to an appropriate assessment.

The legislation requires consideration of plans and projects “either alone or in combination with other plans and projects”. The test of likely significant effect is initially carried out by considering the proposal on its own (i.e. rather than in-combination with other plans or projects). If it is decided that the proposal alone is likely to have a significant effect, it is subject to appropriate assessment alone. An assessment in combination with other plans projects is only required if the proposal would be insignificant on its own, but has effects which may be significant if combined with the effects of other plans/projects which are also insignificant on their own. This is dealt with further in section 5.

*When carrying out HRA of an application for consent of any kind, the LSE test is based on the application as submitted. If **additional conditions or restrictions, not already incorporated into the specifications of the project,** would be needed to remove the risk of significant effects, the project should undergo an appropriate assessment.¹⁶*

3.1 Renewal of a permission on the same or more restrictive terms as the extant permission

<p>Is this project a renewal of a current permission which complies with NRW approved criteria for ruling out significant effects of renewals (see section 6.2A of OGN 200) without conducting a project-specific LSE test?</p>	<p><i>Insert <u>‘YES’</u> or <u>‘NO’</u></i></p> <p><i>Seek advice from protected sites advisors if required.</i></p> <p><i>If <u>YES</u>, reference the documentation which establishes those criteria and which confirms that this project complies with them. Delete sections 3, 4, and 5 of the form and <u>complete section 6</u>. If any protected advice has been sought, complete section 7, and section 8 if applicable.</i></p> <p><i>If <u>NO</u>, go to section 3.2.</i></p>
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¹⁶ Highlighted text deleted in light of CEU ruling in case C-323/17 ‘People over Wind’.

3.2 Likelihood of significant effects (LSE) test

Unless it has been established that the project does not need HRA (section 2) or that it is a renewal of a current permission for which LSE can be ruled out (section 3.1), the relevant protected sites advisor should always be consulted, and their advice taken into account, in completing sections 3.2.1 and 3.2.2 below. Their written advice (Form 2) should be appended to this form, and section 7 of this form completed.

3.2.1 Which Natura 2000 sites might be affected by the proposal?	<p><i>Consult protected sites advisors</i></p> <p>Based on the project specification or information provided in the application, it is considered that the following Natura 2000 sites have features which could be affected by the project:</p> <p><i>Insert Natura 2000 site name(s) and standard Natura site code(s), if known.</i></p> <p>The potential for the project to affect the following Natura 2000 sites was also initially considered, but can be ruled out without further consideration:</p> <p><i>List any other Natura 2000 sites initially considered but immediately ruled out. If no sites other than those listed above were considered, put '<u>N/A</u>' here.</i></p> <p><i>Go to section 3.2.2.</i></p>
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3.2.2 Screening assessment

The screening assessment should indicate the possible pathways through which the project may impact upon relevant Natura 2000 site features. Each designated feature (taken from the official Natural 2000 designation documents) should be recorded in the left hand column below. If more than one Natura 2000 site is identified from section 3.2.1, deal with each Natura 2000 site separately.

The assessment should be made in view of the conservation objectives for the Natura 2000 site(s) concerned, as set out in either the current NRW Core Management Plan for a terrestrial Natura 2000 site, or in NRW's extant advice issued under Regulation 35 (now 37) of the Conservation of Habitats and Species Regulations 2010 (now 2017) for a marine Natura 2000 site.

Colour coding should be used in the 'impact pathway' column II as follows:

There is no impact pathway from the proposal to the designated feature

There is an impact pathway in principle, but significant effects from the proposal when considered alone can be ruled out

There is an impact pathway and significant effects cannot be ruled out

Examples of types of impact pathways that may be relevant:

- *Direct capture, damage or harm to a designated species feature*
- *Damage to a designated habitat feature (including through direct physical impact, pollution, changes in thermal regime, hydrodynamics, light, etc.)*
- *Damage to the habitat of designated species features (including through direct physical impact, pollution, changes in thermal regime, hydrodynamics, light, etc.)*
- *Damage to a designated habitat feature via removal of, or other detrimental impact on, typical species*
- *Removal of prey species of a designated species feature*
- *Damage to habitat of prey species*
- *Indirect effects on habitats and species*

Note that several impact pathways may be relevant to the same designated feature

	Assessment of likelihood of significant effect		
	I Relevant conservation objectives <i>Reference relevant conservation objectives from Natura 2000 site Core Management Plan, or NRW</i>	II Potential impact pathway <i>For each row assign appropriate colour (as above) and give short explanation as required</i>	III Avoidance measure <i>Briefly describe any measures included within the project at this point that will ensure that the potential effects are avoided.</i>

	Regulation 35/37 advice (as applicable)		are not significant or are not likely to occur. If none, put 'N/A'. In light of the ruling of the CJEU in case C-323/17 'People over Wind', avoidance measures should not be considered at this stage of HRA, so this column is left blank.
Name of Natura 2000 site			
Designated feature 1			
Designated feature 2			
...etc			
Name of Natura 2000 site			
...etc			

3.2.3 Screening decision of the project 'alone'

(a) If ALL rows in column II of Table 3.2.2 are GREEN	<p>The project is not likely to have a significant effect on any Natura 2000 site, because there is no impact pathway from the project to any Natura 2000 features, and no further consideration under the Habitats Directive/Regulations is required in order to determine the application.</p> <p>Strike out rows (b) and (c) below, delete sections 4 and 5 of the form and <u>complete sections 6 and 7 (and section 8 if applicable).</u></p>
(b) If there are NO rows coloured RED in column II of Table 3.2.2, and there are ANY rows which are BLUE	<p>The project is not likely to have a significant effect on any Natura 2000 sites when considered alone, but the possibility of significant effects in combination with other plans and projects needs to be considered.</p> <p>Strike out row (a) above and row (c) below, delete section 4 of the form and go to Section 5.</p>

(c) If ANY rows in Column II of Table 3.2.2 are RED	<p>The project is likely have a significant effect on one or more Natura 2000 sites and therefore an appropriate assessment is required.</p> <p><i>Strike out rows (a) and (b) above, and go to section 4 of the form. If there <u>also</u> are any BLUE rows, list them in Table 5.1 below (we'll come back to them in the in-combination assessment)</i></p>
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4. Appropriate assessment of the project when considered alone

Tables 4.1 and 4.2 should document the appropriate assessment for the project. The two left hand columns should list the designated features and the impact pathways identified in **RED** from section 3.2.2 above, where likely significant effects are anticipated or cannot be ruled out. Any features recorded in section 3.2.2 as green should not be considered further. Any features recorded in section 3.2.2 as blue should not be considered at this stage, but only in section 5.

Table 4.1 should first consider the potential impact of the project as currently defined and in the absence of any **additional** mitigating measures, conditions or restrictions that may be applied ~~but are not currently included as part of the proposal~~. Table 4.2 should then consider **additional** measures to mitigate any adverse effects.¹⁷

Table 4.1, and 4.2 if applicable, **MUST** be completed having sought and had regard to the advice of the relevant protected sites advisor, and section 7 of the form must be completed.

4.1 Assessment of project as currently defined

Natura 2000 site feature (from Table 3.2.2 – RED rows only)	Impact pathway(s) (from Table 3.2.2)	Description of impacts	Assessment in view of conservation objectives	Can adverse effect on site integrity be ruled out? ‘YES’ or ‘NO’ *
<i>Natura 2000 site name</i>				
<i>Feature 1</i>				

¹⁷ Highlighted text deleted in light of CEU ruling in case C-323/17 ‘People over Wind’.

<i>Feature 2</i>				
<i>...etc</i>				

** If it is not known whether adverse effect can be ruled out, record 'NO' in the right hand column*

If any rows in the right hand column are 'NO' go to section 4.2

If all adverse effects can be ruled out without the need for additional mitigation (i.e. the right hand column is 'YES' in all rows) go to section 4.3

4.2 Assessment of the project taking into account additional mitigating measures, conditions or restrictions¹⁸

Natura 2000 Feature (from Table 4.1 – 'NO' rows only)	Description of adverse effect(s)	Can adverse effect(s) be mitigated? <i>Insert '<u>YES</u>' or '<u>NO</u>'*</i>	Description of mitigation measures, and how they would be applied (e.g. contractual obligations, consent conditions) <i>If required, further details can be provided in separate clearly referenced documents.</i>	Can adverse effect on site integrity be ruled out? <i>Insert '<u>YES</u>' or '<u>NO</u>' *</i>
<i>Feature 1</i>				
<i>Feature 2</i>				
<i>...etc</i>				

** If it is not known whether adverse effects can be mitigated, or whether adverse effect on site integrity can be ruled out, insert 'NO'*

In all cases, go to section 4.3

¹⁸ Highlighted text deleted in light of CEU ruling in case C-323/17 'People over Wind'.

4.3 Concluding the appropriate assessment of the project alone

(a) If the right hand column of Table 4.1 and Table 4.2 (if applicable) is 'YES' for all features	<p>It has been ascertained that the proposal, when considered alone, will not adversely affect the integrity of any Natura 2000 sites.</p> <p><i>Strike out row (b) below and go to row (c)</i></p>
(b) If there are any 'NO's in the right hand column of Table 4.1 that have not been resolved to 'YES' through mitigation measures identified in Table 4.2	<p>It has not been ascertained that the proposal, when considered alone, will not adversely affect the integrity of one or more Natura 2000 sites.</p> <p><i>Strike out row (a) above and row (c) below, delete section 5 of the form and <u>complete sections 6 and 7</u>, and section 8 if applicable</i></p>
(c) Are there any residual effects of the project (net of any mitigation measures identified) which, though insignificant on their own, could be significant if considered in combination with the effects of other plans or projects?	<p><i>Insert <u>'YES'</u> or <u>'NO'</u></i></p> <p><i>If <u>'YES'</u> go to section 5 of the form</i></p> <p><i>If <u>'NO'</u> delete section 5 of the form and <u>complete sections 6 and 7</u>, and section 8 if applicable</i></p>

5 In combination assessment

5.1 Identifying possible in combination effects

This section covers the in combination assessments for both the LSE test and the appropriate assessment.

The other plans or projects which should be considered for potential in-combination effects with the proposal under consideration are any of the following whose effects could interact with the residual (i.e. insignificant when considered alone) effects of the project described in section 1 of this form, for example by adding to or magnifying its effects, or by making a habitat or species feature more sensitive its effects.

- *projects started but not yet completed*
- *projects consented but not started*
- *ongoing projects subject to repeated authorisations (e.g. annual licences)*
- *applications lodged but not yet determined*
- *refusals subject to appeals procedures not yet determined*
- *projects not requiring consent but which have been approved by the competent authority concerned*
- *proposals in adopted plans*
- *proposals in draft plans published for consultation*
- *allocations or other forms of proposals in adopted development plans*
- *allocations or other forms of proposals in draft development plans published for consultation*

Do not include projects which have not yet been applied for, unless the project is well defined and there are solid reasons for believing that it will be taken forward. Do not include completed projects. Consult with protected sites advisors and others as required.

In the left hand column of the table below you should list, as applicable:

- *Any impact pathways recorded as **BLUE** in section 3.2 of this form (no LSE alone but potential for LSE in combination); and*
- *Any residual effects from section 4.3 (no adverse effect alone, but residual effect may be significant).*

BLUE impact pathway from Table 3.2 and/or Residual effect (from appropriate assessment in section 4)	Natura 2000 site feature(s) concerned	Other plans/projects with effects that might interact with the effects of the project to render its effects significant (if any) <i>If none, put 'N/A'</i>	Nature of the in-combination effect (if any)	Is there likely to be any significant in-combination effect, in view of the site's conservation objectives? <i>Insert 'YES' or 'NO' or 'DON'T KNOW'</i>

(a) If the right hand column is 'NO' for all rows		<p>The project, when considered in combination with other plans and projects, is either not likely to have a significant effect on, or will not adversely affect the integrity of any Natura 2000 site.</p> <p><i>Strikeout option (b) below, delete section 5.2 and <u>complete sections 6 and 7, and section 8 if applicable.</u></i></p>		
(b) If any rows in the right hand column are 'YES' or 'DON'T KNOW'		<p>The project is likely to have a significant effect in combination with other plans or projects.</p> <p><i>Strikeout option (a) above and go to section 5.2</i></p>		

5.2 Addressing in-combination effects

<p>In combination effect <i>List any 'YES' or 'DON'T KNOW' impacts from the right hand column of the table in section 5.1</i></p>	<p>Describe any conditions, restrictions or other measures, if any, applicable to the subject project, and/or to the other plans/projects giving rise to the in combination effect, which could remove the risk of adverse effects on the Natura 2000 site features. Include details of how such measures would be applied, and who would be responsible for applying them. <i>If required, further details can be provided in separate clearly referenced documents.</i></p>	<p>Taking into account any additional measures identified and how they would be applied, can adverse effects on site features from in-combination effects be ruled out? <u>'YES' or 'NO' or 'DON'T KNOW'</u></p>

(a) If the right hand column is 'YES' in all cases	<p>It can be concluded that the project will not adversely affect the integrity of any Natura 2000 sites, either alone or in combination with other plans or projects.</p> <p><i>Strike out option (b) below and <u>complete sections 6 and 7</u>, and section 8 if applicable.</i></p>
(b) If any row is 'NO' in the right hand column	<p>It <u>cannot</u> be concluded that the project will not adversely affect the integrity of any Natura 2000 sites, when considered in combination with other plans or projects.</p> <p><i>Strike out option (a) above and <u>complete sections 6 and 7</u>, and section 8 if applicable.</i></p>

6. Conclusion

Where the conclusion is in accordance with the protected sites advice, this section should be completed by the team or individual responsible for carrying out and recording the HRA. This will normally be the same as the team/individual responsible for determining the permission or otherwise approving the project, unless responsibility for preparing the HRA has been delegated to another team (e.g. EAT or one of the NRM teams).

Where the HRA has been subject to an escalation process, due to significant unresolved differences of view between the protected sites advisors and the team preparing the HRA, this section of the form should be completed by the relevant Leadership Manager (see sections 6.3/7.3 of OGN 200). Any additional documents or correspondence forming part of the escalation process should be appended to this form, or reported in section 7.

Select which of the following conclusions applies by placing an X the right hand column. Only ONE option can apply. Sign and date the bottom of the table.

<p>HRA is not required because the whole of the project is directly connected with or necessary to the management of one or more Natura 2000/Ramsar sites, for the purposes of conserving the habitats or species for which the site(s) is/are designated, <u>and</u> the project is not likely to have a significant effect on any other Natura 2000/Ramsar sites. (As documented in section 2.1 and 2.2 of this form)</p>	
<p>HRA is not required because there is no conceivable impact pathway to any Natura 2000/Ramsar site (As documented in section 2.3 of this form)</p>	

Position:	
Date:	

7. Consultation with protected sites advisor(s) and how sections 2, 3, 4 and 5 of this HRA report (as applicable) take into account that advice.

Delete any rows that do not apply.

Relevant section of the HRA report	Date(s) of correspondence* and any meeting(s) with protected sites advisor(s)	Description of how the comments from protected sites advisors have been taken into account
2		
3		
4		
5		

****Attach copies of all written representations (Form 2) received from protected sites advisor(s)***

8. Conservation Technical Specialist's comments

This section should be completed in any cases where the protected sites advice and sign off of the HRA report (section 6) is within the same team. Otherwise this section should be deleted.

I have reviewed the HRA documented in this form and confirm that I agree/do not agree* with its findings.
(*strike out as applicable)

Additional comments (if any):

Signed:

Name:

Position:

Date:

OGN 200 Habitats Regulations Assessment of Projects

Form 2

Provision of nature conservation advice for Category 2 and Category 3 projects

The version of the form below is shown here for information and guidance only. An editable template is available separately on the NRW intranet.

For any category 2 or category 3 projects where protected sites advice is sought, this form should be completed by the officer (usually in the relevant Natural Resource Management team responsible for the Natura 2000 site concerned) preparing or coordinating the protected sites advice, and sent to the officer preparing the HRA, who should ensure that the advice is taken into account in completing sections 2, 3, 4 and 5 (whichever are applicable) of the Form 1 HRA report. All Form 2s relating to a particular project should be appended to the Form 1 HRA report.



**Cyfoeth
Naturiol
Cymru
Natural
Resources
Wales**

Form

Protected sites advisor response to an internal consultation on the Habitats Regulations Assessment of a project

OGN 200 Form 2

Document owner: Protected Sites Team, EPP

Version History:

Document Version	Date Published	Summary of Changes
1.0	March 2016	Document created
1.1	30 November 2017	Minor changes only

Next review date: April 2018

Protected sites advisor response to an internal consultation on the Habitats Regulations Assessment of a project

TO: *[name of officer in team carrying out the HRA]*

FROM: *[name of protected sites advisor and team]*

SUBJECT: Habitats Regulation Assessment of *[title/brief description of project and reference number if applicable]*

Thank you for consulting *[name of relevant team]* on the above project and sending us a copy of the draft Form 1 HRA report dated *[date]*. Our comments are as follows:

Insert all comments here, which should be as concise or detailed as required.

If appropriate, this section could simply note that the HRA report has already been drafted with input from the protected sites advisor and confirm that the protected sites advisor agrees with the content and conclusions of the HRA report. Otherwise any outstanding comments on the content or conclusions of the HRA report should be noted here.

If necessary this form may be used more than once (for example if protected sites advice is sought on successive versions of a draft HRA report)

Signed:

Date:

OGN 200 Habitats Regulations Assessment of Projects

Form 3

Article 6(4) Statement of Case

The version of the form below is shown here for information and guidance only. An editable template is available separately on the NRW intranet.

A completed version of this form should be used to notify Welsh Government when NRW are considering giving approval to a **Category 2** or **Category 3** project under Article 6(4) of the Habitats Directive, namely where an appropriate assessment has been carried out, adverse effects on the integrity of one or more Natura 2000 sites are anticipated (or cannot be ruled out), we consider that there are no alternative solutions and that the project must be carried out for imperative reasons of over-riding public interest (IROPI), and compensatory measures have been identified.

This form should also be used to provide information in support of an application by NRW for planning permission for a project we wish to undertake but which in our opinion needs to be approved on IROPI grounds.



Form

Notice to the Welsh Ministers under Regulation 64(5)(a) of the Conservation of Habitats and Species Regulations 2017

OGN 200 Form 3

Document owner: Protected Sites Team, EPP

Version History:

Document Version	Date Published	Summary of Changes
1.0	March 2016	Document created
1.1	30 November 2017	References to the 2010 Habitats Regulations updated to reflect new consolidated version of the regulations which entered into force on 30 th November 2017; References to KSP and National Services Directorates updated to EPP

Next review date: April 2018

Notice to the Welsh Ministers under Regulation 64(5)(a) of the Conservation of Habitats and Species Regulations 2017

In accordance with Regulation 64(5)(a) of the Conservation of Habitats and Species Regulations 2017, Natural Resources Wales hereby notifies the Welsh Ministers, as the appropriate authority under the Regulations, that we propose to approve the plan/project described below, notwithstanding a negative assessment of its implications for one or more Natura 2000 sites.

We look forward to receiving any views or instructions from the Welsh Ministers on this matter.

Signed:

Name: *[insert name of relevant Leadership Group member]*

Position: *[insert job title]*

Date: *[dd/mm/yyyy. Insert the date on which this form is emailed to WG (Biodiversity & Nature Conservation Team / Marine Conservation & Biodiversity Team). NB This is the date on which the 21 day period of statutory notice will start]*

1. THE PLAN/PROJECT

Name/title of the plan/project:

Include sufficient information to unambiguously identify the plan/project, e.g. including NRW reference number (if applicable), type of application etc

Promoted by:

Give name of proponent of the plan/project, i.e. the person, organisation or department within NRW seeking approval

Summary of the plan/project:

Give a brief description of the plan/project, including its nature, location (map(s) as appropriate) and main potential impacts. Attach maps/supporting documents as appropriate.

2. ASSESSMENT OF NEGATIVE EFFECTS ON HABITATS OR SPECIES OF NATURA 2000 SITES

Natura 2000 site(s) affected:

Give the name and EU site code of all Natura 2000 sites likely to be adversely affected and specify whether each affected site is:

- an SPA under the Birds Directive*
- a SCI or SAC under the Habitats Directive*
- a SCI or SAC hosting a priority habitat type or species*
- whether any priority habitat/species are negatively affected by the plan/project*

Site conservation objectives:

Summarise the conservation objectives of the Natura 2000 site(s) concerned

Habitats and/or species adversely affected:

Identify precisely the designated habitats and/or species that will be adversely affected (by reference to the qualifying features as recorded on official designation documents for the Natura 2000 site(s) concerned)

For each habitat/species indicate, as applicable: its representativity; its conservation status according to the most recent Article 17 report; degree of isolation; role and function in the site concerned).

Indicate the importance of the Natura 2000 site(s) concerned for the habitats and species affected (e.g. explain the role of the site within the national and biogeographical region and in the coherence of the Natura 2000 network).

Adverse effects expected:

Describe the adverse effects expected (e.g. loss, deterioration, disturbance, direct and indirect effects, etc.); extent of the effects (habitat surface and species numbers or areas of occurrence affected by the project); importance and magnitude (e.g. considering the affected area or population in relation to the total area and population in the site, and possibly in the region/country) and location (include maps as necessary). Describe potential cumulative impacts and other impacts likely to arise as a result of the combined effect of the plan/project under assessment and other plans or projects.

Mitigation:

Describe any mitigation measures included in the project (indicate how these will be secured and implemented and how they will avoid or reduce negative impacts on the site).

3. ALTERNATIVE SOLUTIONS

Identify and describe the possible alternative solutions considered, including the 'zero option' and indicate the procedure/method by which these were identified. Provide an evaluation of the alternative solutions considered and a justification of the option chosen. Give clear reasons why NRW has concluded that there are no alternative solutions.

4. IMPERATIVE REASONS OF OVERRIDING PUBLIC INTEREST

Describe what are the reasons for undertaking this plan/project despite a negative assessment of its implications for a Natura 2000 site(s), and provide justification for why those reasons are considered to be:

- imperative, and*
- matters of public interest, and*
- overriding*

If priority habitats or species are affected by the plan/project (i.e. rather than where the Natura 2000 site(s) concerned hosts priority habitats/species but they are not affected), state which of the following public interests the reasons relate to:

- human health*
- public safety*
- beneficial consequences of primary importance for the environment*
- other imperative reasons of overriding public interest (describe what these are)*

5. COMPENSATORY MEASURES

This section should provide as complete an overview as possible of the compensatory measures to be taken, covering the following areas::

Objectives, target features (habitats and species) and ecological processes/functions to be compensated

Extent of the compensatory measures (e.g. surface area of habitats to be created, population numbers of species enhancement measures)

Location of compensatory areas (including maps)

Current status and conditions in the compensatory areas (existing habitats and their condition, relevant legal status/land ownership, type of land, existing land uses, etc.)

Expected results and explanation of how the proposed measures will compensate the adverse effects on the integrity of the site and will allow preserving the coherence of the Natura 2000 network

Time schedule for the implementation of the compensatory measures (including long-term implementation), indicating when the expected results will be achieved.

Methods and techniques proposed for the implementation of the compensatory measures, evaluation of their feasibility and possible effectiveness

Costs and financing of the proposed compensatory measures

Responsibilities for implementation of compensatory measures

Monitoring of the compensatory measures, where envisaged (e.g. if there are uncertainties concerning the effectiveness of the measures), how monitoring data will be assessed, what follow-up measures will be taken, etc)

OGN 200 Habitats Regulations Assessment of Projects

Form 4

Internal application for an NRW permission - Habitats Regulations Assessment by Permitting Service, EPP

The version of the form below is shown here for information and guidance only. An editable template is available separately on the NRW intranet.

This form should be completed by the relevant permitting team in EPP for all internal applications (**Category 3 projects**) which are accompanied by a Form 1 HRA report prepared by, or on behalf of, the NRW team making the application. If no HRA report has been provided, it will almost certainly be because the project team does not consider there to be any implications for any Natura 2000 sites. Permitting teams should in all such cases satisfy themselves that this is the case.



Form

Internal application for an NRW permission: Habitats Regulations Assessment by Permitting Service, EPP

OGN 200 Form 4

Document owner: Protected Sites Team, EPP

Version History:

Document Version	Date Published	Summary of Changes
1.0	March 2016	Document created
1.1	30 November 2017	Minor changes only

Next review date: April 2018

Internal application for an NRW permission: Habitats Regulations Assessment by Permitting Service, EPP

APPLICANT: *[name of NRW project team and/or lead NRW officer]*

TYPE OF PERMISSION: *[type of permission being applied for]*

PROJECT DETAILS: *[NRW project reference (if applicable) and title/brief description]*

APPLICATION DATE: *[date application received by permitting team]*

PERMITTING TEAM: *[name of team responsible for determining the application]*

Strike out whichever of the following paragraphs do not apply:

1. We have carefully considered the Form 1 HRA report provided with this application, and we consider that it adequately addresses the potential implications for any Natura 2000 or Ramsar sites affected by the project. We note that, where relevant, the necessary consultation has taken place with the relevant protected sites advisor(s) and that their representations have been properly taken into account. On this basis, we adopt the reasoning and conclusions of the HRA report provided. Any additional comments are noted below.
2. We have carefully considered the HRA report provided with this application, and we are not satisfied that it adequately addresses the potential implications for Natura 2000 or Ramsar sites. Our main reasons for this are summarised below. We have carried out an HRA which is recorded in the attached HRA report. *[attach a completed Form 1 HRA report]*
3. We note that no HRA report has been provided with this application and we are satisfied that the project does not require an HRA. Any additional comments are noted below.

Signed:

Date:

Additional comments by the permitting team:

Insert any additional comments here, including, if applicable, a summary of why the permitting team does not agree with the HRA report submitted by the project team.

If there are no additional comments, put N/A.

Meeting note

Title of Meeting: Monmouthshire & Brecon Canal feeders – Natural Resources Wales (NRW), Canal & River Trust (CRT) and Dwr Cymru Welsh Water (DCWW)

Date of Meeting: 19th Feb 2019 Time: 11am Venue: Rivers House, St Mellons, Cardiff

Present: Mary Beckett (MB) – Senior Permitting Officer (Water Resources), NRW
Kathryn Mainwaring (KathM) – Senior Policy Advisor (Water Resources), NRW
Owain Sheppard (OS) - Technical Specialist (Hydrology), South East Area, NRW
Paula Taylor (PT) - Senior Natural Resources Planning Officer, South East Area, NRW
Adam Comerford (AC) – ~~National Hydrology Manager~~ Senior Hydrologist, Water Management team, CRT
Kathryn Maye (KM) - Senior Hydrologist, Water Management team, CRT
Richard Allen (RA) - DCWW
Kate Norman (KN) - DCWW

Apologies: Caroline Harris - Water Resources Team Leader, NRW

Time	Item	Action
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11am	Meeting Part 1 - Canal & River Trust and NRW required	
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Purpose of the meeting

To discuss CRT abstraction licence applications for supplies to Monmouthshire & Brecon Canal:

- Transitional (Water Act (WA) 2003) applications to cover existing feeders.
- Standard or 'day job' (Water Resources Act (WRA) 1991) applications for any new or increased abstractions.

Existing Monmouthshire & Brecon canal feeders (please refer to presentation provided by CRT)

- The Monmouthshire & Brecon canal has a total of 7 existing feeders:
 1. Usk at Brecon (main abstraction)
 2. Crawnon
 3. Llangattock
 4. Castle Turn
 5. Ochran ~~FF~~ Turn
 6. Mill Turn
 7. Trosnant Spring
- Noted that CRT previously held a licence for Trosnant Spring for industrial supply, but the licence is now revoked. Action for KM (CRT) to send licence details to PT (NRW) to check whether licence was considered during the Habitats Directive (HD) Review of Consents (RoC).

Commented [BM1]: Please could CRT provide a copy of the presentation for NRW reference

UWAG modelling - summary

- UWAG modelling has shown that a proposed restriction to the abstraction from the River Usk at Brecon would mean a shortfall in supply to the Monmouthshire & Brecon canal.
- The most recent update on the UWAG modelling is provided in a draft report produced by John Lawson for CRT "[Water Supplies for the Monmouth & Brecon Canal to comply with the requirements of the Habitats Directive](#)" (Dec 2018).
- Noted that although the baseline assumptions and abstraction cutbacks for the Usk at Brecon abstraction are compliant with HD requirements, the other 6 feeder abstractions have not been fully assessed, as there was limited information available at the time of the HD RoC.
- CRT highlighted that the licence determinations for the feeders will dictate the shortfall and whether this can be provided from alternative sources (see below) and at what cost.
- NRW confirmed that although the feeders are not within the River Usk SAC designation boundary, they will need to comply with HD requirements because they support the SAC river.
- A technical solution to make up for the shortfall in supply to the canal has been proposed by CRT, which involves two additional supplies:
 - Releases from Usk reservoir
 - New abstraction from Afon Lwyd at Pontymoel
- The technical solution also recommends abandoning some of the existing CRT feeders and suggests there may be limited benefit in installing new feeders.
- Noted that the additional supplies required from Usk Reservoir and the Afon Lwyd (to make up the demand shortfalls) are reliant on DCWW supplying water to CRT.
- Noted that technical solution cannot be considered viable until a funded commercial agreement with DCWW is in place.

Outstanding work/issues (continued in Part 2)

Further work to assess whether recommendations in John Lawson's draft report (Dec 18) meet HD requirements for all feeders. Currently the proposal is to achieve the CAMS EFI below the feeders.

Water Act 2003 – applications to be submitted

- CRT are proposing to submit transitional (WA 2003) applications for all 7 Monmouthshire & Brecon canal feeders listed above.
 - It was noted that some applications may need to be withdrawn if some sources are no longer required following agreement of proposed UWAG technical solution.
 - CRT understand that any licences issued in respect of the above would need to comply with requirements of the HD, which will be informed through UWAG modelling / agreed solution.
 - NRW queried what supporting information would be provided in support of transitional (WA 2003) licence applications – CRT confirmed that applications would include evidence of historic abstraction, any necessary drawings of intake structures, letter of authorisation for licence application signatures etc.
 - Discussed whether CRT had evidence to demonstrate abstraction quantities proposed through UWAG modelling have been abstracted during transitional licence qualifying period (2011 – 2017). CRT believe they have evidence to demonstrate daily maximums but not annual requirements.
-

- NRW advised that the transitional application process can only consider evidenced historic abstraction activity; any additional water needs would need to be applied for under the standard or 'day job' (Water Resources Act 1991) licensing process.
- NRW advised that additional guidance on evidence requirements for transitional applications is now available on [NRW web pages](#).
- NRW also advised that consideration would be given to determining transitional and standard licence applications together, but additional justification would need to be provided by applicants to allow for this. Noted that further information on this is available on [NRW webpages](#) and had previously been shared with CRT.
- NRW advised CRT to submit transitional (WA 2003) applications ASAP (but by end of September 2019 at latest) to allow NRW time to complete validation checks and request any additional information required.
- CRT advised most applications submitted in Wales would be for Transfer licences in line with New Authorisations (NA) and NRW policy positions but for some CRT may apply for full licences e.g. if onward supply to a water company. Where full licences are applied for, additional justification will be provided (it was noted that NRW's current forms and guidance do not state this as a requirement). NRW aim to review and update the forms and guidance to reflect this requirement as soon as possible.

Water Resources Act 1991 – applications being considered – to be continued in Part 2

- Following the recommendations in John Lawson's draft report (Dec 2018), CRT are considering new abstraction from Afon Lwyd at Pontymoel as this would reduce the demand (and associated cost) for Usk Reservoir support.
- A new Afon Lwyd abstraction would be reliant on DCWW revoking its seven unused licences in the catchment (maximum daily volume 14.184 Ml/d).
- DCWW submitted a pre-application enquiry to NRW in 2015 to explore option of revoking 7 existing licences and consolidating to a single source from Afon Lwyd at Pontymoel.
- NRW advised that due to the CAMS status of the Afon Lwyd catchment ('over-licensed'), abstraction restrictions would be required to achieve the Environmental Flow Indicator (EFI) and thus protect the WFD status of the Afon Lwyd.
- John Lawson's draft report (Dec 2018) proposes a maximum daily abstraction of 8.7 Ml/day. The origin of this figure is unclear.
- CRT currently considering 2 options for a licence application:
 1. New CRT abstraction licence for CRT abstraction
 2. Variation of existing DCWW licence(s) to add CRT abstraction
- Discussed possibility of CRT and DCWW being joint licence holders or whether two separate licences would be more appropriate.
- Agreed CRT would need to discuss further with DCWW.

Additional note:

Although not formally discussed, it was noted during the lunch break that CRT are considering submitting WRA 1991 applications for Cwm Shenkin Brook and Cwm Cwy/Caerfannell and that the location assumed for the Cwm Cwy feeder in John Lawson's model is likely to be at an incorrect point (on the Caerfannell, rather than the smaller Cwm Cwy tributary), so the likely yields for this point will be far less than currently assumed.

1.30pm Meeting Part 2 - all required
Brief recap on Part 1 discussions

Noted that applications for existing feeders would be subject to HD requirements / Appropriate Assessment process

UWAG modelling – brief summary/update since Nov meeting

See part 1 above

Outstanding work/issues

- Further consideration of the recommendations / questions presented in John Lawson's draft report (Dec 18). These are predominantly for DCWW.
- Further cost benefit analysis for CRT following recommendations of draft report.
- Further modelling to be undertaken by DCWW to understand risk of Usk reservoir releases to support canal abstraction proposed in draft report.
- DCWW noted they are in the process of moving to a new WR model (Aquator) and will need to look at further climate change scenarios when assessing the impact to their customers of supplying the Canal.
- Concerns noted regarding possible factors affecting the progress of DCWW modelling work (i.e. resources and funding).
- Further consideration from DCWW regarding viability of Afon Lwyd as supplementary source for CRT in context of drought plans.
- Further work to understand if proposed figure of 8.7Ml/day from Afon Lwyd is correct / viable.
- Further work by NRW to assess whether recommendations in John Lawson's draft report (Dec 18) meet HD flow requirements for all feeders.

Options for abstraction licensing

- Discussed DCWW 2015 pre-application to revoke DCWW's 7 unused existing licences to consolidate to a single source from Afon Lwyd at Pontymoel.
- Discussed options for new / varied licence to be held by just DCWW or jointly by CRT and DCWW.
- Discussed whether it was possible for CRT to be (joint) licence holder if licence is also for public water supply.
- Discussion around possibility of aggregating quantities across two licences if held by two different licence holders (CRT and DCWW).
- Noted that there is no infrastructure currently in place for 7 existing DCWW licences and so NRW could look to revoke for non-use.
- Also noted that under Section 36A (1) (d) NRW can serve notice to require applicants to submit revocation applications with their new licence application to ensure existing licences are revoked prior to the new licence(s) being issued.
- Agreed that any applications associated with this proposal would need to be submitted in combination as if done separately the revoked water would become 'new water' and different restrictions may apply.
- Discussions around who would invest in infrastructure required for new abstraction and impacts on timescales this issue may have.
- Discussed whether DCWW would require drought permit if Afon Lwyd at New Inn remains in drought plan.
- Discussion around appropriate licence type / purpose i.e. transfer for onward supply or public water supply or both.
- Discussion around what purpose / charge factors would be applied to any licence issued.
- Query whether DCWW should consider the Afon Lwyd in conjunction with the Usk Reservoir, given that use of the Afon Lwyd would reduce demands on Usk Reservoir and could reduce the risk to DCWW customers.
- NRW advised that any abstraction from Afon Lwyd would not be subject to HD requirements, but CAMS / WFD requirements would need to be met,

so the volumes available to DCWW on their current licences would not be available during lower flow conditions.

- NRW provided advice regarding water availability on the Afon Lwyd downstream of Pontymoel and potential for additional / supplementary abstraction from this location even without DCWW revoking its licences.

Way forward/next steps

- | | |
|--|------------|
| • CRT to submit transitional (WA 2003) licence applications for 7 existing feeders ASAP. | CRT |
| • Further consideration of the recommendations / questions presented in John Lawson's draft report (Dec 18) (see outstanding work issues above). | All |
| • DCWW/CRT to submit joint pre-application enquiry regarding new abstraction from Afon Lwyd at Pontymoel. Any pre-app enquiry should include the queries highlighted above e.g. joint licences, can CRT hold licences authorising public water supply. | DCWW / CRT |

Further discussions:

- Noted that any delays to UWAG modelling / solution and subsequent commercial negotiations between CRT and DCWW could have implications for transitional licence application timescales. NRW need to determine transitional licence applications by December 2022 deadline. A prioritisation exercise will be undertaken to decide the determination order for all NA applications. If solution is not in place before applications are determined, restrictions will need to be included on any licences issued to meet HD requirements, which are likely to result in canal closures when water not available.
- NRW recommended that CRT consider Overriding Public Interest route and flag above risk to Welsh Government.

3.30pm **Close**

Fill in this form if you are applying for a transitional water resources licence to continue a previously exempt abstraction.

This form is available in both English and Welsh. Please check that this is the latest version of the form available from our website before submitting your application.

Please ensure you use Guidance Note WRH to help you.

All relevant guidance documents can be found on our website.

Contents

1 Application type and fee

2 Applicant and agent details
3 Site name
4 Entitlement to apply
5 Existing licence number(s)
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9 Discharge details
10 Eel considerations
11 Trickle irrigation
12 Planned abstractions
13 Other abstractions
14 Planning permissions
15 Environmental Impact Assessment
16 Licence duration
17 Application checklist

1. Application type and fee

1.1 Please select your application type from the list below.

- A new transitional water resources full abstraction licence for a previously exempt abstraction ☐
- A new transitional water resources transfer licence for a previously exempt abstraction ☒
- A variation to an existing full abstraction licence to add a previously exempt abstraction ☐
- A variation to an existing transfer licence to add a previously exempt abstraction ☐

1.2 Please indicate the amount and how you wish to pay your application

Amount paid

Cheque ☐

Credit or debit card ☒

BACS transfer ☐

BACS reference number

PRC

2 Applicant and agent details

This is the individual or organisation any resulting licence will be issued to, and must be a legal entity. If you are an agent acting on behalf of an applicant, provide their details here and yours in section 2.2.

2.1 Applicant details

Individual ☐

Public body ☐

Registered company ☒

Organisation or group of individuals ☐

Other ☐

If 'Other', please specify

Title

Dr

First name	Adam
Last name	Comerford
Company, charity, body, or trading name (if relevant)	Canal & River Trust
Registered company or charity number (if relevant)	7807276
Address	Canal & River Trust
	First Floor North Station House
	500 Elder Gate
	Milton Keynes
Postcode	MK9 1BB
Telephone - mobile	07810 856554
Telephone - office	01926 626142
Email address	Adam.Comerford@canalrivertrust.org.uk

We will contact you by email unless you tick here. ☐

2.2 Agent details

This is who we will correspond with unless otherwise informed. If you are an agent applying on behalf of an applicant, please include a letter of authorisation from the applicant allowing you to act as signatory, and provide a reference for this document in the box below.

Document reference	
Title	
First name	
Last name	
Company or trading name	
Position in company	
Address	

Postcode

Telephone - mobile

Telephone - office

Email address

We will contact you by email unless you tick here. ☐

2.3 Site operation contact

Please specify who we should contact with regard to your site operation.

Applicant ☒

Agent ☐

Other ☐ Please provide contact details for the operational contact on a separate referenced document, and tell us this reference below.

Document reference

2.4 Abstraction invoices and records contact

Please specify who we should contact for invoices and abstraction records (returns). Please note that these may not be required for transfer licences.

Invoice address

Applicant ☒

Agent ☐

Other ☐ Please provide contact details for the operational contact on a separate referenced document, and tell us this reference below.

Document reference

Abstraction records

Applicant ☒

Agent ☐

Other ☐ Please provide contact details for the operational contact on a separate referenced document, and tell us this reference below.

Document reference

3. Site name

3.1 Please provide the site name below:

Site name

CRT438_Trosnant Spring

4. Entitlement to apply

4.1 Have you abstracted water between 01 January 2011 and 31 December 2017 for the activity which you are applying to be licensed?

Yes ☒

No ☐ Please see our water abstraction and impounding webpage for further information on the correct application forms.

4.2 What is your connection to the land where the abstraction takes place?

Please provide a map outlining your land ownership/occupation and include all abstractions and discharges where relevant.

Owner ☐

Occupier ☒

Document reference

4.3 Do you have a legal right of access to the land where the abstraction takes place?

No ☐

Yes ☒ Please provide further detail in the box below. If necessary continue on a separate referenced document, and tell us this reference.

Document reference

The Monmouthshire & Brecon Canal was constructed and extended by the Company of Proprietors of the Monmouthshire Canal Navigation and the Brecon Canal Company under various Acts of parliament between 1791 and 1865. These Acts authorised the creation and maintenance of feeder channels, and the Trosnant Spring feeder was constructed under these powers. The Trust are the successors in title to both the Monmouthshire and Brecon Canal Companies, and have accessed the feeder channel for maintenance and inspection purposes unchallenged for at least 20 years.

5. Existing licence number(s)

If you are applying to change an existing licence please provide the licence number below.

Licence number(s)

6. Cross border applications

As part of your site operation do you also abstract for a previously exempt activity in England?

No ☒

Yes ☐ Please provide detail of this cross border application in the box below. If possible, provide a reference or application number, or name of an Environment Agency contact with whom the application has been discussed.

Continue on a separate referenced sheet if necessary and tell us the reference for this document.

Document reference

7. Abstraction details

7.1 Site map

Please provide a map with details of the location(s) you abstract water from (points reaches, or areas). Tell us the reference for this map, below.

Site map reference

7.1 CRT438_Troissant Spring Location Map

7.2 Please tell us details about the location(s) you abstract water from (points reaches, or areas) in the tables below.

The abstraction location, name, or reference must be the same as those used on the site map, in question 7.1. If you need more space, please continue on a separate referenced sheet if necessary and tell us the reference for this document

Document reference

Table 7. 1 - Surface water abstractions						
Abstraction location name or reference (As labelled on the site map)	Type of location (single point, reach, area)	Source of Supply	First National Grid Reference (12 digits)	Second National Grid Reference (12 digits)	Third National Grid Reference (12 digits)	Fourth National Grid Reference (12 digits)
A: Abstraction point	Single point	Stream	SO 28609 00570			

If necessary, continue on a separate sheet and tell us the reference for this document.

Document reference(s)

Table 7. 2 Ground water abstractions										
Abstraction location name or reference (as labelled on map)	Source of Supply	National Grid Reference (12 digit)	Overall depth (metres)	Maximum diameter (millimetres) or area of excavation (square metres)	Screened section (metres below ground level)	Drift geology	Solid geology	Rest pump water level	Pumped water level	Pump Depth

If necessary, continue on a separate sheet and tell us the reference for this document.

Document reference(s)

8. Abstraction history and evidence

8.1 Please complete table 8.1 to document that the abstraction(s) and transfer(s) has or have been taking place during the qualifying period.

If necessary, continue on a separate sheet and tell us the reference for this document.

Document reference(s)

Table 8.1											
Year	Abstraction location name or reference (as labelled on map)	Purpose(s) water used for	Period of abstraction	Maximum quantities abstracted						Means of measurement, or assessment of abstracted quantities	Are these the maximum quantities of water you wish to have licensed? (Yes or No)
			All year, or months, or days (provide specific dates)	Year (cubic metres)	Day (cubic metres)	Hour (cubic metres)	Peak instantaneous flow rate (litres per second)	Maximum number of hours of abstraction per day	Please indicate whether volume is actual (A) or estimated (E)		
01 January 2011 to 31 December 2011	A	Transfer from one source of supply to another	All year	62010	780	32.9	9.1	24	A	Telemetry – see section 8.4 for further details	Yes
01 January 2012 to 31 December 2012	A	Transfer from one source of supply to another	All year	4190	1060	178.3	49.5	24	A	Telemetry – see section 8.4 for further details	Yes
01 January 2013 to 31 December 2013	A	Transfer from one source of supply to another	All year	16850	5180	566.3	157.3	24	A	Telemetry – see section 8.4 for further details	Yes
01 January 2014 to 31 December 2014	A	Transfer from one source of supply to another	All year	42170	710	65.4	18.2	24	A	Telemetry – see section 8.4 for further details	Yes
01 January 2015 to 31 December 2015	A	Transfer from one source of supply to another	All year	56810	490	22.5	6.3	24	A	Telemetry – see section 8.4 for further details	Yes
01 January 2016 to 31 December 2016	A	Transfer from one source of supply to another	All year	87230	310	13.3	3.7	24	A	Telemetry – see section 8.4 for details	Yes
01 January 2017 to 31 December 2017	A	Transfer from one source of supply to another	All year	56430	210	9.2	2.5	24	A	Telemetry – see section 8.4 for details	Yes

--	--	--	--	--	--	--	--	--	--	--	--

8.2 Please complete the table below if you wish a lesser quantity of water to be licensed than that detailed in table 8.1.

If necessary, continue on a separate sheet and provide a reference for this document.

Document reference

Table 8.2							
Abstraction location name or reference (as labelled on map)	Purpose water is used for	Abstraction period	Maximum annual abstraction volume (cubic metres)	Maximum daily abstraction volume (cubic metres)	Maximum hourly abstraction volume (cubic metres)	Maximum number of hours of abstraction per day	Peak abstraction rate (litres per second)

8.3 Do you wish your abstracted quantities to be aggregated?

You can aggregate:

- i) across some or all of the abstraction points, or reaches, or areas listed above.
- ii) with other abstractions you wish to have licensed through the transitional process.
- iii) abstractions you need to have licensed through the standard licensing process.
- iv) with existing licences you hold.

No ☒

Yes ☐ Provide details of any proposed aggregation in the box below. If necessary, continue on a separate sheet and provide a reference for this document.

Document reference

8.4 Please provide a detailed description of how the abstraction(s) has/have taken place

Use the box below to tell us about your abstraction(s). The description should include the following:

- A diagram or schematic of how the activity has been undertaken, using your abstraction point references and including any discharge points
- Details of the structure and equipment involved in the abstraction. This should include dimensions.
- Details of your means of measurement or assessment of abstraction quantities method

If necessary, continue on a separate sheet and tell us the reference for this document.

Document reference

8.4 CRT438_Trosnant Spring Abstraction Details

Please refer to this section in supporting information document: CRT438_Supporting Information.pdf for a general description of the feeder, schematic of abstraction arrangement, details of the structures, means of measurement/assessment of abstraction quantities method and general principles of maintaining a level on Canal & River Trust Navigations.

8.5 Please list the evidence you are providing to support your application

Use the box below. The evidence should demonstrate the following:

- That abstraction has taken place at some time during the seven year qualifying period.
- The quantities of water you have abstracted during the qualifying period. For example, records of meter readings, or cropping plans.

If necessary, continue on a separate sheet and provide a reference for this document.

Document reference

8.5 CRT438_Trosnant Spring Evidence of Abstraction

Evidence submitted to support this application includes:

- Telemetry/SCADA Data – chart of estimated daily mean abstraction quantities
- Photographic record

9. Discharge details

9.1 Please provide details on any discharge of abstracted water in table 9.1 below and on the map used to show abstraction locations.

If necessary, continue a separate sheet and provide a reference for this document.

Document reference

7.1 CRT438_Trosnant Spring Location Map

Table 9.1 - Details of any discharge of abstracted water

Discharge location name or reference (as labelled on map)	National Grid Reference of discharge point (12 digit)	Total volume discharged (cubic metres)	Environmental Permit number for Water Discharge Activity number (if applicable)
B: Discharge point into canal	SO 29405 00307	5180	

9.2 Please provide a description of discharge structures and equipment

Discharge to the canal is controlled by a valve on the downstream end of the pipeline, adjacent to the M&B Canal at Pontymoel. Please see section 7.1 CRT438_Trosnant Spring Location Map and photographic record in section 8.5 CRT438_Trosnant Spring Evidence of Abstraction in CRT438_Supporting Information.pdf for location and photograph of discharge point B.

If necessary, continue a separate sheet and provide a reference for this document.

Document reference

10. Eel considerations

Does your abstraction include measures to safeguard eels?

No ☒

Yes ☐ Provide details below

11. Trickle Irrigation

If you are applying to licence a trickle irrigation abstraction, do you wish to apply for a Two-Part Tariff agreement with your application?

No ☐

Yes ☐ We will contact you during determination of your application to arrange this agreement.

12. Planned abstractions

12.1 Do you expect to increase the current rate of abstraction for the activity you are applying to have licensed from 01 January 2018 onwards or to carry out further new abstractions (both termed 'planned' abstractions) at this site in the future?

No ☒

Yes ☐

12.2 Have you submitted a licence application (s) for any planned abstraction(s) as a result of the Water Act 2003 changes?

No ☒

Yes ☐ Provide a reference number if you have already submitted an application(s) to cover any planned abstractions.

Document reference

13. Other abstractions

Please provide details of any other abstraction(s) (licensed or exempt) that are associated with this application in table 13.1 below.

Table 13.1 - Details of any other abstraction(s) (licensed or exempt) that are associated with this application					
National Grid Reference (12 digit) of where you abstract water	Source name and type	Purpose of abstraction	Where do you use the water?	When do you abstract the water?	Is this a pending application, or already licensed? Please provide the application or licence number as appropriate
Please see section 13.1 in CRT438_Supporting Information.pdf for full table and details of other abstractions					

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14. Planning permission

Complete table 14.1 below and provide details of any planning permissions or advice associated with the abstraction you are applying to have licensed where relevant. Provide a copy of any permissions or advice, providing a reference for this document below.

Document reference

Table 14.1 – Planning permission			
Abstraction location name or reference (as labelled on map)	Is planning permission needed, Yes or No?	Planning permission status (if required)	Have you received any planning advice for the abstraction?

15. Environmental impact assessment(EIA)

Does your application require an EIA under The Water Resources (Environmental Impact Assessment) (England and Wales) Regulations 2003 (as amended)

No ☒

Yes ☐ Please provide a copy of your environmental impact assessment; provide a reference for this assessment below.

Document reference

16. Licence duration

Tell us when you wish your abstraction licence to end

Normally abstraction licences are granted for between 6 and 18 years in line with the catchment licence common end date. If you require a shorter or longer duration licence, please provide details and your justification in the box below.

If necessary, continue a separate sheet and provide a reference for this document.

Document reference

Normal duration, to appropriate CAMS CED.

17 Declaration and data protection and commercial confidentiality

Data protection:

Please read the guidance carefully for details on who can sign this section and note the information relating to the Data Protection Act 1998, our Public Register and exclusions.

Commercial confidentiality:

Do you think your application should be confidential, and that information should not be placed on the public register?

No ☒

Yes ☐ You must send us supporting information to tell us why. Use the box below or a separate sheet, and tell us the reference you have given this document.

Document reference

Declaration:

By signing below, you are declaring that as far as you know and believe the information given in this form, on any map and in any supporting or additional information is true.

A printed name in the 'signature' response box will be treated as the equivalent of an electronic signature.

Title

Dr

First name

Adam

Last name

Comerford

Position

National Hydrology Manager

Today's date

13/09/2019

Permit Receipt Centre
Natural Resources Wales
Tŷ Cambria
29 Newport Road
Cardiff
CF24 0EY

12th June 2019

Dear Sirs

Applications for Abstraction Licences for previously exempt abstractions- "New Authorisations"

Under the Water Resources (Abstraction and Impounding) Regulations 2017, applications for abstraction licences must be made in the form specified by Natural Resources Wales in respect of applications made within its jurisdiction. Applications for New Authorisations must be made on application form WRH. The guidance note for form WRH specifies that applications made by a registered company must be signed by a Company Director or Company Secretary.

The Trust will be making a number of applications for New Authorisations over the next few months, which will be coordinated by our Hydrology team, based in Hatton.

Therefore, I can confirm that, as Company Secretary of the Canal & River Trust, I give authority for **Adam Comerford, National Hydrology Manager**, to sign application forms for New Authorisations on behalf of the Canal & River Trust.

Yours faithfully



Tom Deards
Head of Legal and Governance Services, Company Secretary

Canal & River Trust
First Floor North Station House 500 Elder Gate Milton Keynes MK9
1BB
T 0303 040 4040 E canalrivertrust.org.uk/contact-us

Patron: H R H The Prince of Wales. Canal & River Trust, a charitable company limited by guarantee registered in England and Wales with company number 7807276 and registered charity number 1146792, registered office address First Floor North, Station House, 500 Elder Gate, Milton Keynes MK9 1BB

WRH Supporting Documentation for CRT438 Trosnant Spring

Documents included are:

- 7.1 CRT438_Trosnant Spring Location Map
- Canal & River Trust Generic Map Key
- 8.4 CRT438_Trosnant Spring Abstraction Details
- 8.5 CRT438_Trosnant Spring Evidence of Abstraction
- 13.1 CRT438_Trosnant Spring - Other Abstractions

This information was put together by:

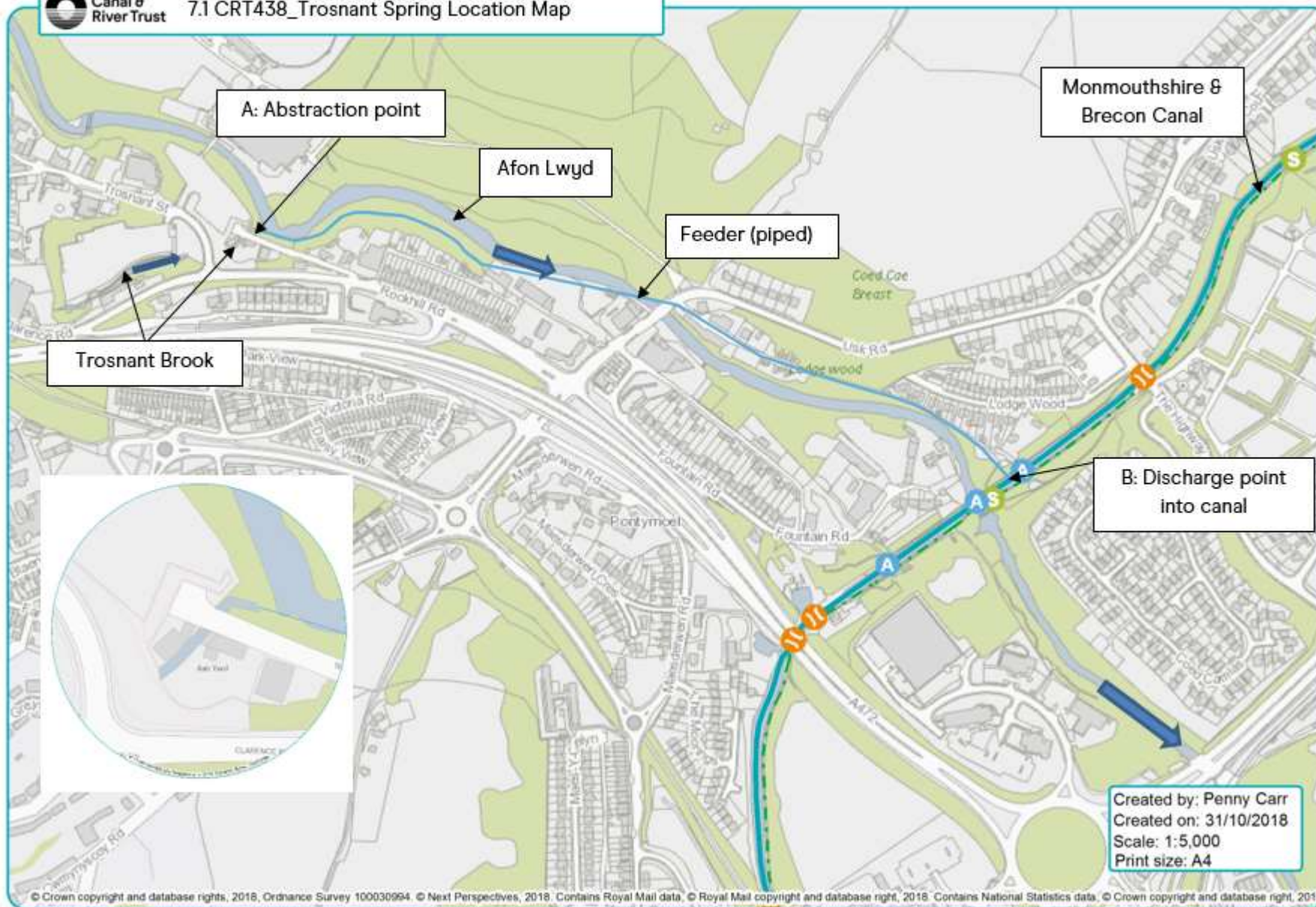
Kathryn Maye
Senior Hydrologist
01926 626166

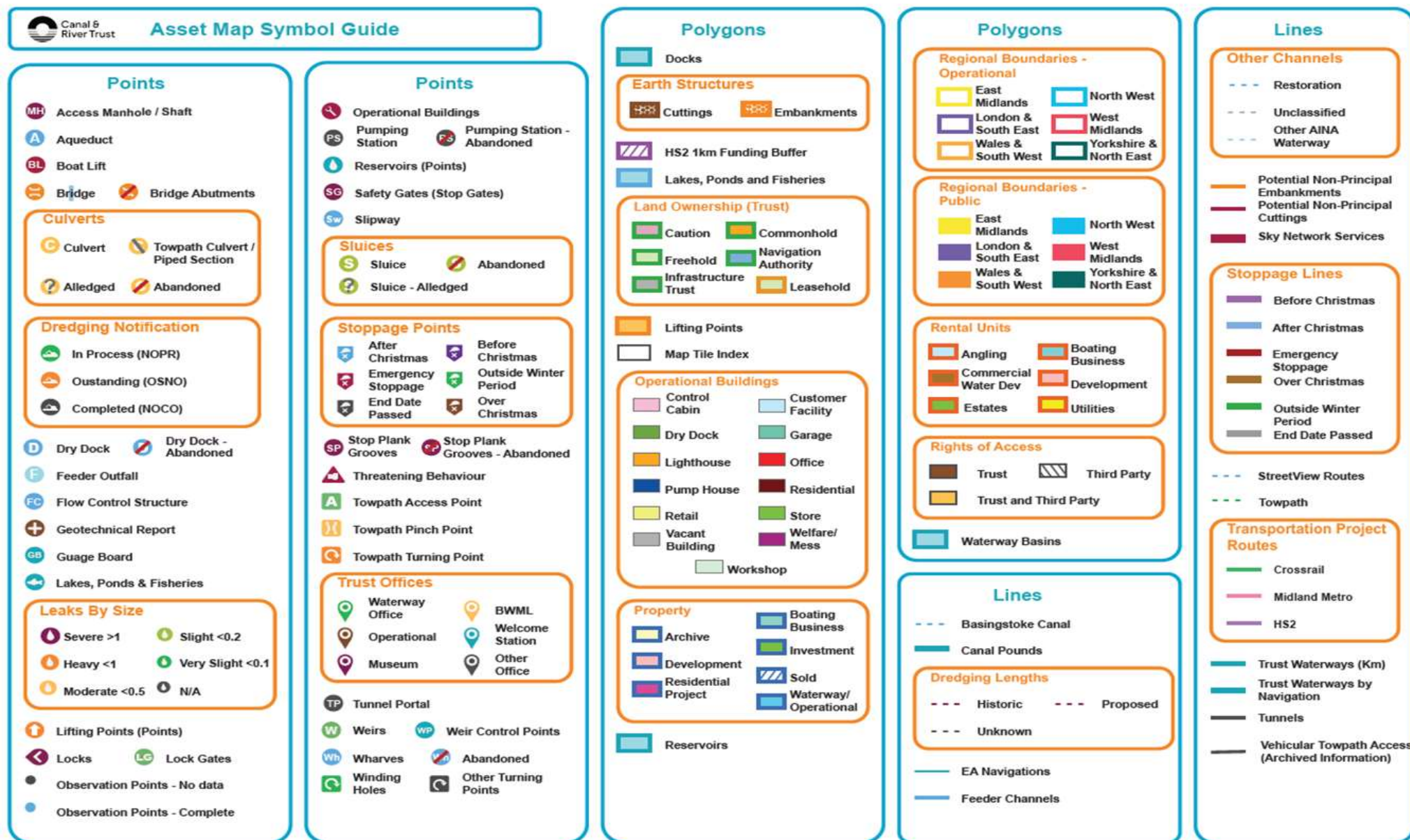
kathryn.maye@canalrivertrust.org.uk



Canal &
River Trust

7.1 CRT438_Trosnant Spring Location Map

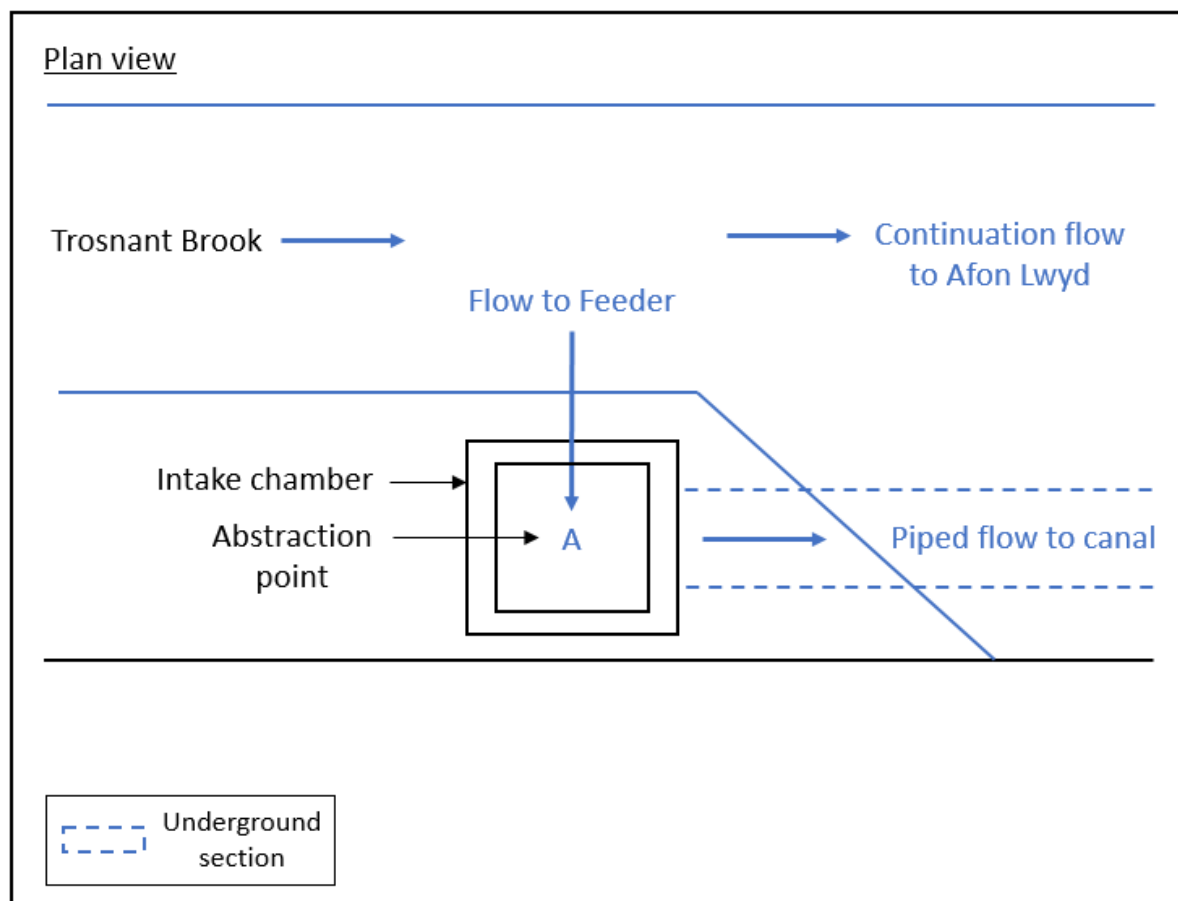




General Description:

Trosnant Spring is a Scenario 1b feeder (as detailed in Navigation Scenario Workbook), with a fixed abstraction structure. The abstraction is from the Trosnant Brook, a tributary of the Afon Lwyd, near Pontymoel. Flow is diverted into the feeder via an intake chamber. The flow is then piped to the M&B Canal. Discharge to the canal is controlled by a valve adjacent to the canal. A flow meter is installed in the pipeline to monitor the abstraction. Please see schematic of abstraction arrangement.

Schematic of Abstraction Arrangement:



Details of the Structures:

Flow in the Trosnant Brook is diverted by gravity into the feeder via an intake chamber, located on the bed of the brook. The flow is then piped, through a 6" cast iron pipeline, for approx. 0.9km to the M&B Canal. Discharge to the canal is a gravity driven head feed, controlled by a valve adjacent to the canal. A flow meter is installed in the pipeline, downstream of the control valve, to monitor the abstraction. Please refer to photographic record in section 8.5 CRT438_Trosnant Spring Evidence of Abstraction below for photographs of the abstraction arrangement.

Means of Measurement/Assessment of Abstraction Quantities Method:

The abstraction is monitored via the Trust's telemetry/SCADA (Supervisory Control and Data Acquisition) system approximately 0.9km downstream of the abstraction. A Kent Flow Meter is installed within the pipeline, downstream of the control valve to the canal.

Please see section 8.5 CRT438_Trosnant Spring Evidence of Abstraction below for further details.

General principles of maintaining a level on Canal & River Trust Navigations:

The purpose of water control at the Canal & River Trust (the Trust) is to keep the water level within a Normal Operating Zone (NOZ) to minimise business risks. The business risks associated with high water levels include overtopping, which could lead to canal infrastructure damage ranging from towpath surfacing to catastrophic embankment failure or breach. Low levels can lead to damage to canal lining and in cases of rapid drawdown collapse of canal bank, in addition to insufficient navigable depth which can lead to disruption and inconvenience to our customers, damage to reputation, loss of income and/or environmental/ ecological damage such as algal blooms, fish distress, kills etc. and/or impact on water sales (hands off flows, commercial agreements, intake structures exposed).

Generally, canals operate within the NOZ (Figure 8.41 below), which is a zone of tolerance around a Normal Water Level (NWL); NWL is usually determined by refining a given level based on unobstructed passage for navigation and efficient use of available resources (water and manpower).

Across the Trust's canal network, NWL may or may not be the same as 'level', 'pound datum' or 'zero' and slight variations between NWL and 'level' exist across the network i.e. in some areas NWL is equivalent to 'level', whereas in other areas 'level' maybe the bywash cill and NWL is 25 to 50mm above this to maintain a flow and level throughout the lower pounds in the canal.

The lower limit of the NOZ is generally governed by the minimal navigable depth of the section of canal in question, below NWL. Assuming pound datum and NWL are the same, then typical values of the lower limit of NOZ are in the region of - 200mm from pound datum. Depending on location, this can vary between -450mm and -100mm.

The upper limit of the NOZ is generally governed by the available freeboard of the section of canal and then subtracting a 'margin' from this. The freeboard enables the canal to have a degree of passive control, by the waste and bywash weirs (and in some areas the top beam of the lock gates), before requiring active intervention/flood control activities to avoid overtopping of the canal. In some locations on the network, the upper limits of NOZ is governed by the air draft under a bridge, i.e. the point below NWL beyond which navigational issues occur due to restricted head room.

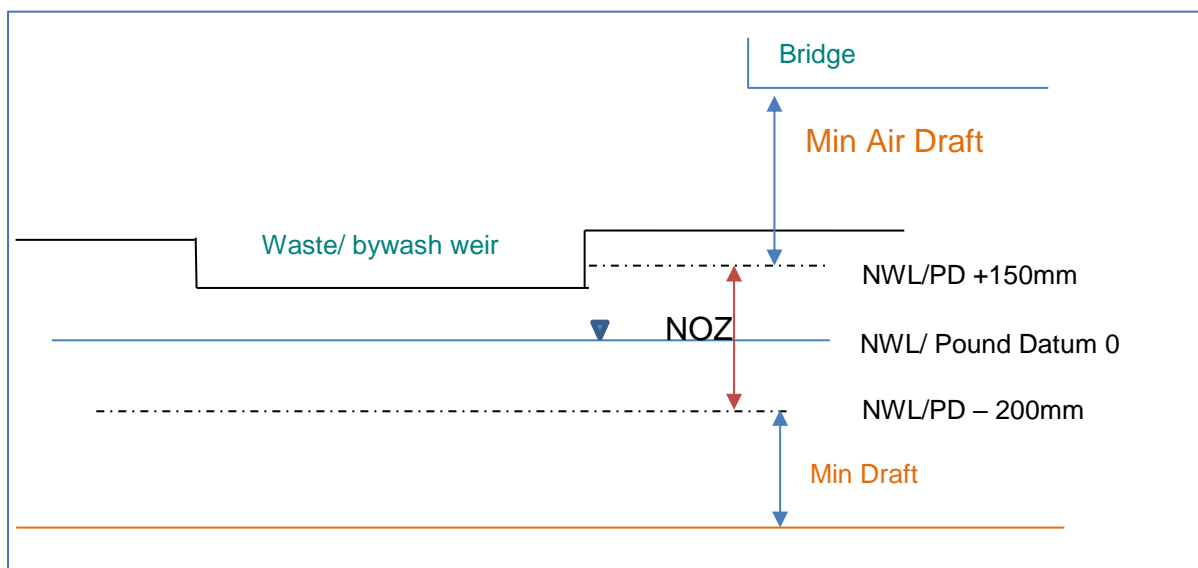


Figure 8.41: Example of Normal Operating Level on Canal & River Trust Navigations

Telemetry/SCADA data:

The abstraction is measured and recorded via the Trust's telemetry/SCADA system. Figure 8.51 below shows the daily mean abstraction quantities for the period 2011-2017 inclusive.

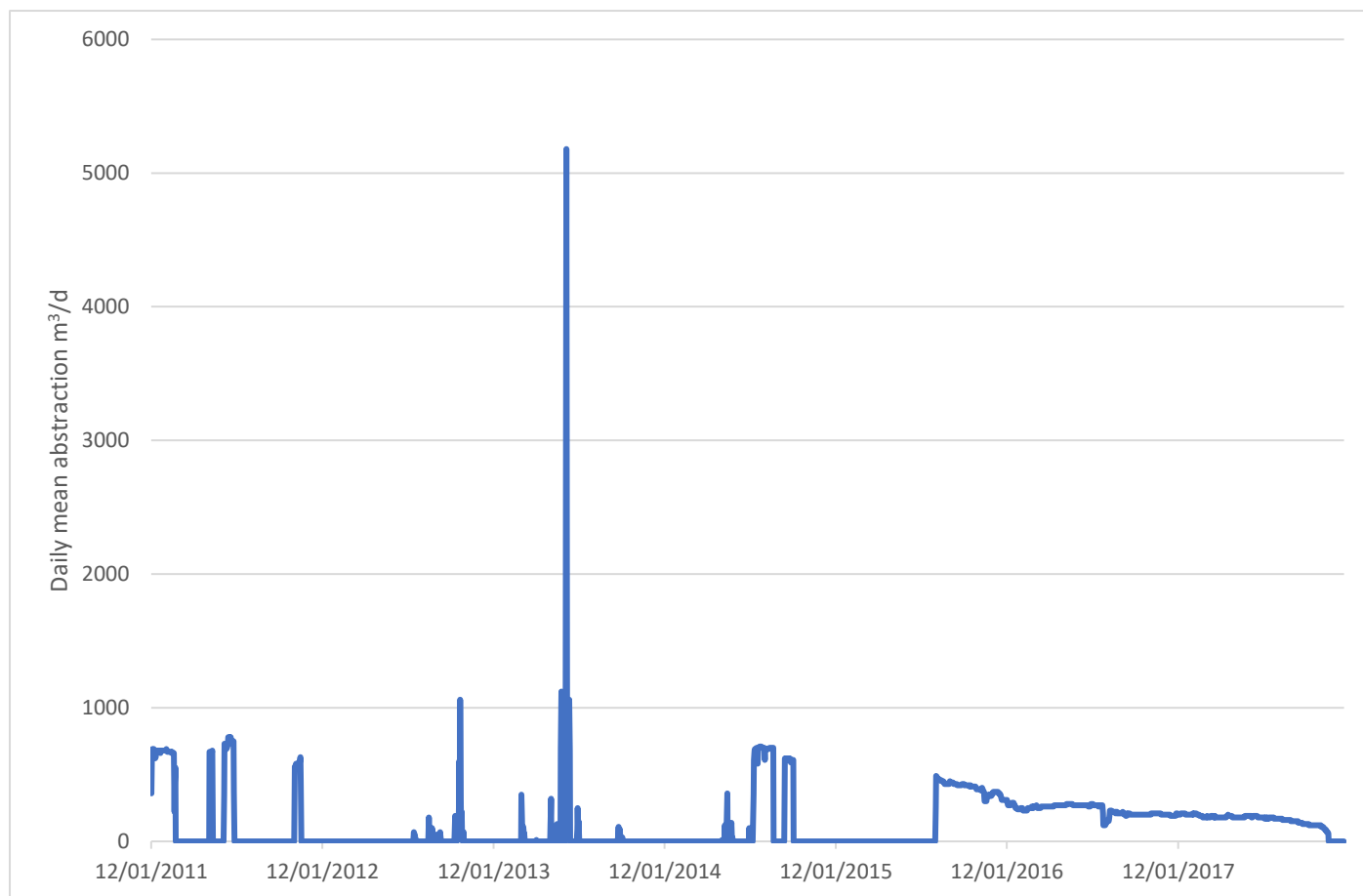


Figure 8.51 Daily mean abstraction 2011-2017

As can be seen from the above chart, the data recorded via the Trust's telemetry/SCADA system is of variable quality over the qualifying period 2011-2017. There have been several periods in the record where the flow meter has broken down, and/or there has been damage/blockage to the pipeline which has resulted in the abstraction being stopped. Periods of zero abstraction as shown in the above chart are therefore as a result of either there being issues with the flow meter or no abstraction as a result of damage/blockage to the pipeline.

For other New Authorisations applications on our navigation network, it has been possible to estimate the abstraction quantities where data is missing or there are breaks in the record e.g. using donor catchments and estimating flows pro rata by catchment area, taking into account the hydraulics of the existing abstraction structures. However, this has not been possible at this site as the exact method of abstraction is unknown and not possible to determine as it takes place under ground level.

The abstraction at this location was originally undertaken by a third party. An abstraction licence (number 20/56/12/76) was granted on 14 September 1983, to regulate this abstraction. The means of abstraction was given as 'an existing intake chamber and pipeline to the Monmouthshire & Brecon Canal' but no further details are given as to the means of entering said intake chamber. The third party ceased to operate and no longer required the abstraction in 2004. The Trust, then British Waterways, took over the management of this licence at this time, until revoked some time later. The Trust have continued to abstract at this location to support navigation in the bottom pound of the M&B Canal under the Water Resources Act (1991) S.26 exemption.

Please see abstraction licence appended to this document for further details.

Photographic Record:

Photograph 1: Intake chamber and continuation flow in Trosnant Brook 23.10.13



Photo 2: Location of control valve and flow meter, below discharge point B on M&B Canal at Pontymoel 21.02.05

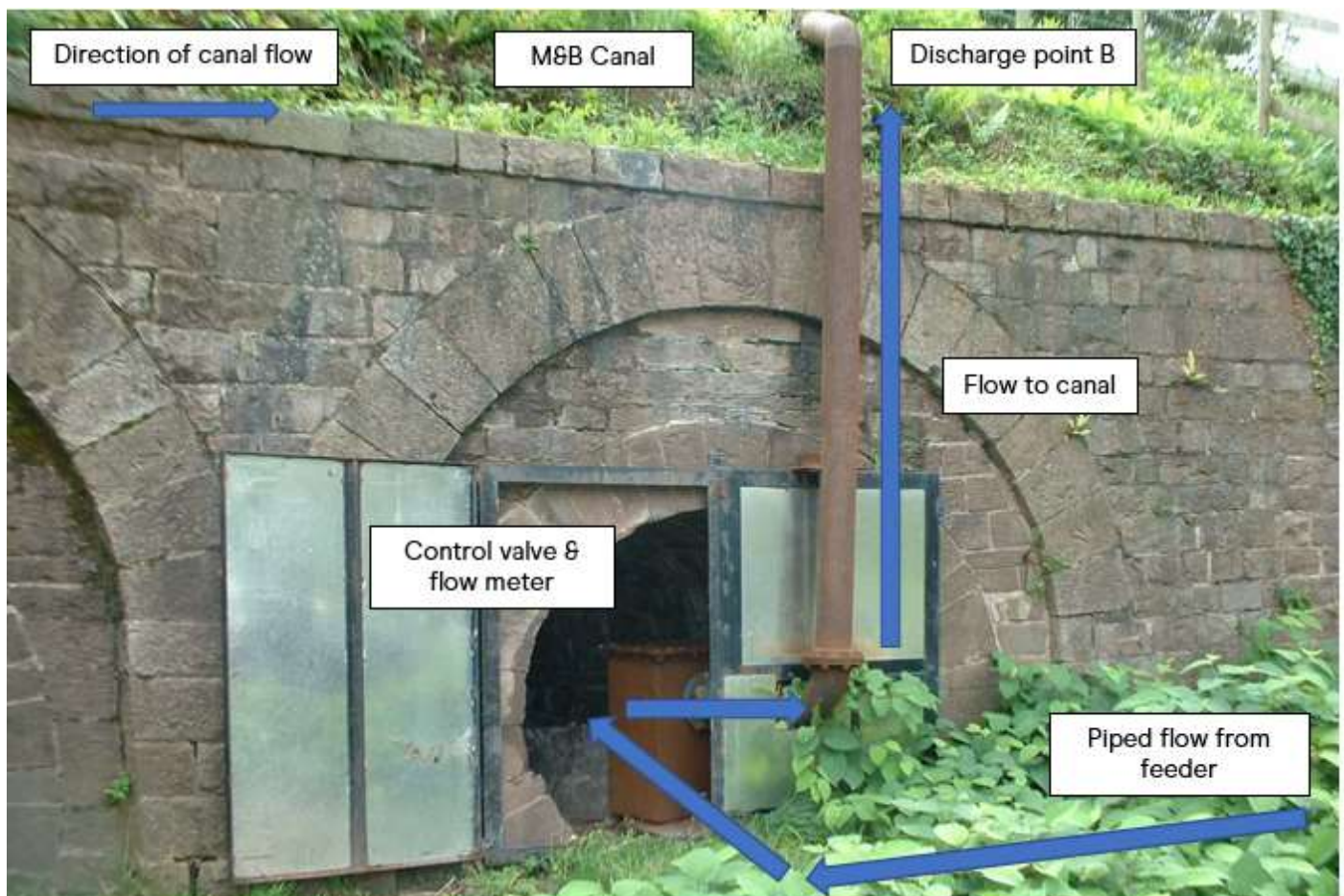


Photo 3: Control valve and flow meter, below discharge point B on M&B Canal at Pontymoel 22.01.19

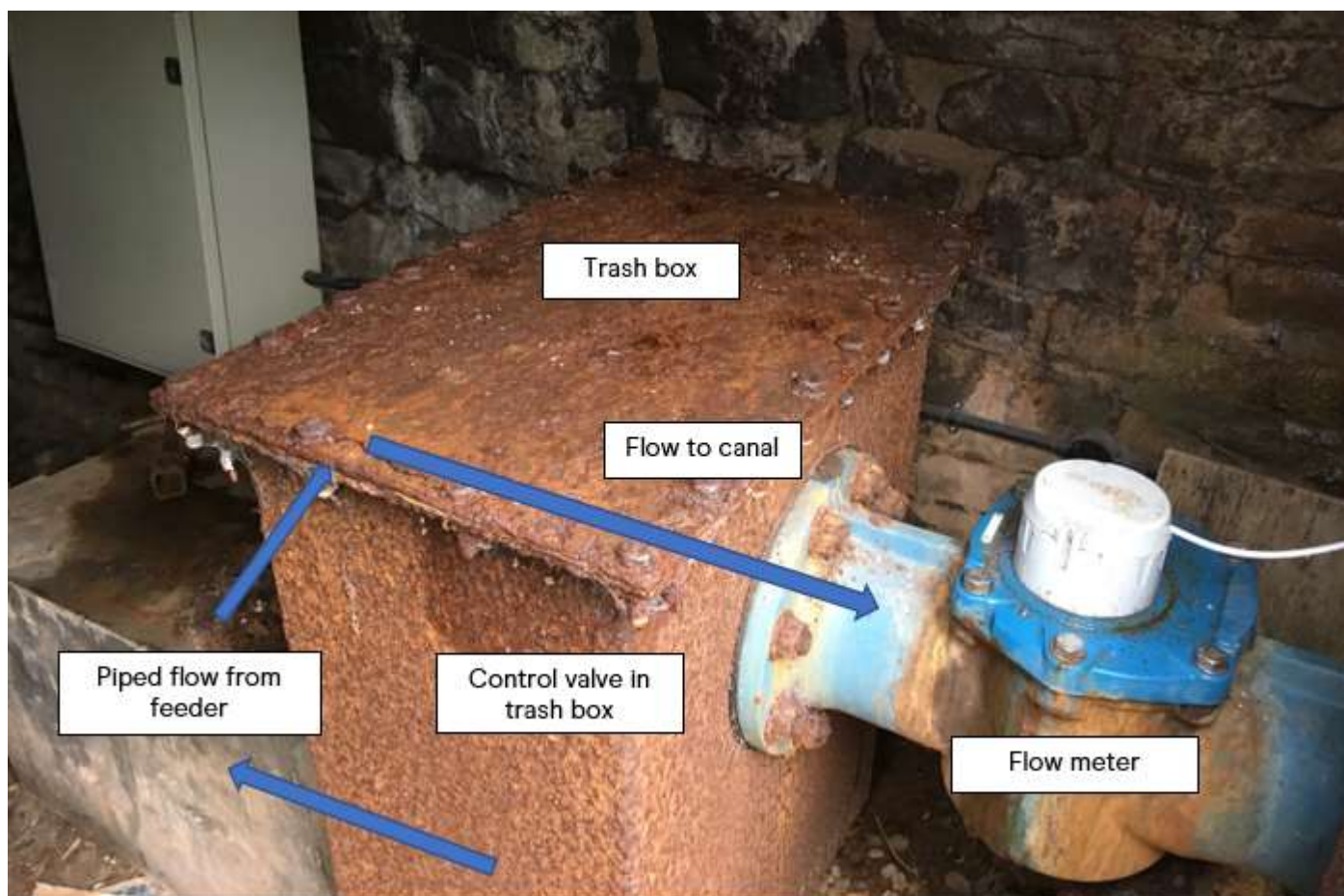


Photo 4: Discharge point B to the M&B Canal at Pontymoel 22.01.19



Photo 5: Discharge point B to the M&B Canal at Pontymoel 17.06.10



Table 13.1 – Details of any other abstraction(s) (licensed or exempt) that are associated with this application					
National Grid Reference (12 digit) of where you abstract water	Source name and type	Purpose of abstraction	Where do you use the water?	When do you abstract the water	Is this a pending application, or already licensed? Please provide the application or licence number as appropriate
SO 29207 11704	Tributary of River Usk – Single point	Transfer from one source of supply to another	Monmouthshire & Brecon Canal	All year	Pending application – CRT61_Castle Turn
SO 14327 19473	Afon Crawnon – Single point	Transfer from one source of supply to another	Monmouthshire & Brecon Canal	All year	Pending application CRT91_Cwm Crawnon
SO 20844 16956	Nant Onnau-fach – Single point	Transfer from one source of supply to another	Monmouthshire & Brecon Canal	All year	Pending application CRT234_Llangattock
SO 30500 07288	Nant Rhyd-y-Meirch – Single point	Transfer from one source of supply to another	Monmouthshire & Brecon Canal	All year	Pending application CRT263_Mill Turn Feeder
SO 29704 09116	Tributary of Ochram Brook – Single point	Transfer from one source of supply to another	Monmouthshire & Brecon Canal	All year	Pending application CRT276_Ochran Turn
SO 03975 28882	River Usk – Single point	Transfer from one source of supply to another	Monmouthshire & Brecon Canal	All year	Pending application CRT327_River Usk at Brecon

Trosnant Spring is one of seven feeders to the M&B Canal. There are six additional feeders that support navigation on the canal. These are shown in Table 13.1 above and separate applications have been submitted for each.

The River Usk and its tributaries are designated a Special Area of Conservation (SAC) under the Habitats Directive. To comply with this directive, Natural Resources Wales (NRW) have indicated that for each of these feeders, conditions will need to be applied to licences. This will most likely result in a reduction in supply to the canal, once these licences are determined and lead to the canal being closed for significant periods every year.

The Trust has therefore been working with Natural Resources Wales, together with Dwr Cymru Welsh Water and the Wye & Usk Foundation as part of the UWAG (Usk & Wye Abstraction Group), to come up with an agreed solution to secure the long-term resources to the canal. In addition to improvements to existing feeders, this solution may also include abandoning some and establishing new, alternative sources of supply.

Please note however, that this work is still ongoing and an agreed and funded solution has not yet been reached. Separate applications have therefore been submitted for each existing feeder to the M&B Canal.

Peter Birch
National Environment Policy Advisor
Canal and River Trust
Navigation Road
Northwich
Cheshire
CW8 1BH

16th July 2020

Dear Peter

CRT Monmouthshire and Brecon Canal abstractions

Further to our recent meetings on 6th April 2020 and 26th May 2020, and our subsequent review of the draft "*Action plan for changes to CRT Usk abstractions 2020 to 2022*" received on the 1st June 2020, I am writing to confirm NRW's obligations in terms of the Transitional ('New Authorisations') licence application process and to provide feedback on the draft Action Plan.

We acknowledge that work is ongoing through UWAG to finalise a sustainable solution to the challenge of achieving an improved abstraction regime on the River Usk to meet Habitats Directive requirements whilst ensuring public water supply reliability and sustainability of the Monmouthshire and Brecon canal operations. We will endeavour to support this where possible, continuing the collaborative approach to find a resolution to this issue.

Transitional ('New Authorisations') licence applications

As you are aware, we have received and validated seven transitional licence applications submitted in respect of your existing abstractions to supply the Monmouthshire and Brecon Canal¹. As you will also be aware, we are required to determine all transitional licence applications by 31st December 2022.

All applications will be determined in accordance with [The Water Abstraction \(Transitional Provisions\) Regulations 2017²](#) and the October 2017 [Government response to consultation on changes to water abstraction licensing exemption³](#).

Determination will be on a case by case basis, and will need to consider all relevant legal requirements, including the Habitats Directive (transposed into domestic law via the Conservation of Habitats and Species Regulations 2010).

Confirmation of change required as "existing recent" not HRA compliant.

Within the draft "*Action plan for changes to CRT Usk abstractions 2020 to 2022*" we note the request for NRW to provide "*Confirmation of change required as "existing recent" not HRA*"

¹ Application references: PAN-006993; PAN-006994; PAN-006995; PAN-006996; PAN-006997; PAN-006998; PAN-006999

² <http://www.legislation.gov.uk/uksi/2017/1047/contents/made>

³ <https://gov.wales/sites/default/files/consultations/2018-01/171031-government-response-en.pdf>

compliant". We understand this request is regarding the seven transitional licence applications submitted in respect of your existing abstractions to supply the Monmouthshire and Brecon Canal. We believe this section of our letter satisfies this request.

As outlined during our meeting on 6th April 2020, NRW is required to ensure that we do not consent to an activity which carries a risk of adverse impact on the integrity of a European designated Special Area of Conservation ('SAC'). In addition, the October 2017 Government Response allows us to curtail abstractions in SAC catchments more strictly than the "universal" Hands off Flows (HOFs) to protect from the risk of serious damage.

As you are aware, our Habitats Directive Review of Consents (HDRoC) process, undertaken in 2011, concluded that CRT's current abstraction from the River Usk at Brecon poses a risk to the integrity of the River Usk SAC.

You will also be aware, from our meeting on 19th February 2019, that the remaining abstractions that supply the Monmouthshire and Brecon Canal will need to be assessed against the requirements of the Habitats Directive, as although these are not within the SAC boundary, the waterbodies from which water is abstracted support the SAC status of the River Usk.

At present there are no formal restrictions on your existing abstractions. However, considering the above we expect these abstractions will need to be curtailed in order to prevent the risk of an adverse effect on the SAC and to protect from serious damage. As part of UWAG work undertaken in 2014, abstraction cutbacks to achieve the Habitats Directive requirements downstream of Brecon have already been identified. Further work is required to determine the appropriate flow standards, and required abstraction restrictions to meet those standards, for the remaining CRT abstractions that supply the Monmouthshire and Brecon Canal. Please note, that in light of Covid-19 and other work pressures there is a risk of not being able to meet the 2020 timescale to complete this work.

We will, however, continue to support UWAG where possible, to find a sustainable solution to making up the deficits in supply to the Canal that restrictions to your existing abstractions would mean.

Feedback on draft Action Plan

Having reviewed the draft Action Plan, we request that it is updated to incorporate the following points:

1. Detailed activities

Once the technical groups have met to discuss the detailed list of activities needing to be completed (e.g. Habitats Regulations Assessment (HRA) of tributary feeder abstractions; confirmation of appropriate flow standards and required abstraction restrictions to meet those standards), we expect the plan to be reviewed / updated to ensure they are captured, and sufficient time is allowed for their completion.

2. Afon Lwyd licences – Oct-Dec 2020 – 3-month discussion period with NRW (following submission of pre-application enquiry) (cell F26)

Overall, assuming 3 months for NRW to respond to a pre-application enquiry is reasonable. However, based on the discussions we had with CRT and DCWW on 19th February 2019, we understand this has the potential to be a complex enquiry, particularly around who holds the

licence etc. Therefore, we suggest **at least** an additional month is added to recognise this, as well as to reflect other work priorities such as the determination of other transitional licence applications planned for that period. We ask that your pre-application enquiry addresses the issues discussed during the February 2019 meeting and that you either confirm a preferred approach or outline specific scenarios for us to consider.

Please note that, following the receipt of a formal pre-application request and in line with NRW's current charging scheme for pre-application advice, the first two hours of pre-application advice are provided free of charge. Any subsequent advice is charged at a rate of £125 plus VAT, per hour.

It should also be noted that this proposal is likely to require an assessment against the requirements of the Habitats Directive, as although not within the SAC boundary, the Afon Lwyd is considered supporting habitat of the River Usk SAC.

3. Afon Lwyd licences – Oct-Dec 2021 - Licence determined (NRW) (cell J27)

We are unclear why there is a 3-month gap (April to June 2021) between the submission of your application and NRW's determination period beginning, as there doesn't seem to be a dependency on the plan. We recommend this is brought forward to avoid any delays in the programme. We also recommend assuming **at least** 4 months for this process given the likelihood of advertising being required, and to allow for any other potential delays during determination.

In addition, the outcomes of the Lwyd licensing discussions are likely to influence the exact detail of the Usk Reservoir / Manorafon part of the solution (see below), so we suggest the dependency between these tasks is reflected within the plan.

4. Usk reservoir / Manorafon support supply to Brecon – Oct 2021 to Sept 2022 – NRW to agree arrangements for regulation of support releases (aspirations for new conditions cannot be met until this is agreed). (cells J19 to M19)

Although this is a 12-month period, its end date does not give much time for NRW to finalise the regulatory elements, and therefore we suggest the plan aims to conclude this **at least** 6 months before the end of December 2022.

We also feel there are elements to the activities within this high-level task which are not dependent on the exact details of the Usk reservoir / Lwyd solution, such as the overall regulatory approach. Therefore, we suggest this activity could be started earlier in 2021, perhaps following on after the Lwyd pre-app work (see above).

We also suggest this line is separated out into several activities e.g. NRW to consider regulatory arrangements for Usk Reservoir solution; Undertake HRA assessment of CRT / DCWW proposals; NRW to start drafting new conditions.

5. Contingency / Risk Register

We remain concerned that there is a strong risk that an agreed solution may not be in place ahead of the transitional application determination deadline of 31st December 2022. Therefore, we suggest that as a minimum the plan is updated to include an entry should there be any slippage in timescales, for example, discussions / escalation within all organisations and CRT escalation with Welsh Government. Ideally however, we request a risk register is created alongside the Action Plan, which reflects the following:

- Covid-19;
- prolonged dry weather (affecting NRW, CRT and DCWW);
- technical modelling difficulties;
- failure to negotiate / secure funding for commercial agreement(s) between CRT and DCWW.

We may consider our own contingency measures to ensure we are able to issue fully Habitats Directive compliant licences for your transitional licence applications ahead of the determination deadline of 31st December 2022, should the solution not be in place.

As outlined during the NRW, CRT and DCWW meeting on 19th February 2019, if a solution is not in place before the transitional licence applications are determined, any licences issued are likely to be subject to the restrictions outlined above to prevent the risk of an adverse effect on the SAC and to protect from serious damage. We recognise these restrictions are likely to result in regular canal closures during periods of low flow. As a result, we reiterate our recommendation that CRT consider the applicability of the Overriding Public Interest route and flag these risks to Welsh Government.

We hope you find the above points useful and constructive. Again, I'd like to reassure you that NRW remain committed to continue working with CRT, DCWW and other stakeholders on this matter. We are pleased to see the collaborative working of the Usk and Wye Abstractors Group (UWAG) continuing so that an agreed sustainable solution for the continuous operation of the existing canal may be reached that also complies with the Habitats Directive well ahead of our regulatory obligations.

We've written direct to you in the first instance as the licence applicant but would be happy for it to be shared with other UWAG stakeholders if that would aid discussions.

Yours sincerely



Jon Goldsworthy

Operations Manager (South East Wales) / [Rheolwr Gweithrediadau \(De Ddwyrain Cymru\)](#)
Natural Resources Wales / [Cyfoeth Naturiol Cymru](#)

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Peter Birch
National Environment Policy Advisor
Canal and River Trust
Navigation Road
Northwich
Cheshire
CW8 1BH

20 November 2020

Dear Peter,

CRT Monmouthshire and Brecon Canal abstractions

Further to our recent discussions I am writing to confirm NRW's position in terms of the applications CRT has submitted to NRW under the Water Abstraction (Transitional Provisions) Regulations 2017 (the Transitional Regulations) and our duties under the Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations).

Transitional Regulations

As you are aware, NRW has received and validated seven transitional licence applications submitted in respect of CRT's existing abstractions to supply the Monmouthshire and Brecon Canal¹. As you will also be aware, NRW is required to determine all transitional licence applications by 31st December 2022.

As advised in our letter dated 16th July 2020, all applications will be determined on a case by case basis, in accordance with the Transitional Regulations, the October 2017 [Government response to consultation on changes to water abstraction licensing exemption](https://gov.wales/sites/default/files/consultations/2018-01/171031-government-response-en.pdf)², and all other relevant legal requirements, including the Habitats Regulations.

It is NRW's view that, under the Transitional Regulations, applications for abstraction licences may be curtailed or refused where necessary to protect the environment from serious damage. This includes potential or actual adverse effects on European sites, such as the River Usk Special Area of Conservation ('SAC').

¹ Application references: PAN-006993; PAN-006994; PAN-006995; PAN-006996; PAN-006997; PAN-006998; PAN-006999

² <https://gov.wales/sites/default/files/consultations/2018-01/171031-government-response-en.pdf>

Habitats Regulations

As also advised in our letter dated 16th July 2020, NRW is required to ensure that we do not consent to an activity which carries a risk of adverse impact on the integrity of a European designated SAC.

As you are aware, our Habitats Directive Review of Consents (HDRoC) process, undertaken in 2011, concluded that CRT's current abstraction from the River Usk at Brecon poses a risk to the integrity of the River Usk SAC.

The remaining abstractions that supply the Monmouthshire and Brecon Canal will need to be assessed against the requirements of the Habitats Regulations as, although these are not within the SAC boundary, the waterbodies from which water is abstracted support the SAC status of the River Usk.

At present there are no formal restrictions on CRT's existing abstractions. However, considering the above we expect these abstractions will need to be curtailed in order to prevent the risk of an adverse effect on the SAC and to protect from serious damage.

We acknowledge that work is ongoing to finalise a sustainable **technical solution** to the challenge of achieving an improved abstraction regime on the River Usk to meet Habitats Regulations requirements whilst ensuring public water supply reliability and sustainability of the Monmouthshire and Brecon canal operations. We will endeavour to support this where possible, continuing the collaborative approach to find a resolution to this issue. I remain confident that this outcome is possible.

Licensing Options

As you are aware, we have been considering various options regarding the licensing of CRT's existing abstractions to supply the Monmouthshire and Brecon Canal that both meet the requirements of the Habitats Regulations but also consider the sustainability of the canal operations. We have also obtained external legal advice on each option.

The options are summarised as follows:

Option 1 – issue licence reflecting the technical solution effective from 1st January 2023

This option would only be possible if a technical solution that complies with Habitats Regulations requirements is operational and the relevant information is provided to NRW within sufficient time to assess ahead of the 31st December 2022 determination deadline, as set out in the Transitional Regulations.

Option 2 – issue licence reflecting technical solution with an effective date later than 1st January 2023

In the event of the technical solution referred to in Option 1 above not being operational or effective ahead of the 31st December 2022 determination deadline, consideration was given to licensing the technical solution with effect from the date a technical solution is expected to be operational.

NRW's considered view is that it would not be possible to conclude that the continued abstractions would not adversely affect the integrity of the River Usk SAC for a period of time before measures are implemented to address these effects.

Option 3 – constrain existing abstraction to meet Habitats Regulations requirements with effect from 1st January 2023

In the event of the technical solution referred to in Option 1 above not being operational or effective ahead of the 31st December 2022 determination deadline, consideration has also been given to constraining the existing abstraction to meet Habitats Regulations requirements from the point of grant. This would allow NRW to conclude no adverse effects on the River Usk SAC from continued abstraction before measures are implemented to address these effects.

If CRT can provide the necessary information regarding the technical solution with sufficient time for NRW to assess ahead of the 31st December 2022 determination deadline, then consideration can be given to including a second schedule on any licence issued authorising a technical solution with effect from the date it is expected to be operational.

If CRT are unable to provide the necessary information regarding a technical solution with sufficient time for NRW to assess ahead of the 31st December 2022 determination deadline, CRT would be entitled to subsequently apply to vary any existing licences once a solution has been finalised and all the necessary information for NRW to determine the applications is available.

NRW considers this option to provide a flexible solution which allows continued abstractions once a technical solution could be demonstrated to be effective and operational, whilst in the interim ensuring compliance with the requirements of the Habitats Regulations by constraining abstractions to a level that would not adversely affect the integrity of the River Usk SAC.

Option 4 – Imperative Reasons for Overriding Public Interest (IROPI)

This option was also considered in the event of the technical solution referred to in Option 1 above not being operational or effective before 1st January 2023.

This is the only option that would allow abstraction to be licenced to continue without curtailment, even where they may adversely affect the integrity of the River Usk SAC.

It requires NRW to be satisfied that the imperative reasons in the public interest for permitting the continued abstractions would *override* the harm to the European site which had been identified.

In practice the IROPI would need to be led by CRT, who would need to provide NRW with the documentation necessary to support a conclusion that the relevant conditions of IROPI are met.

It is recommended that CRT notify NRW of their intention to pursue IROPI by June 2022 at the latest. This would allow time for NRW to notify Welsh Government and complete the

licence determinations. However, to enable discussions around what form the compensatory measures might take, CRT should engage in discussions with NRW and Welsh Government as early as possible.

This option also provides a potential solution in terms of allowing continued abstraction and compliance with the Habitats Regulations, however, would be subject to CRT wishing to pursue, and lead on, an IROPI application.

Enforcement and Compliance

It is possible that NRW could take a local position with regards to enforcement and compliance, however this would need to be consistent with NRW's legal obligations under the Transitional Regulations and the Habitats Regulations, as well as our wider obligations, under Sustainable Management of Natural Resources (SMNR) for example.

Preferred approach

NRW considers Option 1 to be the preferred approach. However, in the event of a technical solution that complies with Habitats Regulations not being operational or effective before 1st January 2023, and / or CRT being unable to provide NRW with all the relevant information within sufficient time to assess ahead of the 31st December 2022 determination deadline, then NRW considers Options 3 and 4 to be viable options. Option 2 is not considered viable due to the risk of non-compliance with Habitats Regulations and our other legal duties. Our external legal advice confirms this.

We hope you find the above points useful and constructive. Again, I'd like to reassure you that NRW remain committed to continue working with CRT, DCWW and other stakeholders on this matter so that an agreed sustainable solution that complies with the Habitats Regulations but also allows for the continuous operation of the existing canal may be reached well ahead of our regulatory obligations.

We've written directly to you in the first instance as the licence applicant but would be happy for it to be shared with other stakeholders if that would aid discussions.

Yours sincerely,



Steve Morgan

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Monmouthshire & Brecon Canal: Screening & Passage Fish Protection



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Fishtek Consulting Ltd. has used due skill, care and diligence in the preparation of this report.

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EXECUTIVE SUMMARY

Fishtek Consulting were commissioned by Canal & River Trust (CRT) to undertake investigations into intake screening and fish passage arrangements at abstractions supplying the Monmouthshire and Brecon Canal.

The abstractions were historically authorised by an Act of Parliament due to the status of CRT as a navigation authority and therefore were exempt from abstraction licencing. However, following the implementation of the Water Act 2003 there is now a requirement from Natural Resources Wales for the abstractions to become licenced. As part of the licencing process compliance with environmental legislation relating to fish protection (e.g. intake screening, fish passage) must be demonstrated.

The River Usk is afforded environmental protection through a range of designations, including the River Usk Special Area of Conservation (SAC) and the Severn Estuary SAC, Site of Special Scientific Interest and Ramsar sites. In addition, species specific protection is provided to migratory salmonids and eel through the Salmon and Freshwater Fisheries Act (SAFFA) and the Eels Regulations, respectively. Collectively, these legislations dictate the species requiring protection at each abstraction and thus the specific intake screening and passage works required.

The report assesses the compliance of the existing intake screening and fish passage facilities at each site to consider whether they are sufficient to comply with the applicable legislation at each site. Where sites are deemed not to be compliant with respect to screening and/or passage, recommendations are outlined for additional works required to achieve compliance. A number of sites are data deficient with respect to fish populations and species presence/absence and therefore further investigations may be beneficial to refine the proposals.

The key findings for each of the abstractions are as follows:

- Brecon: the existing intake screening arrangement is compliant with the necessary legislation. Additionally, alterations to the abstraction regime would not materially affect the operation of the existing fish passes on the weir and are expected to provide a betterment to downstream migration; therefore no fish passage works are required.
- Cwm Crawnon: the location of the abstraction may be inaccessible to eel due to natural cascade/waterfall features in the river downstream. However, given a current absence of data, a precautionary approach comprising intake screening with a maximum 9 mm mesh size and 0.40 m/s approach velocity to achieve compliance with the Eels Regulations is recommended, which would also achieve compliance with SAFFA. In addition, an assessment of potential impacts on the operation of the fish pass pools under the proposed reduction in abstraction volumes is recommended. Future investigations (e.g. fish surveys) may be beneficial to better understand the fish species present and allow refinement of the intake screening requirements.
- Llangattock: the steep culvert beneath the canal and several structures downstream may impede migration of eel to the abstraction location. However, given a current absence of data, intake screening with a maximum 9 mm mesh size and 0.40 m/s approach velocity to achieve compliance with both the Eels Regulations and SAFFA is recommended. In addition, provision of eel passage (e.g. gravity fed vertical eel brush) is recommended at the diversion structure unless eel are deemed likely to be absent. Future investigations (e.g. fish surveys and barrier assessments) may be beneficial to better understand the fish species present and allow refinement of the intake screening and passage requirements.
- Ochram Turn & Castle Turn: based on the physical characteristics of the two watercourses (small, steep upland streams) eel and/or migratory salmonids may not be present. However, given a current absence of data, intake screening with a maximum 9 mm mesh size and 0.40 m/s approach velocity to achieve compliance with the Eels Regulations and SAFFA is recommended. Manual cleaning of fine mesh screens may be difficult to achieve given the

remoteness of the sites. An appropriate compromise may be to install 9 mm screens on a seasonal basis during key migration months, reverting to a coarser bar screen for the remainder of the year to minimise operational requirements. If future investigations indicate a likely absence of migratory species then retaining the unscreened abstractions may be acceptable. Improvements to fish passage for salmonids and eel would be beneficial at the v-notch weirs (pending results of any further investigations). However, the costs of doing so may be disproportionate to the benefits given the limited lengths of habitat upstream at each site. The proposed changes to the abstraction volumes are also unlikely to reduce the passability of either structure compared to the current arrangement.

- Mill Turn: in the absence of fish survey data, intake screening with a maximum 9 mm mesh size and 0.40 m/s approach velocity to achieve compliance with the Eels Regulations and SAFFA is recommended. However, it should be noted that the site is remote, which may make manually cleaning of fine mesh screens difficult to achieve. An appropriate compromise may be to install 9 mm screens on a seasonal basis during key months, reverting to a coarser bar screen for the remainder of the year to minimise operational requirements. No fish passage works are required at this site providing that a new impounding structure is not proposed.
- Trosnant Spring: based on the currently available information the abstraction appears to be sourced from groundwater, rather than surface water, and thus does not require intake screening. It is recommended that further investigations (e.g. dye tracing) are completed to verify this. No fish passage works are required at this site.
- Afon Lwyd PS: intake screening at the river frontage with a 2 mm mesh size and maximum 0.25 m/s approach velocity would be required to achieve compliance with the Eels Regulations, which would also provide appropriate protection for SAFFA compliance. There is no CRT owned weir associated with the proposed abstraction and therefore no fish passage works are required. However, it is recommended that a desk-based assessment of the existing fish pass at Pontymoile weir is undertaken to confirm that the proposed abstraction would not affect the operation of this structure.

1. INTRODUCTION

Fishtek Consulting were commissioned by Canal and River Trust (CRT) to undertake investigations into intake screening and fish passage arrangements at abstractions supplying the Monmouthshire and Brecon Canal (hereafter referred to as ‘the Mon & Brec Canal’) as part of Natural Resources Wales (NRW) requirements to formally licence the abstractions under the Water Act 2003.

1.1. Background

CRT currently abstract water from seven individual sources to supply the Mon & Brec Canal. Historically, the abstractions were authorised by an Act of Parliament (Monmouthshire Canal Act 1792) due to the status of CRT as a navigation authority and therefore were exempt from abstraction licencing. However, following the implementation of the Water Act 2003, there is a requirement for many such surface water supply sources to become licenced. As part of the licencing process, there is a requirement to demonstrate compliance with environmental legislation relating to fish protection (e.g. intake screening, fish passage).

Alongside this, the Environment (Wales) Act 2016 states that public authorities (which includes canal operators as a statutory undertaken) must:

“(1)...seek to maintain and enhance biodiversity in the exercise of functions in relation to Wales, and in so doing promote the resilience of ecosystems, so far as consistent with the proper exercise of those functions.

(2)In complying with subsection (1), ...must take account of the resilience of ecosystems, in particular the following aspects—

- (a)diversity between and within ecosystems;*
- (b)the connections between and within ecosystems;*
- (c)the scale of ecosystems;*
- (d)the condition of ecosystems (including their structure and functioning);*
- (e)the adaptability of ecosystems.”*

In addition to the licencing requirements for the seven existing abstractions, there are various environmental protections (including the designation of the River Usk Special Area of Conservation [SAC]) that require stringent environmental flow targets to be achieved. As such, it is anticipated that the total volume of water available from the existing sources will be reduced in future due to the implementation of abstraction restrictions (hands off flows and/or proportional abstraction rates). Therefore, an additional abstraction source is proposed on the Afon Lwyd to cover the shortfall, comprising a new pumping station.

1.2. Overview of sites

A summary of the sites under investigation is provided in Table 1-1. With the exception of the proposed pumping station on the Afon Lwyd, all of the sites are existing abstractions that are either currently operational or have been operational in the recent past.

Table 1-1. Summary of the abstraction sites under investigation.

Abstraction	Watercourse	NGR	Proposed rate of abstraction (Ml/d)
Brecon	River Usk	SO0398728879	25.0
Afon Crawnon	Afon Crawnon (River Usk)	SO1432719477	1.8
Llangattock	Nant Onnau Fach (River Usk)	SO2084416956	1.0
Mill Turn	Gwenffrwd (River Usk)	SO3050007288	1.1
Castle Turn	Un-named tributary (River Usk)	SO2920611703	Unknown
Ochram Turn	Ochram Brook (River Usk)	SO2970409115	Unknown
Pumping Station	Afon Lwyd	SO2936900281	10.0
Trosnant Spring	Afon Lwyd	SO2860900570	1.8

A map showing the location of the sites is provided in Figure 1-1.

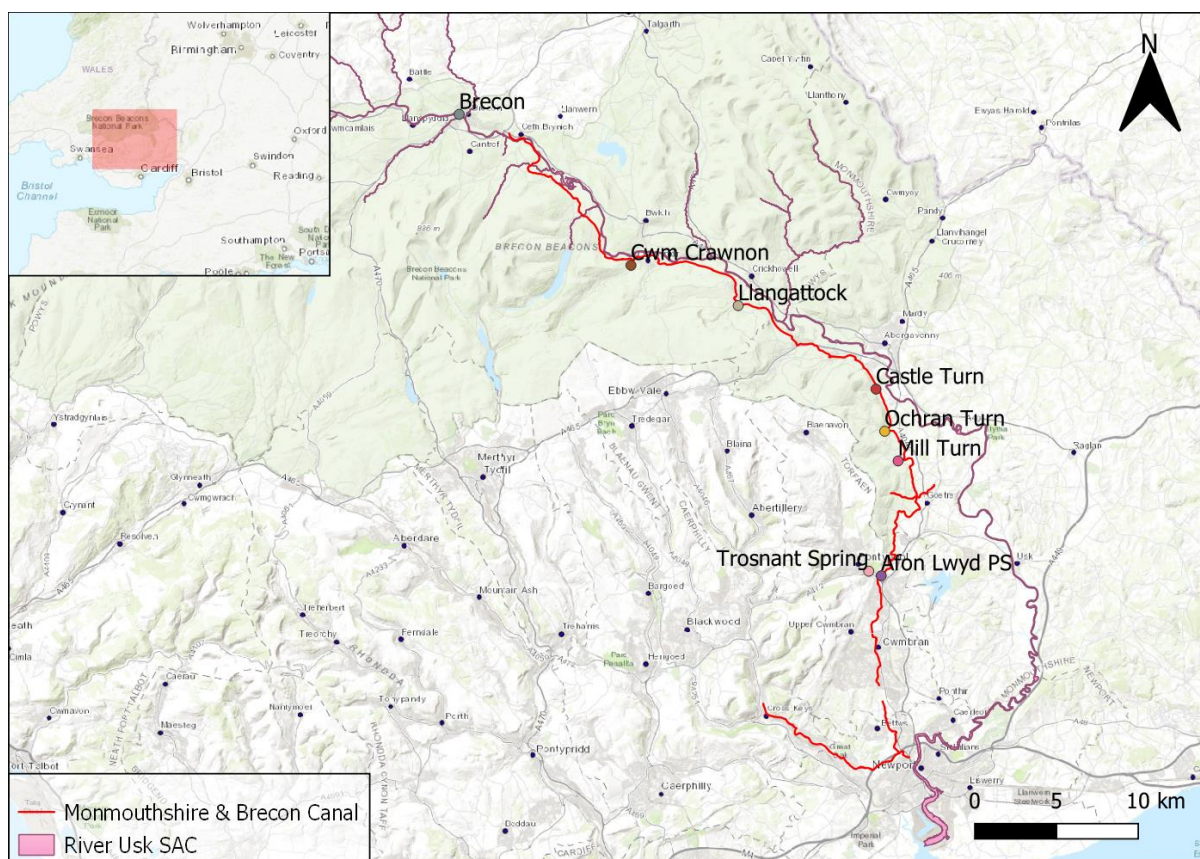


Figure 1-1. The locations of the eight abstractions under consideration in this report. The route of the Monmouthshire and Brecon Canal and the boundary of the River Usk SAC are shown for context.

1.3. Report aims and structure

The report seeks to address the following aims:

- Identify the key legislative drivers for intake screening and/or fish passage at each of the abstractions;
- Based on the legislative drivers and species requiring protection, determine whether the existing intake screening and/or fish passage arrangements at each site is compliant with the regulatory requirements; and,
- Where sites are deemed to be non-compliant, identify key screening/passage measures required to achieve compliance.

The report is structured as follows:

- Section 2 summarises the legislative drivers deemed to be of relevance to intake screening and fish passage measures across the sites. For each of the drivers the specific requirements necessary to achieve compliance with respect to intake screening and/or fish passage are detailed;
- Sections 3 to 10 consider the existing screening and passage arrangements present at each of the individual abstractions, which are appraised against the requirements of the key legislative drivers. Where sites are deemed not to be compliant, the requirements for intake screening and/or fish passage upgrades are outlined; and,
- Section 11 summarises the report findings.

2. LEGISLATIVE DRIVERS FOR FISH PROTECTION

2.1. Eels (England and Wales) Regulations (2009)

2.1.1. Overview

The European Union adopted Council Regulation No 1100/2007/EC in 2007 following a significant European-wide decline in eel populations. The regulation was subsequently transposed into UK law by The Eels (England and Wales) Regulations 2009 (hereafter referred to as the 'Eels Regulations'). This regulation requires Member States to develop National Eel Management Plans, with the objective of "reducing anthropogenic mortalities so as to permit with high probability the escapement to the sea of at least 40% of the silver eel biomass relative to the best estimate of escapement that would have existed if no anthropogenic influences had impacted the stock".

Part 4 (Passage of eels) of the Eels Regulations stipulates that, upon service of a notice by the Agency, a responsible person may be required to install an eel pass and/or screen in a diversion structure to ensure free upstream and downstream passage for all life stages. Section 14 states that the Agency may require a responsible person to construct an eel pass or make alterations to an existing fish or eel pass where the Agency determines that the passage of eel is impeded, or likely to be impeded, by a dam or obstruction, or any works notified to the Agency under Regulation 12 (Regulation 12, part 3 states '*An application for, or variation of, a licence to abstract water or for impounding works under section 24 or 25 of the Water Resources Act 1991(1) is deemed to be notification for the purposes of this regulation*').

In addition to passage, the Eels Regulations also concern intake screening at new and existing abstractions, applying to any diversion structure capable of abstracting > 20m³/d and any diversion structure returning water to a channel, bed or sea. On or after 1st January 2015, a responsible person must ensure an eel screen is placed in a diversion structure. If this does not occur, the Agency may serve notice requiring the responsible person to alter the dimensions (including mesh size) and the placement of any screen at their own cost.

It should be noted that any eel that do enter the canal are likely to experience difficulties and/or significant delay in trying to escape back out to sea during the silver eel life stage. Therefore, whilst allowing access into the canal would be beneficial in terms of maximising available habitat, it is unlikely to lead to an overall increase in escapement of adult eel from the catchment (and may instead reduce escapement).

2.1.2. Site-specific screening requirements

The Eels Regulations themselves do not detail the screening or passage requirements necessary to achieve compliance. Instead, these are summarised in the EA (2015) screening guidance document, which is also used by NRW in Wales. Guidance on eel passage requirements is presented in EA (2021).

The eel screening guidance determines the screening requirements for a given abstraction based on the distance upstream of the tidal limit, which is used as a proxy for the life stage(s) of eel expected to occur at a given location. As a general rule, sites located lower in catchments are expected to support smaller life stages of eel (due to the fact that eel migrate into rivers as juveniles from the sea) and thus require a finer screen mesh size and a lower approach velocity to provide protection against entrainment.

From the tidal limit to 30 km upstream elver and yellow eel are expected to be present, requiring a 2 – 3 mm mesh size and a maximum 0.25 m/s approach velocity (assuming screens are angled at <20° to river flow). At sites located > 30 km upstream of the tidal limit, larger yellow eel (> 30 cm) are expected, requiring a 9 mm mesh size and maximum 0.4 m/s approach velocity. Finally, for sites located > 50 km which are deemed only to affect downstream migrating silver eel (mature adult life stage), a coarser 15 mm mesh and 0.50 m/s approach velocity is permitted.

To determine the intake screening requirements for each abstraction with respect to the Eels Regulations, the distance from the tidal limit has been calculated for each abstraction. Calculations were completed in GIS using the Detailed River Network (DRN) dataset, based on the distance from each abstraction to either the tidal limit on the River Usk (Newbridge-on-Usk) or the Afon Lwyd (approximately 1.9 km upstream of the confluence with the Usk). The distances from the tidal limit and the corresponding mesh size and approach velocity requirements for each intake are summarised in Table 2-1.

Table 2-1. Summary of the distance of each abstraction from the tidal limit and the corresponding mesh size and approach velocity requirements to achieve compliance with the Eels Regulations.

Abstraction	Watercourse	Distance from tidal limit (km)	Maximum screen mesh size (mm)	Maximum approach velocity (m/s)
Brecon	River Usk	73.9	9 – 15	0.40 – 0.50
Afon Cwannon	Afon Cwannon (River Usk)	55.8	9 – 15	0.40 – 0.50
Llangattock	Nant Onnau Fach (River Usk)	47.7	9	0.40
Mill Turn	Gwenffrwd (River Usk)	55.8	9	0.40
Castle Turn	Un-named tributary (River Usk)	32.3	9	0.40
Ochram Turn	Ochram Brook (River Usk)	31.5	9	0.40
Pumping Station	Afon Lwyd	20.1	2	0.25
Trosnant Spring	Afon Lwyd	21.8	2	0.25

It should be noted that the requirements detailed in Table 2-1 may be of limited relevance for particular intakes. For example, eel may not be present at a site due to unsuitable habitat or the presence of barriers, or the configuration of the intake relative to the river channel may reduce the risk of entrainment for a given life stage. These site-specific factors are considered further for the individual sites in Sections 3 to 10.

2.2. Salmon and Freshwater Fisheries Act (1975) (SAFFA)

2.2.1. Overview

The Salmon and Freshwater Fisheries Act (SAFFA) outlines various requirements with respect to the free and safe passage of migratory salmonids (salmon and sea trout).

Paragraphs 9 to 15 of SAFFA highlight the detailed legislative requirements in relation to both fish passage and screening. Broadly speaking, SAFFA stipulates that owners/operators of water diversion structures (e.g. pumping stations, weirs etc.) on rivers supporting migratory salmonids should, at their own expense, ensure that both upstream and downstream fish passage are catered for by the construction of appropriate fish passes, screens and by-washes.

Where a new dam or impounding structure is constructed, or an existing dam raised or otherwise altered to such an extent that an increased obstruction to fish passage is created, the responsible person may be required by the Agency to construct a fish pass for salmon or migratory trout of appropriate form and dimensions. Similarly, if any person alters an existing fish pass, carries out an act which renders an

existing fish pass less efficient, or prevents fish from using a fish pass, they may be required to restore the fish pass to the former state of efficiency at their own expense.

Section 14 of SAFFA concerns the installation and maintenance of intake screens on water diversion structures. The section is considered to apply to *'any conduit or artificial channel, [where] water is diverted from waters frequented by salmon or migratory trout'* and where *'any of the water so diverted is used for the purposes of a water or canal undertaking or for the purposes of any mill or fish farm'*. Where this applies, SAFFA states that the responsible person must, at his own cost, install and maintain a screen at the entrance to, or within, the channel, which prevents the descent of salmon or migratory trout.

Whilst not strictly associated with SAFFA, NRW implemented the Salmon and Sea Trout Plan of Action in 2020. The plan seeks to restore and maintain sustainable populations of salmon and sea trout in Welsh rivers through a range of actions that NRW are committed to deliver. The actions specified within the plan include 'tackling physical habitat constraints in the freshwater environment', which notes the importance of addressing physical barriers to fish migration. No specific reference is made to pressures associated with entrainment of fish into abstractions or the requirement for intake screening, although mitigation of such pressures will undoubtedly contribute towards meeting the overarching aims of the Plan of Action.

2.2.2. Screening requirements

SAFFA itself does not prescribe the particular requirements for intake screens to provide protection for migratory salmonids. Instead, these are summarised in the EA (2005) screening guidance document. Screening measures typically focus on providing protection to migratory life stages - predominantly juveniles fish (smolts) which migrate downstream to sea to feed/mature, and adult fish which migrate upstream from the sea to spawn. Given that smolts are smaller and weaker swimming than adult fish, a screening arrangement that provides acceptable protection for smolts would generally also achieve adequate protection for adult fish.

Whilst there are smaller resident salmonid life stages present in rivers (e.g. fry, parr), these individuals undertake limited migratory movements and thus the risk of encountering a given abstraction is much smaller, meaning they are not typically deemed a priority life stage when designing intake screening.

EA (2005) guidance (which is adopted by NRW in Wales) recommends a maximum mesh size of 10 mm and a maximum approach velocity of 0.50 - 0.75 m/s for protection of salmonid smolts.

2.3. Habitats Directive

2.3.1. Overview

The River Usk is designated as an SAC under the Conservation of Habitats and Species Regulations 2017 (as amended). The site supports a range of Annex II fish species which are listed as a primary reason for site selection, including sea lamprey (*Petromyzon marinus*), brook lamprey (*Lampetra planeri*), river lamprey (*Lampetra fluviatilis*), twaite shad (*Alosa fallax*), Atlantic salmon (*Salmo salar*) and bullhead (*Cottus gobio*). In addition, Allis shad (*Alosa alosa*) are listed as a qualifying feature of site selection. With the exception of bullhead and brook lamprey, each of these species is migratory in nature (moving between the sea and freshwater) and therefore various life stages may pass in close proximity to the abstractions during upstream and/or downstream migration.

The requirements for new or upgraded intake screening under the Habitats Directive is most commonly triggered via a 'review of consents' (ROC) process. This activity, completed by the competent authority, involves a review of all plans or projects progressed prior to the implementation of The Conservation (Natural Habitats, &c.) Regulations 1994, or prior to the designation of a protected site, to determine whether there is likely to be a significant effect upon the integrity of said site.

Alternatively, where new plans or projects are proposed within a designated site (or within supporting habitats for a designated site where migratory/mobile species are protected), there is a requirement to consider whether the proposals are likely to lead to a significant effect upon site integrity through completion of a Habitats Regulations Assessment (HRA).

A ROC was previously undertaken by Environment Agency Wales in 2004, focusing specifically on the Brecon weir abstraction. The ROC primarily considered hydrological impacts associated with the operation of the abstraction on river flows and did not consider potential impacts arising from entrainment of designated fish species into the abstraction.

2.3.2. Screening requirements

Whilst the Habitats Directive and associated regulations provide the legal framework through which designated sites are afforded protection, they do not explicitly detail the requirements for fish screening protection. Instead, best practice screening guidance is provided in the EA (2005) 'Screening for intake and outfalls: a best practice guide' document.

The migratory fish species that form part of the River Usk SAC designation and the corresponding intake screening requirements for protection of critical migratory life stages are summarised in Table 2-2.

Table 2-2. Summary of intake screening mesh size and approach velocities required to protect Annex II species designated under the River Usk SAC.

Species	Critical life stage	Maximum mesh size	Maximum approach velocity
Lamprey (sea/river/brook)	Downstream migrating juvenile lamprey (ammocoetes)	3 mm	0.30 m/s
Shad (twaite/allis)	Downstream migrating juveniles	8 mm*	0.25 m/s
Atlantic salmon	Downstream migrating juveniles (smolts)	10 mm	0.50 – 0.75 m/s

* EA (2005) guidance does not provide an explicit mesh size requirement for shad protection. The maximum mesh size has been calculated using the formula presented in Turnpenny (1981), based on a 6 cm body length for juvenile shad migrating downstream and a body fineness ratio of 4.75.

2.4. Ramsar Convention

2.4.1. Overview

The Severn Estuary (of which the River Usk is a tributary and deemed to provide supporting habitat) is designated as a Ramsar site under the Ramsar Convention. The qualifying features of the Ramsar site include the assemblage of migratory fish species supported by the estuary, specifically comprising sea lamprey, river lamprey, twaite shad, allis shad, salmon, sea trout and eel.

The Ramsar designation is underpinned through notification of the Severn Estuary as a Site of Special Scientific Interest (SSSI), through which the same migratory fish assemblages are cited, thus providing protection under the Wildlife & Countryside Act 1981 (as amended).

2.4.1. Screening requirements

Whilst the designation of the Severn Estuary (and tributaries, via provision of supporting habitat) as a Ramsar/SSSI provides additional environmental protection, it does not materially alter the screening requirements that need to be considered during the project. The reason for this is that the migratory fish

assemblage comprises the same species that are afforded protection under the Eels Regulations, SAFFA and the Habitats Directive (i.e. lampreys, shads, salmonids and eel).

3. BRECON INTAKE

3.1. Site Overview

The Brecon intake is located immediately upstream of Brecon weir on the true left (northern) bank of the River Usk at NGR SO0398728879. The weir supporting the abstraction extends approximately diagonally across a meander in the river channel and is therefore considerably longer (215 m) than the mean width of the channel (45 m). Due to this, gravel bars have developed in the weir pool downstream, the majority of which are relatively static due to the presence of established vegetation. The location and form of the gravel bars focuses the majority of river flow through a channel adjacent to the true right (southern) bank downstream of the weir. As such, the majority of fish seeking to migrate upstream of the weir are likely to approach the most westerly half of the weir, over 100 m from the abstraction location.

In contrast, life stages migrating downstream may encounter the weir in greater numbers, particularly life stages that display a reluctance to pass over the crest of the weir (e.g. smolts), which may instead track along the crest of the weir in an easterly (downstream) direction.

Photos of key site structures are provided in Figure 3-2 to Figure 3-7.

3.1.1. Intake screening

The existing intake is approximately 22 m wide, extending parallel to the most downstream part of the weir crest. Water is abstracted via 12 mesh panels fitted with rectangular profile vertical bar screens. The spacing between bars was measured at 10 mm during the site visit. Abstracted water passes through a penstock into a rectangular settling pond which is used to reduce the amount of fine sediment entering the canal system.

Water is then drawn through a second automated 0.9 x 0.9 m penstock located on the north eastern edge of the settling pond, for onwards transfer to the M&B Canal under gravity via a culvert. There is a coarse bar screen present on the secondary penstock to prevent the ingress of large debris into the culvert.

The 10 mm screens at the river frontage are understood to be manually raked clean by CRT ops staff to prevent the screens blinding. A bywash channel (lowered section of weir crest) is present at the most eastern end of the weir which provides a route for debris (and downstream migrating fish, e.g. smolts) to pass downstream. It is understood from on-site discussions that the screens are cleaned up to twice per day during the autumn months due to the relatively fine bar spacing and high debris loads in the river.

3.1.2. Fish passage

Upstream

A detailed fish passability assessment was not undertaken as part of the investigation. However, two fish passes were observed during the visit; a baulk easement structure is present approximately half way along the weir, whilst a technical Larinier super-active baffle fish pass is present at the most upstream end of the weir adjacent to the true right (western) bank, constructed in 2002. In addition, the weir itself has a relatively low gradient glacis/face with extensive vegetation growth present and is therefore likely passable to certain species (e.g. eel) at low to moderate flows.

Downstream

Brecon weir extends broadly diagonally across the River Usk, leading to a long crest length and therefore a relatively shallow water depth on the crest compared to what would be expected if the weir

were orientated perpendicular to the direction of river flow. The presence of the weir and shallow depths over the crest may cause delay to downstream migrating life stages of fish (e.g. smolt, silver eel). Any impacts are likely to be further exacerbated at present due to the Brecon abstraction, which reduces the depth of water passing over the crest of the weir compared to what would otherwise occur.

The proposed changes to the abstraction as part of the licencing requirements (i.e. implementation of a variable rate of abstraction and a maximum abstraction) will typically provide a greater depth of water over the weir at a given flow compared to the current arrangement. As illustrated in **Error! Reference source not found.**, this increase in residual flow passing over the weir is most apparent during periods of low river flow, where the proposed changes will ensure that a greater proportion of total river flow passes over the weir (and through the fish pass). Based on the historical data, the greatest increases in residual weir flow will occur during the spring and summer months, which coincides with the main smolt migration season. As such, the relative attraction flow to the intake compared to the flow passing over the remainder of the weir will be reduced. The future changes to the abstraction are therefore likely to represent a minor overall betterment with respect to downstream migration over the weir and contribute towards a reduction in downstream migration delay.

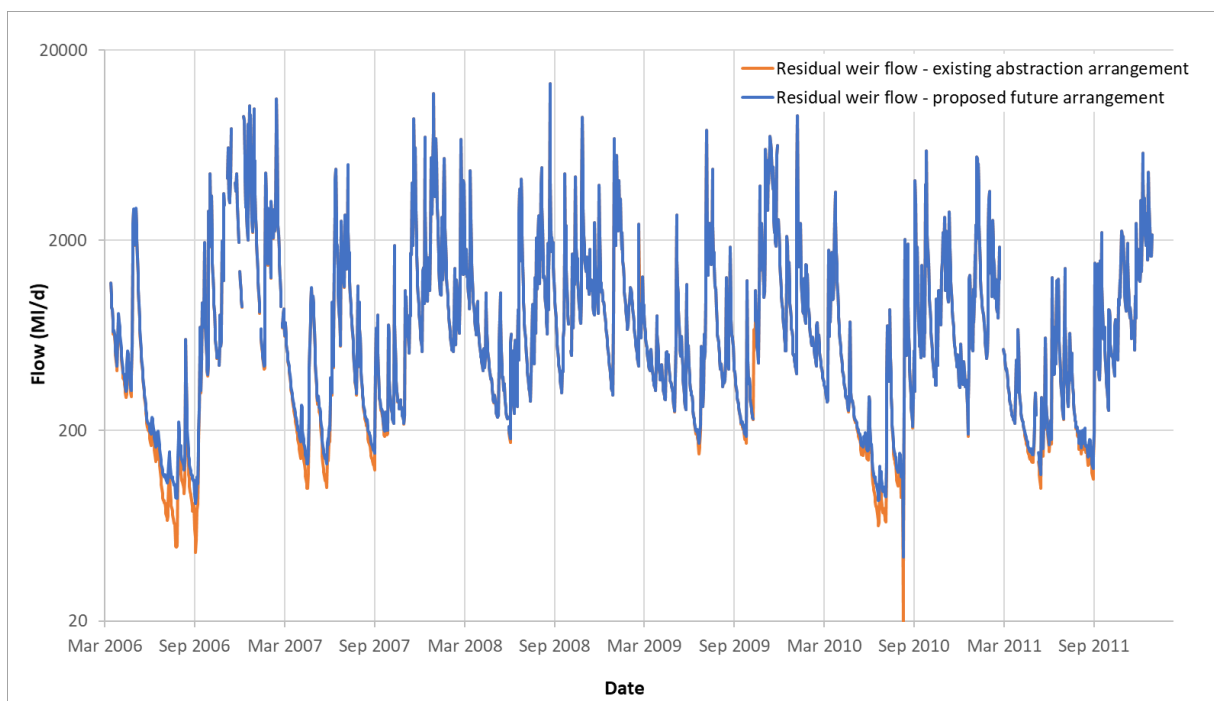


Figure 3-1. Residual flow (total river flow minus CRT abstraction) passing over Brecon weir between 2006 – 2011 under the actual historical abstraction arrangement (orange) compared to the residual flow had the abstraction been operating under the new arrangement proposed under the licencing application (blue). Required fish protection works

3.1.3. Intake screening

Eels Regulations

The Brecon intake is located approximately 74 km upstream of the tidal limit on the River Usk (Table 2-1) and therefore larger yellow eel and silver eel are deemed likely to be present and at risk of entrainment, requiring mesh sizes of 9 mm and 15 mm, respectively. There is provision within the screening guidance to adopt the larger of these two mesh sizes where an abstraction is only deemed to affect downstream migrants (i.e. larger silver eel). This is considered to be the case at Brecon due to the location of the intake at the most downstream point of the weir and the configuration of the channel through the weir pool on the approach to the weir, which guides the majority of fish to the river bank opposite to where the abstraction is located. The current screening arrangement is therefore viewed as

compliant with the Eels Regulations, as the spacing on the bar screens (10 mm) are finer than the spacing needed to protect silver eel (15 mm).

Approach velocities to the screen face were not measured during the site visits. It is recommended that velocities under the future abstraction regime are calculated to verify that the 0.5 m/s threshold for protection of silver eel will not be exceeded. Velocities should be calculated using the maximum future abstraction rate and the minimum anticipated water level/depth, in addition to a suitably conservative blinding factor for manually cleaned screens (20 - 50 %).

SAFFA

The existing screening arrangement meets the mesh size required to protect salmon smolts (10 – 12 mm). A similar or marginally greater approach velocity (0.50 - 0.75 m/s) is permitted for smolt screening compared to that specified for protection of adult eel and therefore if the calculated approach velocities are within the acceptable range for silver eel (< 0.5 m/s) they will provide appropriate protection for smolts, thus achieving compliance with SAFFA.

Habitats Directive

The Core Management Plan for the River Usk SAC notes that the reach extending upstream from Brecon weir is located within Management Unit 6 (Mitchell, 2008). The management plan identifies sea lamprey, twaite shad and allis shad as being absent from unit 6 due to the presence of barriers further downstream (twaite/allis shad) and natural range limits (sea lamprey). In contrast, Atlantic salmon is noted as a key feature in unit 6 due to the presence of extensive spawning sites. The management plan considers river and brook lamprey to be of importance in unit 6, but not a main management or monitoring focus. Given the perceived absence of sea lamprey in unit 6 it is somewhat unlikely that river lamprey would be present (given that both species display similar migratory behaviour between sea and freshwater) and any populations are instead likely to be brook lamprey (indistinguishable from river lamprey as juveniles). This is supported by the Environment Agency Wales ROC for the Brecon abstraction, which notes that 'River and Sea Lamprey numbers are more restricted and fail to reach past Brecon and Crickhowell bridge respectively'.

Brook lamprey do not undertake the same downstream migration to sea as river and sea lamprey, thus making them less susceptible to entrainment at intakes. As such, the main species requiring protection with respect to the River Usk SAC under the Habitats Directive is Atlantic salmon, which is also afforded protection under SAFFA (see above). The current screening arrangement is considered to be compliant for salmon smolt protection, thus meeting the requirements of the Habitats Directive.

3.1.4. Fish passage

Brecon weir is deemed to be passable to migratory fish species due to the presence of a multi-species Larinier fish pass and baulk easement pass, in addition to the moderate passability of the weir itself for eel. The proposed changes to the abstraction regime at Brecon, including a reduction in the maximum abstraction rate and profiling to reduce the rate of abstraction at low flows are considered unlikely to adversely affect passability for any species. Instead, a small net improvement in passability may be realised, particularly during low river flows, due to a greater volume of flow being discharged via the fish pass. As such, there is not considered to be a requirement to improve fish passage at the site as part of the licencing process.

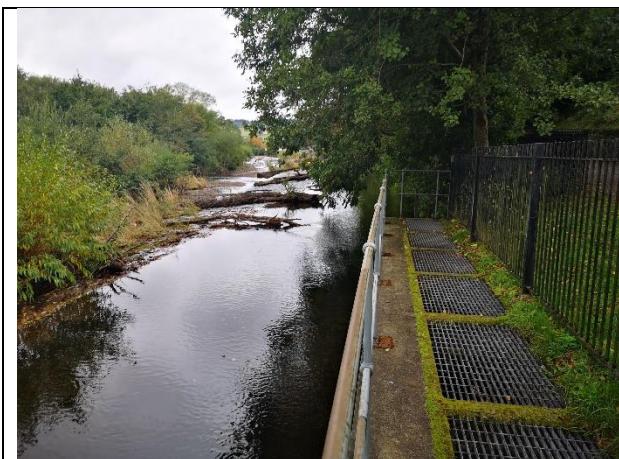


Figure 3-2. The location of the Brecon intake at the downstream end of the weir.



Figure 3-3. Overview of the intake at the river frontage, viewed from the far side of the settling pond.



Figure 3-4. Existing 10 mm rectangular profile bar screening at the river frontage.



Figure 3-5. The settling pond between the river frontage intake and the culvert supplying the canal.



Figure 3-6. Coarse debris screening in front of the culvert penstock.



Figure 3-7. Penstock controlling flow from the settling pond into the culvert, ultimately supplying the canal.

4. CWM CRAWNON INTAKE

4.1. Site Overview

The Cwm Crawnnon intake is located in the lower reaches of the Afon Crawnnon, approximately 600 m upstream of the confluence with the River Usk at NGR SO1432719477. Abstracted water enters a small leat channel which extends in an approximately northerly direction, parallel to the Afon Crawnnon, before flowing into the southern side of the canal a short distance downstream of Llangyndir Locks.

The abstraction is located adjacent to a natural bedrock cascade in the river channel, which provides a small impoundment upstream to support the abstraction. The height of the cascade appears to have been raised historically, with a small concrete upstand/weir crest formed on top of the bedrock slab.

The Afon Crawnnon downstream of the abstraction is steep, with a series of additional bedrock cascades which are likely to impede passage of migratory fish to varying degrees.

Photos of key site structures are provided in Figure 4-1 to Figure 4-6.

4.1.1. Intake screening

The existing intake structure comprises a wooden undershot sluice gate on the true right (eastern) bank of the river. There is no debris or fish protection screening on the existing intake structure and as such fish may potentially be at risk of entrainment into the leat/canal system. However, during the site visit the gate was almost completely closed, with only a small volume of water entering the leat via leakage.

4.1.2. Fish passage

There is an existing fish pass/easement structure on the bedrock cascade adjacent to the intake. The structure comprises two pools, with an intervening traverse, which provides passage for fish over the short section of weir/upstand formed on top of the bedrock feature. The lower pool discharges into a narrow gully carved into the bedrock. Lengths of timber appear to have been retrospectively added to the side walls of the pools to reduce the volume of water entering the pools over the side walls.

Whilst detailed measurements were not undertaken during the site visit, the head drops between the two pools appeared to be well within maximum permitted drops for migratory salmonids (EA, 2010). The dimensions of the two individual pools are unlikely to adhere to current best practice guidance for energy dissipation. However, the structure appears to represent more of an easement solution on what was likely to constitute a partial natural barrier to migration prior to the raising of the weir crest to support the abstraction. During the conditions observed during the site visit it was considered that the pools would be sufficient to support migration of fish over the final part of the structure, although a formal assessment was not undertaken.



Figure 4-1. The location of the existing Cwm Crawnnon intake/sluice gate relative to the weir crest.



Figure 4-2. The Cwm Crawnnon sluice gate and upstream end of the leat channel.



Figure 4-3. The Cwm Crawnnon leat channel facing downstream towards the canal.



Figure 4-4. An overview of the bedrock cascade/weir structure and fish pass on the Afon Crawnnon.



Figure 4-5. The two pools in the fish pass easement structure upstream of the crest at Cwm Crawnnon.



Figure 4-6. One of several bedrock cascades on the Afon Crawnnon downstream of the abstraction, representing an obstruction to eel passage.

4.2. Required fish protection works

4.2.1. Intake screening

Eels Regulations

There are several significant natural bedrock cascade features on the Afon Cwannon downstream of the abstraction which are likely to prevent eel from migrating as far upstream as the abstraction. However, there is currently an absence of monitoring data that can be used to confirm the presence/likely absence of eel in the river upstream of the weir. In the absence of data indicating a likely absence of eel the precautionary approach would be to implement appropriate intake screening to protect against entrainment of eel. Based on the distance upstream of the tidal limit, this would require a 9 mm mesh size and maximum 0.40 m/s approach velocity.

If such a screening arrangement is likely to prove onerous from an operational perspective and/or infeasible to achieve from an engineering perspective then there may be merit in undertaking additional investigations to consider whether eel are likely to be absent from the river upstream of the weir. A suitable approach would include completion of electrofishing surveys at several locations upstream of the weir, supplemented by completion of an eDNA sample at each location.

SAFFA

The main legislative driver with respect to intake screening is considered to be SAFFA, to achieve protection of salmon smolts. The absence of screens on the existing intake means that smolts are currently at risk of entrainment into the leat/canal. Installation of new intake screens with a mesh size not exceeding 10 mm and a maximum approach velocity of between 0.50 – 0.75 m/s would therefore be necessary to provide appropriate screening protection.

It is assumed that due to the relatively modest abstraction volumes at the site, a self-cleaning screening technology is unlikely to be justifiable on financial grounds, therefore requiring a 10 mm vertical bar screen that is manually cleaned. Given the relative remoteness of the abstraction, manual cleaning may prove burdensome for operational staff, particularly during the autumn months during high debris loads. As an alternative to installing screens with a 10 mm mesh size year-round, it may be advantageous for the screens to be installed on a seasonal basis during the main smolt migration period (typically April – June, with some local variation), which would then be replaced with coarser bar screens for the remainder of the year that are less prone to debris blinding and thus require less frequent maintenance. Agreement would need to be sought from NRW that this arrangement would be considered acceptable.

The main requirement for a seasonal screen installed during the autumn and winter months would be to stop the entrainment of salmonid ‘kelts’ into the leat (adult salmon and sea trout that have finished spawning in the river and are migrating back downstream to sea). A mesh size of ca. 30 – 40 mm outside of the smolt migration window would be sufficient for this purpose, thus significantly reducing the likelihood of debris blinding.

The extent of debris blinding on the screens could be further minimised by angling the new screens across the existing intake to achieve a sweeping flow along the screen face. Ideally this would be combined with a notch formed in the crest of the weir to provide a route for debris and debris to be washed downstream. An illustration of a potential screening arrangement for the site is provided in Figure 4-7.

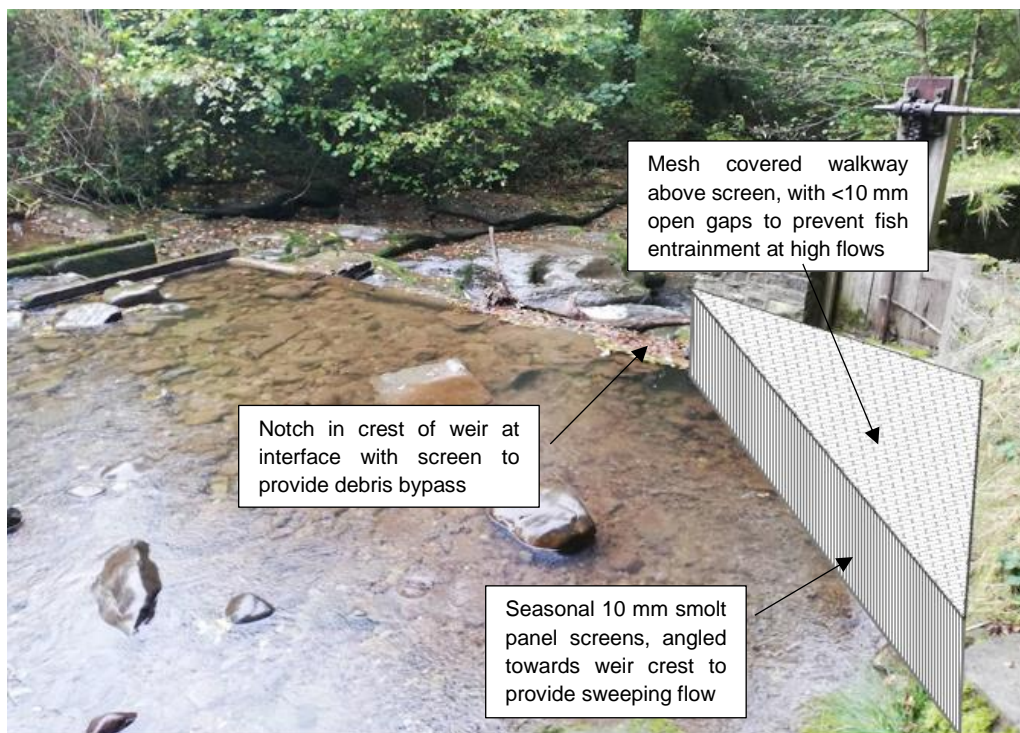


Figure 4-7. Suggested intake screening arrangement for the Cwm Crawn site.

Habitats Directive and Ramsar/SSSI

With the exception of salmon and eel considered above, there are no other species afforded protection under the River Usk SAC or Severn Estuary SAC/Ramsar/SSSI designation that are deemed likely to be present on the Afon Crawn. As such, there are no additional screening requirements under the Habitats Directive.

4.2.2. Fish passage

As previously detailed, the existing fish passage structure on the bedrock cascade adjacent to the abstraction appears to have been designed as an easement structure, rather than a formal fish pass. Given that the primary purpose of the easement appears to be to improve the passability of a natural cascade feature, rather than providing passage over a man-made structure, there is less importance in the structure adhering to best practice design guidance for formal fish passage structures.

The proposed changes to the intake structure and abstraction arrangements are not expected to materially affect the upstream migration of fish via the easement. Instead, the formalisation of the abstraction arrangements may provide a minor net benefit to passage by safeguarding the volume of water passing through the easement structure, particularly during low to moderate flow conditions. However, it is plausible that at certain river flows reducing the volume of water abstracted (and thus increasing the volume of water entering the fish pass) may adversely affect fish passage through the pools – e.g. through creation of excessive energy densities within the pools, or excessive water velocities between pools. It is recommended that potential impacts are considered via desk-based hydraulic calculations to assess conditions under the present conditions compared to expected conditions under the proposed future scenario. This assessment would require topographic data identifying the invert levels of the pools, weir crest and intake, in addition to the pool dimensions (length, width, depth).

5. LLANGATTOCK INTAKE

5.1. Site Overview

The Llangattock intake comprises an open channel abstraction from the Nant Onnau Fach, a small tributary of the River Usk. The existing channel arrangement is somewhat convoluted, with several bifurcations and man-made channels in the proximity of the abstraction. A schematic of the channel arrangement is shown in Figure 5-1.

The Nant Onnau Fach bifurcates approximately 40 m to the west of the canal, with the natural river channel passing over a small weir and flowing downstream in an easterly direction. A secondary channel, which supplies the feeder abstraction, continues towards the canal in a northerly direction. The secondary channel then bifurcates again 20 m to the west of the canal. A proportion of water enters the canal via an open channel, whilst the remaining water flows in a south easterly direction, re-joining the main river channel several metres prior to flowing under the canal. The Nant Onnau Fach then flows in an easterly direction through a culverted section of channel before re-emerging on the northern side of the canal.

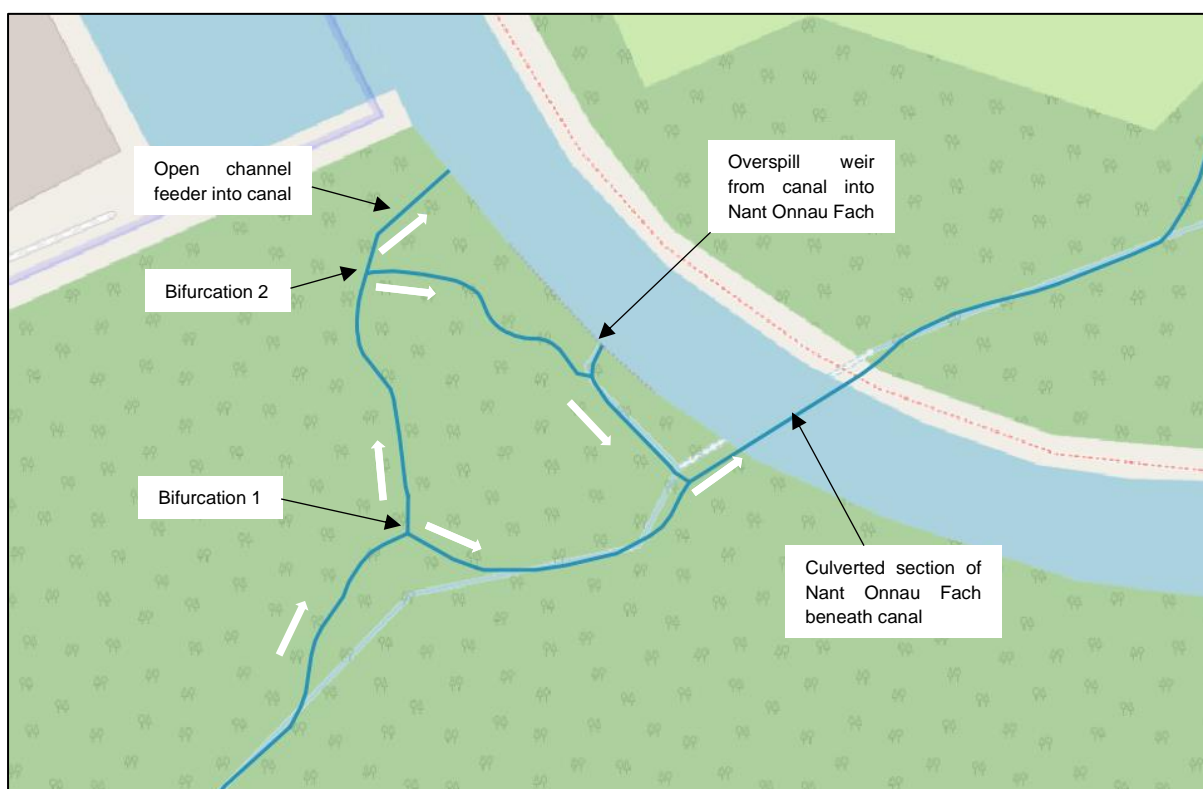


Figure 5-1. A schematic of the channel configuration supporting the Llangattock feeder abstraction on the Nant Onnau Fach.

Photos of key site structures are provided in Figure 5-2 to Figure 5-7.

5.1.1. Intake screening

There is currently no intake screening present on any of the channels supporting the Llangattock feeder abstraction. Water is therefore abstracted into the canal via an open channel.

5.1.2. Fish passage

There is currently no fish passage in place at either of the bifurcating structures.



Figure 5-2. The weir board structure at bifurcation 1 on the Nant Onnau Fach. Water supplying the canal flows to the top of the image.



Figure 5-3. Bifurcation 2 on the Nant Onnau Fach, facing towards the open feeder channel supplying the canal.



Figure 5-4. Bifurcation 2 on the Nant Onnau Fach, facing in a southerly direction back upstream towards bifurcation 1.



Figure 5-5. The overspill weir from the canal to the Nant Onnau Fach.



Figure 5-6. The upstream face of the Nant Onnau Fach culvert passing beneath the canal.



Figure 5-7. The downstream face of the Nant Onnau Fach culvert passing beneath the canal.

5.2. Required fish protection works

The regulatory drivers for fish protection works at the Llangattock abstraction are somewhat less clear than many of the other sites. The Nant Onnau Fach to the west of the canal is unlikely to support eels due to the extensive steep culverted channel section beneath the canal, which may pose a barrier to eel passage due to high velocities. Additionally, the national Environment Agency 'Potential Sites of Hydropower Opportunity' dataset (also referred to as the 'barrier database'), identifies two additional structures on the Nant Onnau Fach in the downstream reach between the canal and the confluence with the River Usk which may further impede migration. It is therefore considered unlikely that the Nant Onnau Fach in the location of the abstraction supports a population of eel, although there is no available fish survey data to verify this. Further investigations may therefore be warranted to confirm the target species for screening/passage, which is detailed further below.

5.2.1. Intake screening

Eels Regulations

As detailed above, the regulatory drivers for intake screening at this abstraction are somewhat unclear. If eel are absent from the watercourse (and unlikely to colonise the watercourse in the coming years), then there would be no driver for screening under the Eels Regulations. There is currently an absence of fish survey data for the Nant Onnau Fach from which the presence/likely absence of eel can be determined. In the absence of data indicating an absence of eel the precautionary approach would be to implement appropriate intake screening to protect against entrainment of eel. Based on the distance upstream of the tidal limit, this would require a 9 mm mesh size and maximum 0.40 m/s approach velocity.

Further investigations may be useful to better understand whether eel are present on the watercourse and therefore whether Eels Regulations screening is necessary, comprising a combination of fish and barrier surveys. In common with the Cwm Crawnnon site, the recommended fish surveys would comprise a mixture of electrofishing and eDNA surveys at appropriate locations adjacent to, and upstream of, the abstraction. These surveys could be supplemented by a walkover of the watercourse downstream to determine whether the structures recorded in the EA barrier database are still present and if so whether they (in addition to the culvert beneath the canal) are likely to impede eel passage via completion of a formal fish passability assessment (e.g. WFD111).

SAFFA

It is unclear whether the watercourse supports a population of migratory salmonids, owing to the barriers downstream of the abstraction and the small channel dimensions which do not appear conducive to migratory salmonids (narrow channel width and shallow water depths). Nonetheless, there is potential that any juvenile brown trout resident within the stream may adopt a migratory phase, essentially undergoing the same smoltification process and adopting a migratory life stage akin to sea trout, despite originating from non-migratory parents. As such, there may be an argument for adopting a maximum 10 mm mesh size and 0.50 - 0.75 m/s approach velocity to project against entrainment of any trout smolts that may be present. However, the benefits obtained from such a screening arrangement are likely to be quite limited and may prove burdensome from an operational perspective. Any additional investigations undertaken to confirm the presence/likely absence of eel (see above) would also provide information on whether brown/sea trout are present on the watercourse.

Reducing the screening criteria somewhat to a 9 mm mesh size and 0.40 m/s approach velocity would future proof the abstraction with regards to the Eels Regulations if, for example, passage for this species was improved through the lower water course in the coming years.

Intake screens would be most effectively positioned at the structure associated with bifurcation 1 (see Figure 5-1) on the channel flowing to the north where the abstracted water is drawn off, therefore preventing fish from entering the network of artificial channels.

Habitats Directive

The watercourse is not deemed likely to provide suitable habitat for any additional migratory species designated under the River Usk SAC.

5.2.2. Fish passage

The weir boards associated with the two diversion structures create small impoundments on the Nant Onnau Fach. However, the head drop across each structure is small (< 20 cm) and therefore unlikely to pose a significant obstacle to passage of salmonid species, although there may be a benefit in modifying the weir board (e.g. creating a central notched section) to provide a deeper route of passage. Additionally, eel are thought to be absent from the water course upstream of the canal culvert and therefore passage for this species may not be required. However, further surveys would be required to confirm this. In the absence of such data provision of upstream eel passage over the diversion structure on the main river channel is recommended, which could be achieved through installation of a simple gravity fed vertical tile or brush pass on one of the bank sides of the diversion structure (Figure 5-8).



Figure 5-8. An example of a vertical eel brush pass fixed to a weir wing wall.

6. CASTLE TURN INTAKE

6.1. Site Overview

The Castle Turn intake comprises a pair of sharp-crested v-notch weirs which split flow between the main river channel and the feeder abstraction. Flow passing over the v-notch weir in the main river channel falls onto a concrete slab before transitioning to a more natural channel. The watercourse downstream of the abstraction is characterised by a steep gradient, descending in elevation by several metres over a 20 m reach, before entering a culverted channel which passes beneath the canal.

Water enters the feeder channel via a submerged orifice, with a penstock present on the upstream side of the orifice. The penstock was in an open position during the site visit but did not appear to be operational. Water in the feeder channel then passes over a v-notch weir of similar dimensions to the structure on the main river channel, before discharging into the canal via a ca. 25 m long rectangular channel.

Photos of key site structures are provided in Figure 6-1 to Figure 6-6.

6.1.1. Intake screening

There is currently no intake screening present on the abstraction. Water is abstracted into the canal via an open channel.

6.1.2. Fish passage

There is currently no fish passage in place at either of the v-notch structures.

6.2. Required fish protection works

The feeder abstraction is located on a small steep, upland stream. No fish survey data appear to be available for the watercourse. However, the physical parameters observed during the site visit (channel width often not exceeding 1 m and water depths typically ≤ 5 cm) were not conducive to providing suitable habitat for eel, migratory salmonids (salmon/sea trout) or resident (brown) trout. Additionally, the catchment upstream of the intake is small, with the total length of water courses equating to approximately 2 km.

6.2.1. Intake screening

If migratory/resident salmonids and eel are absent from the watercourse then there is no clear regulatory driver for intake screening requirements on the abstraction. In this circumstance it may therefore be acceptable to adopt a layout comparable to the existing arrangement, with an unscreened abstraction (or very coarsely screened to minimise debris entrainment). However, there is currently a lack of monitoring data for the river to demonstrate whether these species are present or likely to be absent. Therefore, unless further investigations are carried out (e.g. electrofishing and eDNA surveys) then screening to achieve compliance with the Eels Regulations (9 mm mesh size and 0.40 m/s approach velocity) is recommended, which would also provide compliance with SAFFA.

6.2.2. Fish passage

Due to the presence of shallow water depths over the concrete slab on the approach to the v-notch weir the structure is likely to pose an obstacle to fish migration. The requirements for fish passage at the structure would be influenced by whether migratory fish species are present and whether the existing flow split structures (v-notch weirs) are retained. If future fish surveys confirm that migratory species are present (or further surveys are not carried out) then creation of several pools/pre-barrages to raise the tailwater level on the downstream side of the weir is likely to be the most appropriate solution for

the site. The advantage of this option compared to other solutions such as rock ramps is that it would allow the v-notch weir (which controls the flow split) to remain in place, although modifications to the v-notch may be necessary to account for the fact that raising the tailwater level would partially drown out the notch (therefore reducing the flow for a given upstream water level).

However, if future investigations demonstrate an absence of migratory fish species from the watercourse then there would be no clear driver for implementing fish passage improvements at the site.

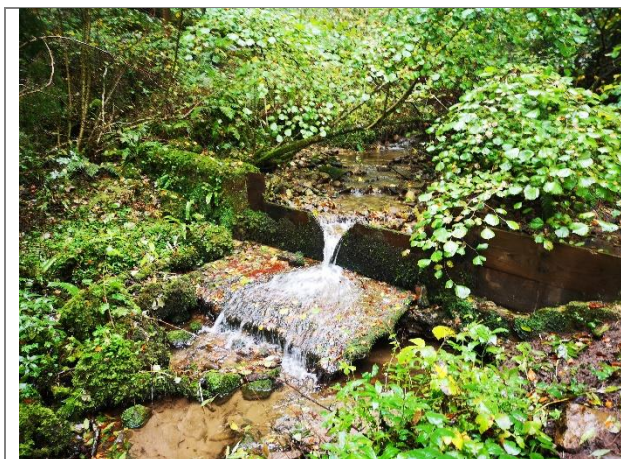


Figure 6-1. V-notch weir on the main river channel at Castle Turn.



Figure 6-2. Penstock on the upstream face of the submerged orifice supplying the feeder channel.



Figure 6-3. Downstream face of the submerged orifice supplying the feeder channel.

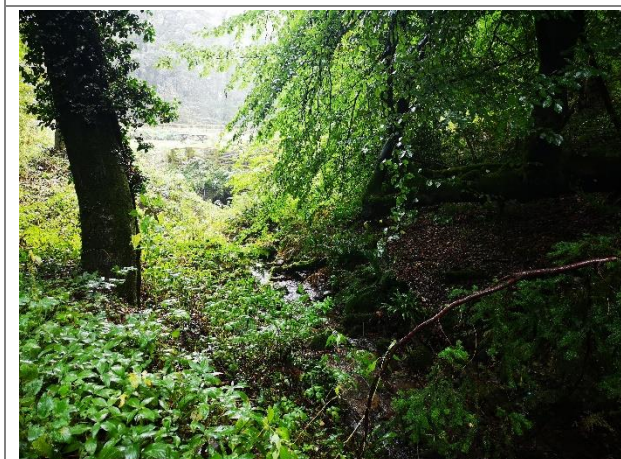


Figure 6-4. Water course downstream of the v-notch weir.



Figure 6-5. Watercourse upstream of the culverted section beneath the canal.



Figure 6-6. Culverted section of the watercourse beneath the canal.

7. OCHRAM TURN INTAKE

7.1. Site Overview

The Ochram Turn intake is very similar in form to the Castle Turn intake, comprising a pair of sharp crested v-notch weirs on an unnamed tributary of the Ochram Brook. Approximately 10 m downstream of the v-notch weir, the watercourse enters a culverted section flowing beneath the canal. Visibility within the culvert was limited during the site visit, although a near vertical drop of several metres was observed at the upstream end of the structure (i.e. downstream of the intake) which is likely to represent a barrier to migratory fish species.

Photos of key site structures are provided in Figure 7-1 to Figure 7-6.

7.1.1. Intake screening

There is currently no intake screening present on the abstraction. Water is abstracted into the canal via an open channel.

7.1.2. Fish passage

There is currently no fish passage in place at either of the v-notch structures.

7.2. Required fish protection works

In common with the Castle Turn site, the feeder abstraction is located in a steep, upland watercourse. No fish survey data appear to be available for the watercourse. However, based on the physical parameters observed during the site visit the watercourse did not appear to provide suitable accessible habitat for eel, migratory salmonids (salmon/sea trout) or resident (brown) trout. However, further investigations (e.g. fish surveys) would be required to confirm this.

7.2.1. Intake screening

If migratory/resident salmonids and eel are absent from the watercourse then there is no clear regulatory driver for intake screening requirements on the abstraction. It may therefore be acceptable to adopt a layout comparable to the existing arrangement, with an unscreened (or very coarsely screened) abstraction. However, there is currently a lack of monitoring data for the river to demonstrate whether these species are present or likely to be absent. Therefore, unless further investigations are carried out (e.g. electrofishing and eDNA surveys) then screening to achieve compliance with the Eels Regulations (9 mm mesh size and 0.40 m/s approach velocity) is recommended, which would also provide compliance with SAFFA.

7.2.2. Fish passage

Due to the presence of shallow water depths over the concrete slab on the approach to the v-notch weir the structure is likely to pose an obstacle to fish migration. If future fish surveys confirm that migratory species are present (or further surveys are not carried out) then in common with Castle Turn the creation of several pools/pre-barrages to raise the tailwater level on the downstream side of the weir is likely to be the most appropriate solution for the site. Conversely, if future investigations demonstrate an absence of migratory fish species from the watercourse then there would be no clear driver for implementing fish passage improvements at the site.



Figure 7-1. V-notch weir on the main river channel at Ochram Turn.

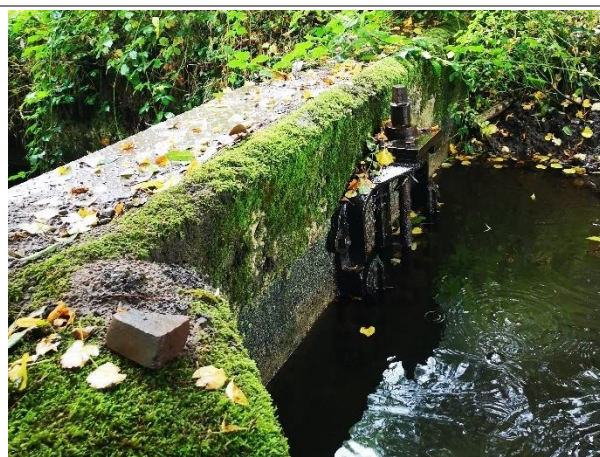


Figure 7-2. Penstock on the upstream face of the submerged orifice supplying the feeder channel.



Figure 7-3. Downstream face of the submerged orifice supplying the feeder channel.



Figure 7-4. Main water course downstream of the v-notch weir.



Figure 7-5. V-notch weir on the abstraction (feeder) channel.



Figure 7-6. Culverted section of the watercourse beneath the canal. A vertical fall was visible at the upstream end of the culvert.

8. MILL TURN INTAKE

8.1. Site Overview

The Mill Turn abstraction consists of a 300 mm diameter plastic pipe positioned on the bed of the Gwenffrwd/Nant Rhyd-y-Meirch at NGR SO3050007288. The pipe is fixed in place using two wooden stakes, with a line of boulders placed around the collar of the pipe. The pipe extends in an easterly direction for a length of approximately 350 m before discharging into the western side of the canal, with much of the pipeline buried beneath ground level.

Photos of key site structures are provided in Figure 8-1 to Figure 8-4.

8.1.1. Intake screening

The existing abstraction has crude intake screening on the pipe opening, comprising a metal grill tied to the wooden stakes, with ca. 40 x 150 mm openings. The grill would provide limited fish protection and is therefore assumed to exist primarily to prevent the ingress of large debris into the pipe.

8.1.2. Fish passage

No fish pass is present at the site due to the absence of an impounding structure.

8.2. Required fish protection works

8.2.1. Intake screening

The Gwenffrwd is somewhat larger than the watercourses supporting the Ochram Turn and Castle Turn abstractions, with greater diversity of fish habitat present offering the potential to support some limited populations of salmonids. As such, in common with the Llangattock intake, there may be an argument for adopting a 10 mm mesh size and 0.50 - 0.75 m/s approach velocity to project against entrainment of any trout smolts that may be present.

Given the low volume of water that will be sourced from the feeder in future (1.1 MI/d; Table 1-1) in addition to the remoteness of the intake and apparent lack of any electrical connection, an automated self-cleaning screening solution is likely to be cost prohibitive at this location. An arrangement similar to that outlined for the Cwm Crawn site, comprising of a bank side intake with 10 mm vertical bar screens, is likely to be the optimal arrangement for the site. Cleaning of the screens would need to be undertaken by periodic manual raking.

However, as outlined for the Llangattock site, the benefits obtained from such a screening arrangement are likely to be quite limited and may prove burdensome from an operational perspective. It is recommended that this is discussed further with NRW to seek agreement on the required screening arrangements for the site. A compromise may be to install SAFFA compliant 10 mm screens on a seasonal basis during the critical smolt period (ca. April – June), which is then replaced by a coarser bar screen with less onerous cleaning requirements for the remainder of the year.

8.2.2. Fish passage

There is no impounding structure present at the site which may impede fish migration and therefore a fish pass is not required. However, fish passage would need to be provided should an impounding structure that is likely to impede trout migration be proposed as part of the future abstraction arrangements.



Figure 8-1. Feeder abstraction pipe on the Gwenffrwd.



Figure 8-2. Close up of the metal screen on the pipe opening.



Figure 8-3. Abstraction pipe arrangement viewed from the right river bank.



Figure 8-4. Mill Turn abstraction discharging into the canal.

9. TROSNANT SPRING INTAKE

9.1. Site Overview

The Trosnant Spring intake structure comprises a concrete and masonry chamber within the bed of the Trosnant Stream adjacent to the true right riverbank. A manhole is present on the top of the structure, providing access into the intake chamber. Metal pipework and infrastructure for an old valve was visible within the intake structure, which was open during the site visit. An old metal strainer, assumed to have previously been associated with the abstraction, was present on the bank adjacent to the manhole cover.

No direct connectivity between the intake chamber and the water course was established during the site visit. It is therefore currently assumed that water is sourced from a groundwater supply, rather than a surface water abstraction. CRT documentation online makes reference to the supply comprising an 'artesian well'¹, although no supporting evidence is provided for this. The supply being derived from a groundwater source is somewhat supported by historical OS maps from the 1880s – 1890s, which show the presence of a well at the location of the abstraction, associated with the former Trosnant gas works.

Photos of key site structures are provided in Figure 9-1 to Figure 9-4.

9.1.1. Intake screening

There does not appear to be any formal intake structure from the Trosnant Stream which supplies the abstraction and therefore no intake screening is currently present.

9.1.2. Fish passage

There is no impounding structure associated with the abstraction and therefore no fish passage facilities are currently present.

9.2. Required fish protection works

9.2.1. Intake screening

Based on the available evidence the Trosnant Spring abstract appears to be sourced from a groundwater supply and does not abstract surface water from the Trosnant Stream. As such, there is no requirement for intake screening on the structure. It is recommended that additional site investigations are undertaken to verify this. Potential investigations may include dye tracing within the stream and intake chamber to determine whether there is any connectivity between the intake chamber and the water course.

However, regardless of the source of the water, there is a residual risk of fish entering the intake chamber via the manhole opening during high flows when the water level in the stream rises above the lip of the manhole. Aside from periodic inspections it is recommended that the manhole cover is kept closed to minimise this risk.

9.2.2. Fish passage

Due to the absence of any impounding structure or barrier to fish migration there are no requirements for fish passage as part of the proposed abstraction licencing works.

¹ Canal and Rivers Trust (2019). Where does the water come from? Available online at: <https://canalrivertrust.org.uk/media/original/41371-wdtwcf-llangynidr-locks.pdf>.



Figure 9-1. An overview of the Trosnant Spring intake structure.



Figure 9-2. Manhole cover on the top of the Trosnant Spring intake structure.



Figure 9-3. Interior of the Trosnant Spring intake chamber, showing the pipework and valve.

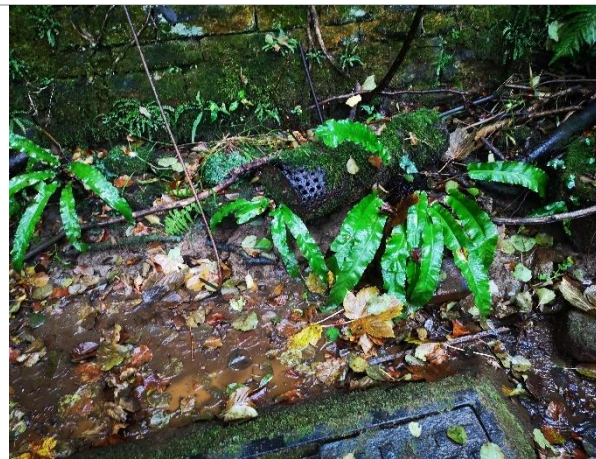


Figure 9-4. Old metal strainer on the bank side of the Trosnant Spring manhole cover.

10. AFON LWYD PUMPING STATION

10.1. Site Overview

10.1.1. Intake screening

The Afon Lwyd pumping station is a proposed future abstraction and as such there is no existing intake screening arrangement.

10.1.2. Fish passage

There is a large impounding weir (Pontymoile weir) on the Afon Lwyd located at NGR SO2937500268 on the southern side of the canal, a short distance downstream of the proposed pumping station location. The exact ownership of the weir is unclear, although it is confirmed not to be under the ownership of CRT.

A fish pass was constructed on the true left bank of the weir during a project delivered by NRW and the Wye and Usk Foundation in 2010, comprising a two-flight Larinier super-active baffle pass (Figure 10-1).



Figure 10-1. The Larinier super-active baffle fish pass on the true left bank of the Pontymoile weir, 50 m downstream of the proposed abstraction location.

10.2. Required fish protection works

10.2.1. Intake screening

There would be a requirement for the new abstraction to comply with several environmental drivers, as detailed below.

Eels Regulations

Any future screening arrangement for the Afon Lwyd pumping station would need to comply with the Eels Regulations. Based on the proximity of the proposed abstraction location to the tidal limit on the Afon Lwyd, this would require a fine mesh size of 2 mm and a maximum approach velocity of 0.25 m/s.

SAFFA

The Afon Lwyd is populated by migratory salmonids and thus there would be a requirement to protect against entrainment of smolts, requiring a maximum mesh size of 10 mm and a maximum approach velocity of 0.50 - 0.75 m/s at the maximum licenced abstraction rate. The screening arrangements required to achieve compliance with the Eels Regulations detailed above would also ensure compliance with SAFFA.

Habitats Directive

Data collated as part of drought permit assessments undertaken for the Afon Lwyd (Cascade, 2019) did not identify the presence of any shad or lamprey species on the Afon Lwyd (i.e. those species designated under the River Usk SAC). As such, there are considered to be no additional screening requirements under the Habitats Directive.

10.2.2. Fish passage

A future abstraction from the Afon Lwyd pumping station would theoretically reduce the total river flow downstream of the abstraction and therefore the volume of water entering the Pontymoile fish pass. Significant reductions in flow would lead to a reduction in depths through the fish pass to such an extent that it may no longer operate effectively. However, daily mean flow at the Ponthir gauging station is equivalent to 3.138 m³/s (271 Ml/d); therefore the proposed future abstraction from the pumping station (maximum 10 Ml/d) represents a very small proportion of total river flow. Due to the small reduction in total flow there is unlikely to be a material risk to the functionality of the existing fish pass. However, as a precaution it would be prudent to undertake desk-based hydraulic calculations to assess this. Such an assessment would require invert level and dimension details from detailed design or as-built drawings of the fish pass, or through completion of a topographic survey if design drawings are not available.

11. CONCLUSIONS

The existing compliance of each of the abstractions with respect to the Eels Regulations, SAFFA and the Habitats Directive are summarised in Table 11-1, alongside the intake screening and fish passage works required to achieve compliance.

The key findings and required measures are summarised as follows:

- Brecon: the existing intake screening arrangement is compliant with downstream migrating silver eel under the Eels Regulations and protection of salmon smolts under SAFFA. There are no additional species designated under the River Usk SAC that would require protection. Alterations to the abstraction regime would not materially affect the operation of the existing fish passes on the weir and are expected to provide a betterment to downstream migration; therefore no fish passage works are required.
- Cwm Crawnon: the location of the abstraction may be inaccessible to eel due to natural cascade/waterfall features in the river downstream. However, given a current absence of data, a precautionary approach comprising intake screening with a maximum 9 mm mesh size and 0.40 m/s approach velocity to achieve compliance with the Eels Regulations is recommended, which would also achieve compliance with SAFFA. Future investigations (e.g. fish surveys) may be beneficial to better understand the fish species present and allow refinement of the intake screening requirements. In addition, an assessment of potential impacts on the operation of the fish pass pools under the proposed reduction in abstraction volumes is recommended. There are no additional requirements under the Habitats Directive.
- Llangattock: the steep culvert beneath the canal and several structures downstream may impede migration of eel to the abstraction location. However, given a current absence of data, intake screening with a maximum 9 mm mesh size and 0.40 m/s approach velocity to achieve compliance with the Eels Regulations is recommended, which would also achieve compliance with SAFFA. In addition, provision of eel passage (e.g. gravity fed vertical eel brush) is recommended at the diversion structure. Future investigations (e.g. fish surveys and barrier assessments) may be beneficial to better understand the fish species present and allow refinement of the intake screening and passage requirements.
- Ochram Turn & Castle Turn: based on the physical characteristics of the two watercourses (small, steep upland streams) there is limited potential for eel or migratory salmonids. . However, given a current absence of data, intake screening with a maximum 9 mm mesh size and 0.40 m/s approach velocity to achieve compliance with the Eels Regulations is recommended, which would also achieve compliance with SAFFA. However, it should be noted that the site is remote, which may make manually cleaning of fine mesh screens difficult to achieve. An appropriate compromise may be to install 9 mm screens on a seasonal basis during the spring months, reverting to a coarser bar screen for the remainder of the year to minimise operational requirements. If future investigations indicate a likely absence of migratory species then retaining the unscreened abstractions may be acceptable. Improvements to fish passage for salmonids and eel would be beneficial at the v-notch weirs (subject to results of any further investigations). However, the costs of doing so may be disproportionate to the benefits given the limited lengths of habitat upstream at each site, whilst the proposed changes to abstraction are unlikely to reduce the passability of either structure compared to the current arrangement.
- Mill Turn: in the absence of fish survey data, intake screening with a maximum 9 mm mesh size and 0.40 m/s approach velocity to achieve compliance with the Eels Regulations is recommended, which would also achieve compliance with SAFFA. . However, it should be noted that the site is remote, which may make manually cleaning of fine mesh screens difficult to achieve. An appropriate compromise may be to install 9 mm screens on a seasonal basis during the spring months, reverting to a coarser bar screen for the remainder of the year to

minimise operational requirements. No fish passage works are required at this site providing that a new impounding structure is not proposed.

- Trosnant Spring: based on the currently available information the abstraction appears to be sourced from groundwater, rather than surface water, and thus does not require intake screening. It is recommended that further investigations (e.g. dye tracing) are completed to verify this. No fish passage works are required at this site.
- Afon Lwyd PS: based on the distance from the tidal limit, intake screening at the river frontage with a 2 mm mesh size and maximum 0.25 m/s approach velocity would be required to achieve compliance with the Eels Regulations. Such a screening arrangement would also provide appropriate protection for salmon smolts and thus achieve SAFFA compliance. There is no CRT owned weir associated with the proposed abstraction and therefore no fish passage works are required. However, it is recommended that a desk-based assessment of the existing fish pass at Pontymoile weir is undertaken to confirm that the proposed abstraction would not affect the operation of this structure.

Table 11-1. Summary matrix of legislative drivers and required fish protection measures at each abstraction location. Green cells denote compliance with existing legislation, orange cells denote potential non-compliance and red cells indicate non-compliance.

Abstraction	Intake screening compliance			Required screening measures	Required passage measures
	Eels Regulations	SAFFA	Habitats Directive		
Brecon	Compliant - 10 mm bar spacing sufficient for silver eel protection	Compliant – 10 mm bar spacing sufficient for smolt protection	Compliant – 10 mm bar spacing sufficient for salmon smolt protection (no other SAC species deemed present).	Existing screening is deemed compliant - no screening measures required.	No passage measures required.
Cwm Crawnnon	Abstraction may be inaccessible to eel due to natural barriers on the river downstream, although in the absence of survey data screening with a 9 mm mesh size and 0.40 m/s approach velocity is recommended.	Non-compliant. Maximum 10 mm mesh size & 0.50 - 0.75 m/s approach velocity required for smolt protection.	N/A. Abstraction is inaccessible to shad and lamprey species due to natural barriers on the river downstream.	New intake screen with maximum 9 mm mesh size & 0.40 m/s approach velocity to achieve compliance with Eels Regs & SAFFA. Potential to reduce to 10 mm & 0.50 m/s if future investigations indicate likely absence of eel.	No passage measures required, although an assessment of impact of abstraction changes on existing fish pass pools is recommended.
Llangattock	Abstraction may be inaccessible to eel due to natural barriers on the river downstream, although in the absence of survey data screening with a 9 mm mesh size and 0.40 m/s approach velocity is recommended.	Screening with a 10 mm mesh size & 0.50 - 0.75 m/s approach velocity may be required for juvenile salmonid protection given a current absence of fish survey data.	N/A. Abstraction is inaccessible to shad and lamprey species due to barriers on the river downstream.	New intake screen with maximum 9 mm mesh size & 0.40 m/s approach velocity to achieve compliance with Eels Regs & SAFFA. Potential to reduce to 10 mm & 0.50 m/s if future investigations indicate likely absence of eel.	Eel passage improvements required at diversion structure unless future investigations demonstrate likely absence of eel.
Castle Turn	Watercourse may not support eel, although in the absence of survey data screening with a 9 mm mesh size and 0.40 m/s approach velocity is recommended.	Watercourse may not support migratory salmonids, although in the absence of survey data screening with a 10 mm mesh size and 0.50 – 0.75 m/s approach velocity is recommended.	N/A. Watercourse does not provide appropriate habitat for lamprey and shad species.	New intake screen with maximum 9 mm mesh size & 0.40 m/s approach velocity to achieve compliance with Eels Regs & SAFFA. Potential to reduce to 10 mm & 0.50 m/s if future investigations indicate likely absence of eel, or to forgo screening entirely if investigations indicate likely absence of eel and migratory salmonids.	Fish passage for eel and salmonids required at v-notch structure unless future surveys indicate likely absence of these species.
Ochram Turn	Watercourse may not support eel, although in the absence of survey data screening with a 9 mm mesh size and 0.40 m/s approach velocity is recommended.	Watercourse may not support migratory salmonids, although in the absence of survey data screening with a 10 mm mesh size and 0.50 – 0.75 m/s approach velocity is recommended.	N/A. Watercourse does not provide appropriate habitat for lamprey and shad species.	New intake screen with maximum 9 mm mesh size & 0.40 m/s approach velocity to achieve compliance with Eels Regs & SAFFA. Potential to reduce to 10 mm & 0.50 m/s if future investigations indicate likely absence	Fish passage for eel and salmonids required at v-notch structure unless future surveys indicate likely absence of these species.

				of eel, or to forgo screening entirely if investigations indicate likely absence of eel and salmonids.	
Mill Turn	Watercourse may not support eel, although in the absence of survey data screening with a 9 mm mesh size and 0.40 m/s approach velocity is recommended.	Watercourse likely to support salmonids; screening with a 10 mm mesh size & 0.50 - 0.75 m/s approach velocity required for juvenile salmonid protection unless future investigations demonstrate a likely absence of salmonids	N/A. Watercourse does not provide appropriate habitat for lamprey and shad species.	New intake screen with maximum 9 mm mesh size & 0.40 m/s approach velocity to achieve compliance with Eels Regs & SAFFA.	No passage measures required, providing a new impounding structure is not proposed in future.
Trosnant Spring	N/A. Abstraction is believed to be sourced from groundwater, pending more detailed investigations to confirm connectivity (e.g. dye tracing).			No screening measures required based on currently available information.	No passage measures required.
Afon Lwyd PS	No existing intake. Maximum 2 mm mesh size & 0.25 m/s approach velocity required in future for elver protection	No existing intake. Maximum 10 mm mesh size & 0.75 m/s approach velocity required in future for smolt protection.	N/A	New intake screen with maximum 2 mm mesh size & 0.25 m/s approach velocity required to comply with Eels Regulations & SAFFA.	No passage measures required. It is recommended that potential changes to the hydraulic function of the fish pass at Pontymoile weir are assessed.

12. REFERENCES

Cascade (2019). Environmental Assessment of Afon Lwyd Drought Permit (8109-4), Dŵr Cymru Welsh Water.

Environment Agency (2005). Screening for Intake and Outfalls: a best practice guide. Science Report SC030231. *Environment Agency, Almondsbury, Bristol, UK*

Environment Agency (2015). Screening at intakes and outfalls: measures to protect eel. The Eel Manual – GEHO0411BTQD-E-E.

Environment Agency (2021). Elver and Eel Passes: A guide to the design and implementation of upstream and downstream passage solutions at weirs, tidal gates and sluices, V1.3.

Environment Agency Wales (2004). Habitats Directive Review of Consents. Form 3A: Abstraction Licence Summary, River Usk at Brecon Weir

Mitchell, D. (2008). Core Management Plan Including Conservation Objectives for River Usk Special Area of Conservation. Countryside Council for Wales.

Turnpenny, A.W.H. (1981). An analysis of mesh sizes required for screening fishes at water intakes. *Estuaries*, 4(4):363-368.

Form

Record of a Habitats Regulations Assessment of a project

OGN 200 Form 1

Document owner: Protected Sites Team, EPP

Version History:

Document Version	Date Published	Summary of Changes
1.0	March 2016	Document created
1.1	30 November 2017	References to the 2010 Habitats Regulations updated to reflect new consolidated version of the regulations which entered into force on 30 th November 2017; References to KSP and National Services Directorates updated to EPP
1.2	28 June 2018	With marked up changes in light of ruling in CJEU case c-323/17 'People over Wind'.
1.3	27 June 2019	With marked up changes in light of ruling in CJEU case c-323/17 'People over Wind'. See Guidance here

Next review date: April 2019

Record of a Habitats Regulations Assessment of a project

1. Project Details

1(a): Project details where an external party has applied to NRW for any form of authorisation	
Application reference number (if applicable)	PAN-006993 CRT abstraction at Llangattock PAN-006994 CRT abstraction at Cwm Crawnnon PAN-006995 CRT abstraction at Castle Turn PAN-006996 CRT abstraction at Mill Turn PAN-006997 CRT abstraction at Ochram Turn PAN-006998 CRT abstraction at Brecon Weir PAN-006999 CRT abstraction from Trosnant Spring
Date application received	All applications received on 16/09/2019 which was within the 'application window' for new authorisations applications to be submitted in accordance with the Water Abstraction (Transitional Provisions) Regulations 2017.
Applicant details	Canal and River Trust, National Waterways Museum, Ellesmere Port, South Pier Road, Ellesmere Port, Cheshire, England, CH65 4FW
Activity proposed	<p>Canal and River Trust (CRT) have applied under the New Authorisations Transitional regulations to licence their previously exempt abstractions. The abstractions have been legally occurring for a significant period of time but changes brought in by the Water Act 2003 via the transitional regulations now require CRT as a Navigation authority to apply for these abstractions to be licensed.</p> <p>The 7 applications being considered in this HRA are for the existing 7 intakes which transfer water from various locations within the Usk catchment, as detailed below, into the Monmouthshire and Brecon Canal for the purpose of keeping the water level within the canal within a Normal Operating Zone. This is to avoid business risk including damage to infrastructure caused by overtopping and damage to canal lining and canal bank collapse as well as maintaining a navigable depth.</p> <p><u>PAN-006993 CRT abstraction at Llangattock</u> This abstraction is from Nant Onnau-fach which is diverted into a feeder channel via two sets of removable boards. Normal operation is for boards to be inserted at the two locations parallel to the stream flow during the main boating season, April to</p>

	<p>October. Boards are generally removed, during the winter months, November to March. In exceptionally dry years e.g. 2011, flow may be diverted to the canal all year. Flow discharges via gravity to the Monmouthshire & Brecon Canal approx. 0.02m downstream of the abstraction point.</p> <p>CRT have applied for maximum quantities as follows: cubic metres per hour: 4,950.10 cubic metres per day: 118,802.80 cubic metres per year: 2,737,865.90 litres per second: 1,375</p> <p><u>PAN-006994 CRT abstraction at Cwm Crawnnon</u> This abstraction is from the main Afon Crawnnon, near Cwmcrawnnon, which is diverted into the feeder channel via a main river weir. Flow is diverted to the canal via a concrete main river weir with timber crest and fish pass. Flow into the feeder is then controlled by a 0.66m x 0.66m wooden sluice which discharges into an open channel. Flow continues through a trapezoidal flume, which is used to monitor the abstraction, before discharging to the M&B Canal, 0.4km downstream of the abstraction.</p> <p>The abstraction is monitored via the Trust's telemetry/SCADA (Supervisory Control and Data Acquisition) system approximately 0.4km downstream of the abstraction. A trapezoidal flume is installed at this location and head measurements are recorded. The flow is then calculated from the recorded head measurements using a standard equation.</p> <p>CRT have applied for maximum quantities as follows: cubic metres per hour: 1,759.60 cubic metres per day: 33,770 cubic metres per year: 2,180,388 litres per second: 488.80</p> <p><u>PAN-006995 CRT abstraction at Castle Turn</u> This abstraction is from a tributary of the River Usk which is diverted into the feeder channel via a weir across the tributary channel. Flow is diverted to the canal via a 2.650m wide V-notch (90 degree) thin plate weir across the tributary channel. Flow into the feeder is then controlled by a 550mm x 550mm sluice which discharges directly into a settling chamber. Flow continues over a 2.030m wide V-notch (90 degree) thin plate weir, before discharging via an open channel to the Monmouthshire & Brecon Canal.</p> <p>CRT have applied for maximum quantities as follows: cubic metres per hour: 3,216.60</p>
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	<p>cubic metres per day: 77,197.35 cubic metres per year: 2,247,543.00 litres per second: 894</p> <p><u>PAN-006996 CRT abstraction at Mill Turn</u> This abstraction is from Nant Rhyd-y-Meirch which is diverted into a feeder pipeline via a rock dam/weir structure. Flow is diverted into a feeder pipeline via an approx. 3m wide rock dam/weir structure. Flow continues through a 0.300m diameter plastic pipeline for approx. 380m, before discharging by gravity to the M&B Canal.</p> <p>CRT have applied for maximum quantities as follows: cubic metres per hour: 637.90 cubic metres per day: 15,310.10 cubic metres per year: 1,941,148.80 litres per second: 177</p> <p><u>PAN-006997 CRT abstraction at Ochram Turn</u> This abstraction is from an unnamed tributary of Ochram Brook which is diverted into the feeder channel via a weir across the channel. Flow is diverted to the canal via a 2.000m wide V-notch (90 degree) thin plate weir across the tributary channel. Flow into the feeder is then controlled by a 560mm x 560mm sluice which discharges directly into a settling chamber. Flow continues over a 2.100m wide V-notch (90 degree) thin plate weir, before discharging via an open channel to the Monmouthshire & Brecon Canal.</p> <p>CRT have applied for maximum quantities as follows: cubic metres per hour: 1,692.90 cubic metres per day: 40,629.49 cubic metres per year: 1,197,813.20 litres per second: 470</p> <p><u>PAN-006998 CRT abstraction at Brecon Weir</u> This abstraction is from the main River Usk at Brecon which is diverted into the feeder channel via a main river weir. Flow is diverted to the canal via a 220m main river weir. Flow into the feeder is then controlled by a sluice which discharges into a settling pond. A secondary automated 0.9m x 0.9m sluice then discharges from this pond into a culvert which then discharges to the Monmouthshire & Brecon canal at Brecon Basin, 1km downstream. The abstraction is monitored via the Trust's telemetry/SCADA (Supervisory Control and Data Acquisition) system approximately 1km downstream of the abstraction on the Monmouthshire & Brecon Canal. An ADCP (Acoustic Doppler Current Profiler) is installed at the location.</p>
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	<p>CRT have applied for maximum quantities as follows: cubic metres per hour: 2,295.40 cubic metres per day: 39,660 cubic metres per year: 8,623,778 litres per second: 680</p> <p><u>PAN-006999 CRT abstraction from Trosnant Spring</u> This abstraction is from a spring before it enters a watercourse. The spring is captured underground in a chamber, the chamber is trapezoid back to the retaining wall, then there is a 1m cubed alcove stretching beyond the retaining wall and then at the back of this there is a 50cm wide by 30cm high by 30cm deep alcove further into the retaining wall/hillside. The whole structure is brick until the back wall of the very deepest part which is broken stone. Flow goes to the canal via a 6inch pipe to the canal.</p> <p>CRT have applied for maximum quantities as follows: cubic metres per hour: 566.30 cubic metres per day: 5,180.00 cubic metres per year: 16,850.00 litres per second: 157</p>																										
Relevant legislation	<p>Environment Act 1995 Water Resources Act 1991 as amended by the Water Act 2003 Water Resources (Abstraction and Impounding) Regulations 2006 Article 3 of the Natural Resources Body for Wales (Establishment) Order 2012 The Natural Resources Body for Wales (Functions) Order 2013 Water Abstraction (Transitional Provisions) Regulations 2017</p>																										
Locations	<table><tr><th>Site</th><th>NGR's</th><th>Watercourse name</th></tr><tr><td>Llangattock Intakes</td><td>SO 20844 16956 and SO 20857 16966</td><td>Nant Onnau Fach</td></tr><tr><td>Cwm Crawnon Intake</td><td>SO 14327 19473</td><td>Afon Crawnon</td></tr><tr><td>Castle Turn Intake</td><td>SO 29207 11704</td><td>Unnamed tributary of the River Usk</td></tr><tr><td>Mill Turn Intake</td><td>SO 30500 07288</td><td>Gwenffrwd</td></tr><tr><td>Ochram Turn</td><td>SO 29704 09116</td><td>Unnamed tributary of Ochram Brook</td></tr><tr><td>Brecon Intake</td><td>SO 03975 28882</td><td>River Usk</td></tr><tr><td>Trosnant Spring Intake</td><td>SO 28420 00498</td><td>Trosnant Spring</td></tr></table>			Site	NGR's	Watercourse name	Llangattock Intakes	SO 20844 16956 and SO 20857 16966	Nant Onnau Fach	Cwm Crawnon Intake	SO 14327 19473	Afon Crawnon	Castle Turn Intake	SO 29207 11704	Unnamed tributary of the River Usk	Mill Turn Intake	SO 30500 07288	Gwenffrwd	Ochram Turn	SO 29704 09116	Unnamed tributary of Ochram Brook	Brecon Intake	SO 03975 28882	River Usk	Trosnant Spring Intake	SO 28420 00498	Trosnant Spring
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Ochram Turn	SO 29704 09116	Unnamed tributary of Ochram Brook																									
Brecon Intake	SO 03975 28882	River Usk																									
Trosnant Spring Intake	SO 28420 00498	Trosnant Spring																									

Please see overall location map in figure 1 below (detailed location maps for each site can be found in [Annex A](#) at the end of this HRA).

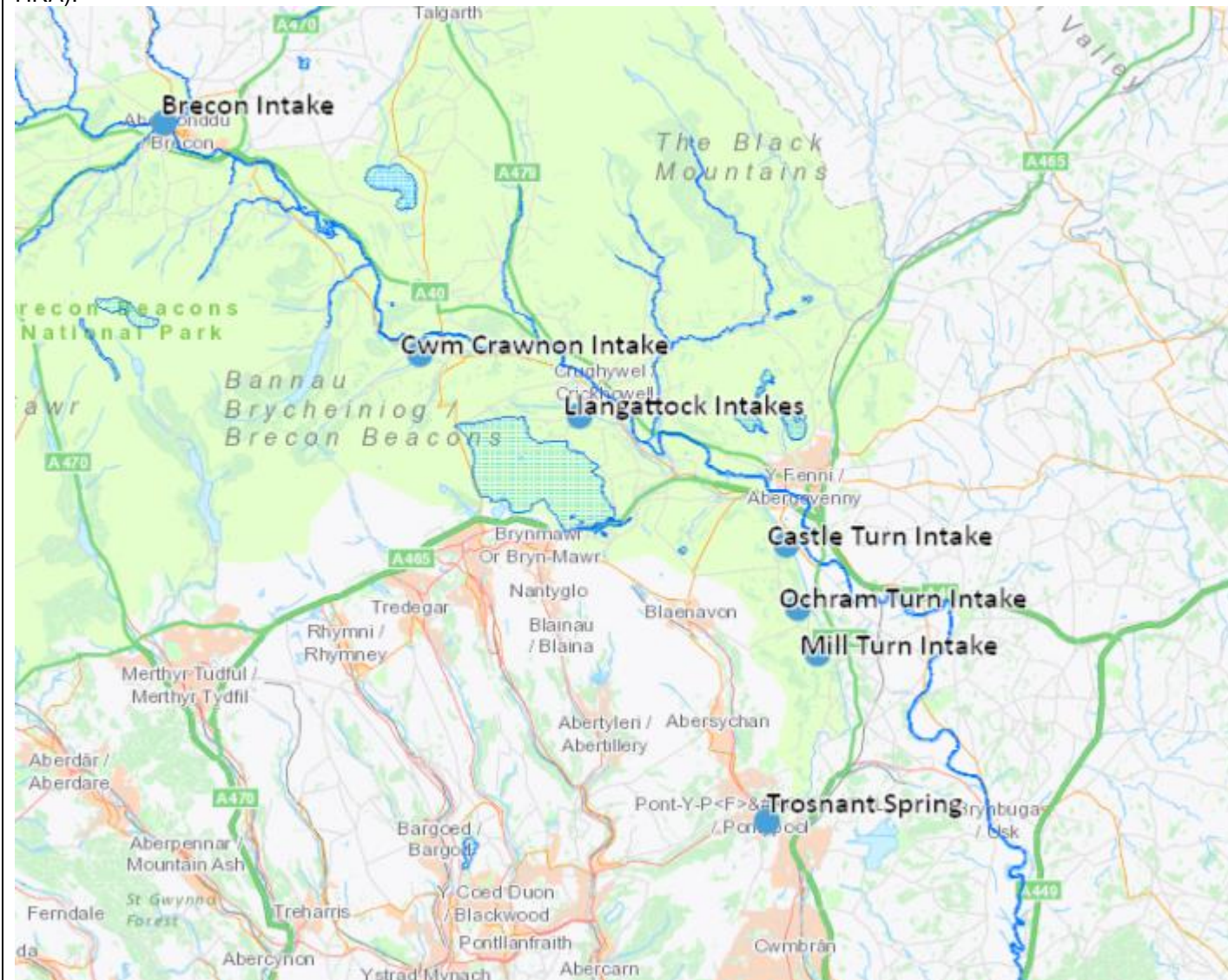


	Figure 1. Map showing locations of the 7 intake sites and the River Usk SAC (thick blue line).			
Application documents	Site	DMS Folder	Application form	Supporting Information
	Llangattock Intakes	PAN-006993	WRH	Supporting Information Llangattock
	Cwm Crawnnon Intake	PAN-006994	WRH	Supporting Information Cwm Crawnnon
	Castle Turn Intake	PAN-006995	WRH	Supporting Information Castle Turn
	Mill Turn Intake	PAN-006996	WRH	Supporting Information Mill Turn
	Ochram Turn	PAN-006997	WRH	Supporting Information Ochram Turn
	Brecon Intake	PAN-006998	WRH	Supporting Information Brecon
	Trosnant Spring Intake	PAN-006999	WRH	Supporting Information Trosnant original
				Supporting Information Trosnant updated
				Fishtek Report (relevant to all sites)
Environmental Statement	N/a			
Pre-application correspondence	<p>No formal pre application was undertaken for these applications but there have been extensive discussions through 2 working groups set up in relation to licensing these abstractions. These are the Water Resources Modelling Group and the Environment and Regulatory Group. Each group had representatives from CRT, DCWW and NRW attending.</p> <p>Meeting notes from the Environment and Regulatory Group can be found in folder PAN-006998, for meeting notes from the Modelling Group, please contact Hydrology.</p>			
NRW team responsible for drafting this HRA report, and name of lead officer	Water Resources Permitting Team – Emma Allcorn			

2. Determining the need for a Habitats Regulations Assessment

2.1 Is the whole of the project directly connected with or necessary to the management of one or more Natura 2000 sites, for the purposes of conserving the habitats or species for which the Natura 2000 site(s) is/are designated?	No
2.2 Is there a possibility that the project could affect a different Natura 2000 site to the one(s) the project is intended to conserve?	n/a
2.3 Is it necessary to carry out an HRA?	Yes

3. Considering the likelihood of a significant effect (LSE)

3.1 Renewal of a permission on the same or more restrictive terms as the extant permission

Is this project a renewal of a current permission which complies with NRW approved criteria for ruling out significant effects of renewals (see section 6.2A of OGN 200) without conducting a project-specific LSE test?	No
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3.2 Likelihood of significant effects (LSE) test

3.2.1 Which Natura 2000 sites might be affected by the proposal?	Based on the project specification or information provided in the application, it is considered that the following Natura 2000 sites have features which could be affected by the project: River Usk SAC Severn Estuary (Wales) SAC Severn Estuary (Wales) Ramsar and SPA		
3.2.2 Screening assessment			
	Assessment of likelihood of significant effect		
	I Relevant conservation objectives	II Potential impact pathway	
River Usk SAC UK0013007 version 1.5, 2008			
Allis shad	4.1 Conservation Objective for the water course 4.1.1 The capacity of the habitats in the SAC to support each feature at near-natural population levels, as determined by predominantly unmodified ecological and hydromorphological processes and characteristics, should be maintained as far as possible, or restored where necessary. 4.1.2 The ecological status of the water environment should be sufficient to maintain a stable or increasing population of each feature. This will include elements of water quantity and quality, physical habitat and community composition and structure. 4.1.3 Flow regime, water quality and physical habitat should be maintained in, or restored as far as possible to, a near-natural state, in order to support the coherence of ecosystem structure	Brecon Intake The CRT abstraction at Brecon Weir takes water directly from the River Usk, therefore, reducing flows in the River Usk SAC. This reduction in flow has the potential to impact on the habitat and passage of the fish species for which the SAC is designated. The abstraction could also cause a risk of entrainment and/or impingement of fish at the intake point. Modelling, and previous HD RoC work, assessing the impact of the current abstraction shows it is having a significant impact on the River Usk with the abstraction causing flows to frequently fall below the HDERF line.	
Twaite shad			
Bullhead			
River lamprey			
Brook lamprey			
Otter			
Sea lamprey			
Atlantic salmon		Cwm Cwannon Intake This CRT abstraction is from the Afon Cwannon. The Cwannon flows into the River Usk approximately 638m downstream of the abstraction point and is considered supporting habitat to the River Usk SAC. Reduction in flow in the supporting habitat	

	<p>and function across the whole area of the SAC.</p> <p>4.1.4 All known breeding, spawning and nursery sites of species features should be maintained as suitable habitat as far as possible, except where natural processes cause them to change.</p> <p>4.1.5 Flows, water quality, substrate quality and quantity at fish spawning sites and nursery areas will not be depleted by abstraction, discharges, engineering or gravel extraction activities or other impacts to the extent that these sites are damaged or destroyed.</p> <p>4.1.6 The river planform and profile should be predominantly unmodified. Physical modifications having an adverse effect on the integrity of the SAC, including, but not limited to, revetments on active alluvial river banks using stone, concrete or waste materials, unsustainable extraction of gravel, addition or release of excessive quantities of fine sediment, will be avoided.</p> <p>4.1.7 River habitat SSSI features should be in favourable condition. In the case of the Usk Tributaries SSSI, the SAC habitat is not underpinned by a river habitat SSSI feature. In this case, the target is to maintain the characteristic physical features of the river channel, banks and riparian zone.</p> <p>4.1.8 Artificial factors impacting on the capability of each species feature to occupy the full extent of its natural range should be modified where necessary to allow passage, eg. weirs, bridge sills, acoustic barriers.</p> <p>4.1.9 Natural factors such as waterfalls, which may limit the natural range of a species feature or dispersal between naturally isolated populations, should not be modified.</p> <p>4.1.10 Flows during the normal migration periods of each migratory fish species feature will not be depleted by</p>	<p>and therefore into the River Usk has the potential to impact on the habitat and passage of the fish species for which the SAC is designated. The abstraction could also cause a risk of entrainment and/or impingement of fish at the intake point. This abstraction has been previously assessed as part of HD RoC and is considered to have potential to impact the River Usk SAC when considered alone.</p> <p><u>Llangattock Intake</u> This CRT abstraction is from 2 intake points on the Nant Onnau-fach. The Nant Onnau-fach flows into the River Usk approximately 1.45km downstream of the abstraction points and is considered supporting habitat to the River Usk SAC. Reduction in flow in the supporting habitat and into the River Usk has the potential to impact on the habitat and passage of the fish species for which the SAC is designated. The abstraction could also cause a risk of entrainment and/or impingement of fish at the intake point.</p> <p><u>Castle Turn Intake</u> This CRT abstraction is from an unnamed tributary of the River Usk. The tributary flows into the River Usk approximately 698m downstream of the abstraction point and is considered supporting habitat to the River Usk SAC. Reduction in flow in the supporting habitat and into the River Usk has the potential to impact on the habitat and passage of the fish species for which the SAC is designated. The abstraction could also cause a risk of entrainment and/or impingement of fish at the intake point.</p> <p><u>Ochram Turn Intake</u> This CRT abstraction is from an unnamed tributary of the Ochram Brook. The tributary flows for approximately 378m before joining the Ochram Brook which then flows a further 2.4km before joining the River Usk and is considered supporting habitat to the River Usk SAC. Reduction in flow in the supporting habitat and into the River Usk has the potential to impact on the habitat and passage of the fish species for which the SAC is designated. The abstraction could also cause a risk of entrainment and/or impingement of fish at the</p>	
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	<p>abstraction to the extent that passage upstream to spawning sites is hindered.</p> <p>4.1.11 Flow objectives for assessment points in the Usk Catchment Abstraction Management Strategy will be agreed by NRW as necessary</p> <p>4.1.12 Levels of nutrients, in particular phosphate, will be agreed by NRW for each Water Framework Directive water body in the Usk SAC, and measures taken to maintain nutrients below these levels.</p> <p>4.1.13 Levels of water quality parameters that are known to affect the distribution and abundance of SAC features will be agreed by NRW for each Water Framework Directive water body in the Usk SAC, and measures taken to maintain pollution below these levels.</p> <p>4.1.14 Potential sources of pollution not addressed in the Review of Consents, such as contaminated land, will be considered in assessing plans and projects.</p> <p>4.1.15 Levels of suspended solids will be agreed by NRW for each Water Framework Directive water body in the Usk SAC. Measures including, but not limited to, the control of suspended sediment generated by agriculture, forestry and engineering works, will be taken to maintain suspended solids below these levels.</p>	<p>intake point.</p> <p>Mill Turn Intake This CRT abstraction is from the Gwenffrwd which is a tributary of the River Usk. The Gwenffrwd (which becomes the Nant Rhyd-y-Meirch) flows for approximately 4.93km before the River Usk and is considered supporting habitat to the River Usk SAC. Reduction in flow in the supporting habitat and into the River Usk has the potential to impact on the habitat and passage of the fish species for which the SAC is designated. The abstraction could also cause a risk of entrainment and/or impingement of fish at the intake point. This abstraction has not been previously assessed as part of HD RoC but is considered to have potential to impact the River Usk SAC when considered alone.</p> <p>Trosnant Spring Intake This CRT abstraction is from a spring known as Trosnant Spring. The spring water is captured in an underground chamber and diverted into the canal. The spring is adjacent to the Trosnant Brook which flows via a culverted section into the Afon Lwyd approximately 219m downstream. The Afon Lwyd then flows for approximately 16.9km before joining the River Usk in Caerleon and subsequently joining the Severn Estuary.</p> <p>The spring overflows to the brook and if the abstraction were not present, the spring would contribute flow to the brook, therefore we consider them hydrologically linked. The brook then flows into the Afon Lwyd which provides supporting habitat to the River Usk SAC and the Severn Estuary SAC. SAC migratory fish features are present in the Afon Lwyd (although not above the culvert within the brook itself). Reduction in flow in the supporting habitat in the Afon Lwyd has the potential to impact on the habitat and passage of the fish species for which the Severn Estuary SAC is designated.</p> <p>The spring abstraction was previously licensed to a different holder (under licence number 19/55/12/0076) and was included in the documents for the HD RoC for the River Usk</p>	
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		<p>SAC. Following consultation and during a review of the previous HD RoC work, NRW noted that the previous licence present for Trosnant Spring had been included in the River Usk SAC HD RoC process (licensed at a lower volume of just over 1,000 cubic metres per day), impact as a result of that licence had been ruled out at Stage 2 of HD RoC (in approximately 2001). Having considered the previous HD RoC work there is no evidence this decision was based on any environmental assessment and no consideration had been made regarding impacts on the Severn Estuary SAC migratory fish features for which the Afon Lwyd provides supporting habitat. Therefore, the environmental impact needs to be considered.</p> <p>As this abstraction is from a catchpit, and not a river, there is no risk of entrainment and/or impingement of fish at the intake point.</p>	
Rivers with floating vegetation often dominated by water crowfoot	<p>4.4.1 The conservation objective for the water course as defined in 4.1 above must be met</p> <p>4.4.2 The natural range of the plant communities represented within this feature should be stable or increasing in the SAC. The natural range is taken to mean those reaches where predominantly suitable habitat exists over the long term. Suitable habitat and associated plant communities may vary from reach to reach. Suitable habitat is defined in terms of near-natural hydrological and geomorphological processes and forms eg. depth and stability of flow, stability of bed substrate, and ecosystem structure and functions eg. nutrient levels, shade (as described in section 2.4 of management plan). Suitable habitat for the feature need not be present throughout the SAC but where present must be secured for the foreseeable future, except where natural processes cause it to decline in extent.</p> <p>4.4.3 The area covered by the feature within its natural range in the SAC should be stable or increasing.</p>	As above	

	4.4.4 The conservation status of the feature's typical species should be favourable. The typical species are defined with reference to the species composition of the appropriate JNCC river vegetation type for the particular river reach, unless differing from this type due to natural variability when other typical species may be defined as appropriate.		
Otter	<p>4.3.1 The population of otters in the SAC is stable or increasing over the long term and reflects the natural carrying capacity of the habitat within the SAC, as determined by natural levels of prey abundance and associated territorial behaviour</p> <p>4.3.2 The natural range of otters in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future. The natural range is taken to mean those reaches that are potentially suitable to form part of a breeding territory and/or provide routes between breeding territories. The whole area of the Usk SAC is considered to form potentially suitable breeding habitat for otters. The size of breeding territories may vary depending on prey abundance. The population size should not be limited by the availability of suitable undisturbed breeding sites. Where these are insufficient they should be created through habitat enhancement and where necessary the provision of artificial holts. No otter breeding site should be subject to a level of disturbance that could have an adverse effect on breeding success. Where necessary, potentially harmful levels of disturbance must be managed.</p> <p>4.3.3 The safe movement and dispersal of individuals around the SAC is facilitated by the provision, where necessary, of suitable riparian habitat, and underpasses, ledges, fencing etc at road bridges and other artificial barriers.</p>	As above.	
Severn Estuary SAC			
Estuaries (1130)	vi. the abundance of the notable estuarine species assemblages is maintained or increased;	as above.	
Note, a sub			

feature of the Estuaries feature is 'Assemblage of fish species (>100 species)', which includes the 7 diadromous species (river lamprey, sea lamprey, twaite shad, allis shad, sea trout, Atlantic salmon and European eel.) considered below. The other fish species within the estuarine assemblage can be ruled out by virtue of a lack of functional linkage with the impacted reaches.			
Subtidal sandbanks (1110)	<ul style="list-style-type: none"> i. the total extent of the subtidal sandbanks within the site is maintained; ii. the extent and distribution of the individual subtidal sandbank communities within the site is maintained; iii. the community composition of the subtidal sandbank feature within the site is maintained; iv. the variety and distribution of sediment types across the subtidal sandbank feature is maintained; v. the gross morphology (depth, distribution and profile) of the subtidal sandbank feature within the site is maintained. 		
Intertidal mudflats and sandflats (1140)	<ul style="list-style-type: none"> i. The total extent of the mudflats and sandflats feature is maintained; 		

	<p>ii. the variety and extent of individual mudflats and sandflats communities within the site is maintained;</p> <p>iii. the distribution of individual mudflats and sandflats communities within the site is maintained;</p> <p>iv. the community composition of the mudflats and sandflats feature within the site is maintained;</p> <p>v. the topography of the intertidal flats and the morphology (dynamic processes of sediment movement and channel migration across the flats) are maintained.</p>		
Atlantic salt meadows (1330)	<p>i. the total extent of Atlantic salt meadow and associated transitional vegetation communities within the site is maintained;</p> <p>ii. the extent and distribution of the individual Atlantic salt meadow and associated transitional vegetation communities within the site is maintained;</p> <p>iii. the zonation of Atlantic salt meadow vegetation communities and their associated transitions to other estuary habitats is maintained;</p> <p>iv. the relative abundance of the typical species of the Atlantic salt meadow and associated transitional vegetation communities is maintained;</p> <p>v. the abundance of the notable species of the Atlantic salt meadow and associated transitional vegetation communities is maintained.</p> <p>vi. the structural variation of the salt marsh sward (resulting from grazing) is maintained within limits sufficient to satisfy the requirements of conditions iv and v above and the requirements of the Ramsar and SPA features</p> <p>vii. the characteristic stepped morphology of the salt marshes and associated creeks, pills, drainage ditches and pans, and</p>		

	<p>the estuarine processes that enable their development, is maintained.</p> <p>viii. Any areas of <i>Spartina anglica</i> salt marsh (SM6) are capable of developing naturally into other saltmarsh communities.</p>		
Reefs (1170)	<p>i. the total extent and distribution of Sabellaria reef is maintained;</p> <p>ii. the community composition of the Sabellaria reef is maintained;</p> <p>iii. the full range of different age structures of Sabellaria reef are present;</p> <p>iv. the physical and ecological processes necessary to support Sabellaria reef are maintained.</p>		
River lamprey (1099)	<p>i. the migratory passage of both adult and juvenile river lamprey through the Severn Estuary between the Bristol Channel and any of their spawning rivers is not obstructed or impeded by physical barriers, changes in flows, or poor water quality;</p> <p>ii. the size of the river lamprey population in the Severn Estuary and the rivers which drain into it, is at least maintained and is at a level that is sustainable in the long term;</p> <p>iii. the abundance of prey species forming the river lamprey's food resource within the estuary, is maintained.</p> <p>iv. Toxic contaminants in the water column and sediment are below levels which would pose a risk to the ecological objectives described above.</p>	As per River Usk SAC comments.	
Sea lamprey (1095)	<p>i. the migratory passage of both adult and juvenile sea lamprey through the Severn Estuary between the Bristol Channel and any of their spawning rivers is not obstructed or impeded by physical barriers, changes in flows, or poor water quality;</p>		

	<p>ii. the size of the sea lamprey population in the Severn Estuary and the rivers which drain into it, is at least maintained as is at a level that is sustainable in the long term;</p> <p>iii. the abundance of prey species forming the sea lamprey's food resource within the estuary, is maintained.</p> <p>vi. Toxic contaminants in the water column and sediment are below levels which would pose a risk to the ecological objectives described above.</p>		
Twaite shad (1103)	<p>i. the migratory passage of both adult and juvenile twaite shad through the Severn Estuary between the Bristol Channel and their spawning rivers is not obstructed or impeded by physical barriers, changes in flows or poor water quality;</p> <p>ii. the size of the twaite shad population within the Severn Estuary and the rivers draining into it is at least maintained and is at a level that is sustainable in the long term.</p> <p>iii. the abundance of prey species forming the twaite shad's food resource within the estuary, in particular at the salt wedge, is maintained.</p> <p>iv. Toxic contaminants in the water column⁴ and sediment are below levels which would pose a risk to the ecological objectives described above.</p>		
Severn Estuary SPA			
Bewick's swan	<p>(i) the 5 year peak mean population size for the Bewick's swan population is no less than 289 individuals (ie the 5 year peak mean between 1988/9 - 1992/3);</p> <p>(ii) the extent of saltmarsh at the Dumbles (Appendix 8: Map 1) is maintained;</p> <p>(iii) the extent of intertidal mudflats and sandflats at Frampton Sands, Waveridge Sands and the Noose (Appendix 8: Map 1) is maintained;</p>	<p>The abstractions are located a significant distance (>49.2km from the lowest abstraction point on the River Usk to the Severn Estuary SPA, the lowest being the Mill Turn intake, otherS are a significant distance further upstream) from this SPA boundary and the proposals do not have the potential to impact relevant conservation objectives of these interest features.</p>	

	<p>(iv) the extent of vegetation with an effective field size of >6 ha and with unrestricted bird sightlines > 500m at feeding, roosting and refuge sites (Appendix III) are maintained;</p> <p>(v) greater than 25% cover of suitable soft leaved herbs and grasses in winter season throughout the transitional saltmarsh at the Dumbles (Appendix 8: Map 1) is maintained;</p> <p>(vi) aggregations of Bewick's swan at feeding, roosting and refuge sites are not subject to significant disturbance.</p>		
European white-goose	<p>(i) the 5 year peak mean population size for the wintering European white fronted goose population is no less than 3,002 individuals (ie the 5 year peak mean between 1988/9-1992/3);</p> <p>(ii) the extent of saltmarsh at the Dumbles (Appendix 8: Map 1) is maintained;</p> <p>(iii) the extent of intertidal mudflats and sandflats at Frampton Sands, Waveridge Sands and the Noose (Appendix 8: Map 1) is maintained;</p> <p>(iv) greater than 25% cover of suitable soft-leaved herbs and grasses³ is maintained during the winter on saltmarsh areas (Appendix 8: Map 1);</p> <p>(v) unrestricted bird sightlines of >200m at feeding and roosting sites are maintained;</p> <p>(vi) aggregations of European white-fronted goose at feeding or roosting sites are not subject to significant disturbance.</p>		
Dunlin	<p>(i) the 5 year peak mean population size for the wintering dunlin population is no less than 41,683 individuals (ie the 5 year peak mean between 1988/9 - 1992/3);</p> <p>(ii) the extent of saltmarsh (Appendix 8) and associated strandlines is maintained;</p> <p>(iii) the extent of intertidal mudflats and sandflats (Appendix 8) is maintained;</p>		

	<p>(iv) the extent of hard substrate habitats (Appendix 8) is maintained;</p> <p>(v) the extent of vegetation with a sward height of <10cm is maintained throughout the saltmarsh (Appendix 8);</p> <p>(vi) the abundance and macro-distribution of suitable invertebrates in intertidal mudflats and sandflats (Appendix 8) is maintained;</p> <p>(vii) the abundance and macro-distribution of suitable invertebrates in hard substrate habitats (Appendix 8) is maintained;</p> <p>(viii) unrestricted bird sightlines of >200m at feeding and roosting sites are maintained;</p> <p>(ix) aggregations of dunlin at feeding or roosting sites are not subject to significant disturbance.</p>		
Redshank	<p>(i) the 5 year peak mean population size for the wintering redshank population is no less than 2,013 individuals (ie the 5 year peak mean between 1988/9 - 1992/3);</p> <p>(ii) the extent of saltmarsh (Appendix 8) and associated strandlines is maintained;</p> <p>(iii) the extent of intertidal mudflats and sandflats (Appendix 8) is maintained;</p> <p>(iv) the extent of hard substrate habitats (Appendix IV) is maintained;</p> <p>(v) the extent of vegetation with a sward height of <10cm throughout the saltmarsh (Appendix 8) is maintained;</p> <p>(vi) the abundance and macro-distribution of suitable invertebrates in intertidal mudflats and sandflats (Appendix 8) is maintained;</p>		

	<p>(vii) the abundance and macro-distribution of suitable invertebrates in hard substrate habitats (Appendix 8) is maintained;</p> <p>(viii) unrestricted bird sightlines of >200m at feeding and roosting sites are maintained;</p> <p>(ix) aggregations of redshank at feeding or roosting sites are not subject to significant disturbance.</p>		
Shelduck	<p>(i) the 5 year peak mean population size for the wintering shelduck population is no less than 2,892 individuals (ie the 5 year peak mean between 1988/9 - 1992/3);</p> <p>(ii) the extent of saltmarsh (Appendix 8) is maintained;</p> <p>(iii) the extent of intertidal mudflats and sandflats (Appendix 8) is maintained;</p> <p>(iv) the extent of hard substrate habitats (Appendix 8) is maintained;</p> <p>(v) the abundance and macro-distribution of suitable invertebrates³ in intertidal mudflats and sandflats (Appendix 8) is maintained;</p> <p>(vi) unrestricted bird sightlines of >200m at feeding and roosting sites are maintained; (vii) aggregations of shelduck at feeding or roosting sites are not subject to significant disturbance.</p>		
Gadwall	<p>(i) the 5 year peak mean population size for the wintering gadwall population is no less than 330 (ie the 5 year peak mean between 1988/9 - 1992/3);</p> <p>(ii) the extent of intertidal mudflats and sandflats (Appendix 8) is maintained;</p> <p>(iii) unrestricted bird sightlines of >200m at feeding and roosting sites are maintained; (iv) aggregations of gadwall at</p>		

	feeding or roosting sites are not subject to significant disturbance.		
An internationally important assemblage of waterfowl	<p>(i) the 5 year peak mean population size for the waterfowl assemblage is no less than 68,026 individuals (ie the 5 year peak mean between 1988/9 - 1992/3);</p> <p>(ii) the extent of saltmarsh (Appendix 8) and their associated strandlines is maintained;</p> <p>(iii) the extent of intertidal mudflats and sandflats (Appendix 8) is maintained;</p> <p>(iv) the extent of hard substrate habitats (Appendix 8) is maintained;</p> <p>(v) extent of vegetation of <10cm throughout the saltmarsh (Appendix 8) is maintained;</p> <p>(vi) the abundance and macroscale distribution of suitable invertebrates³ in intertidal mudflats and sandflats (Appendix 8) is maintained;</p> <p>(vii) the abundance and macroscale distribution of suitable invertebrates³ in hard substrate habitats (Appendix IV) is maintained;</p> <p>(viii) greater than 25% cover of suitable soft leaved herbs and grasses⁴ during the winter on saltmarsh areas (Appendix 8) is maintained;</p> <p>(ix) unrestricted bird sightlines of >500m at feeding and roosting sites are maintained;</p> <p>(x) waterfowl aggregations at feeding or roosting sites are not subject to significant disturbance.</p>		
Severn Estuary Ramsar			
Estuaries	i. the total extent of the estuary is maintained;	As above	

<p><i>Note, a sub feature of the Estuaries feature is 'Assemblage of fish species (>100 species)', which includes the 7 diadromous species (river lamprey, sea lamprey, twaite shad, allis shad, sea trout, Atlantic salmon and European eel.) considered below. The other fish species within the estuarine assemblage can be ruled out by virtue of a lack of functional linkage with the impacted reaches.</i></p>	<ul style="list-style-type: none"> ii. the characteristic physical form (tidal prism/cross sectional area) and flow (tidal regime) of the estuary is maintained iii. the characteristic range and relative proportions of sediment sizes and sediment budget3 within the site is maintained; iv. the extent, variety and spatial distribution of estuarine habitat communities within the site is maintained v. the extent, variety, spatial distribution and community composition of hard substrate habitats and their notable communities is maintained; vi. the abundance of the notable estuarine species assemblages is maintained or increased; vii. the physico-chemical characteristics of the water column support the ecological objectives described above; viii. Toxic contaminants in water column and sediment are below levels which would pose a risk to the ecological 	<p>As detailed above, the Trosnant spring abstraction is considered hydrologically linked to the Afon Lwyd which provides supporting habitat to the Severn Estuary SAC and SAC migratory fish features are present in the Afon Lwyd (although not above the culvert within the Trosnant brook itself). Reduction in flow in the supporting habitat in the Afon Lwyd has the potential to impact on the habitat and passage of the fish species for which the Severn Estuary SAC is designated.</p>	
<p>Assemblage of migratory fish species:</p> <p>Sea Lamprey <i>Petromyzon marinus</i></p> <p>River Lamprey <i>Lampetra fluviatilis</i></p> <p>Twaite Shad <i>Alosa fallax</i></p> <p>Allis shad <i>Alosa alosa</i></p> <p>Salmon</p>	<ul style="list-style-type: none"> i. the migratory passage of both adults and juveniles of the assemblage of migratory fish species through the Severn Estuary between the Bristol Channel and any of their spawning rivers is not obstructed or impeded by physical barriers, changes in flows, or poor water quality; ii the size of the populations of the assemblage species in the Severn Estuary and the rivers which drain into it, is at least maintained and is at a level that is sustainable in the long term; iii. the abundance of prey species forming the principle food resources for the assemblage species within the estuary, is maintained. iv. Toxic contaminants in the water column and sediment are 	<p>As above.</p> <p>The impact on flows and risks of entrapment and entrainment raised in the River Usk SAC comments are also relevant to the sea trout and European eel that are part of this feature.</p>	

<i>Salmo salar</i> Sea trout <i>S. trutta</i> Eel <i>Anguilla Anguilla</i>	below levels which would pose a risk to the ecological objectives described above.		
Bewick's Swan European white-fronted goose Dunlin Redshank Shelduck Gadwall	The conservation objective for these features of the Severn Estuary Ramsar Site are to maintain the features in a favourable condition, as defined by the conservation objectives for the SPA feature (see above).	The abstractions are located a significant distance (>49.2km from the lowest abstraction point on the River Usk to the Severn Estuary Ramsar, the lowest being the Mill Turn intake, others are a significant distance further upstream) from this Ramsar boundary and the proposals do not have the potential to impact relevant conservation objectives of these interest features.	
Internationally important assemblage of waterfowl	The conservation objective for the "internationally important assemblage of waterfowl" feature of the Severn Estuary Ramsar Site is to maintain the feature in favourable condition, as defined by the conservation objective for the SPA "internationally important assemblage of waterfowl" feature		

3.2.3 Screening decision of the project 'alone'

(a) If ALL rows in column II of Table 3.2.2 are GREEN	The project is not likely to have a significant effect on any Natura 2000 site, because there is no impact pathway from the project to any Natura 2000 features, and no further consideration under the Habitats Directive/Regulations is required in order to determine the application.
(b) If there are NO rows coloured RED in column II of Table 3.2.2, and there are ANY rows which are BLUE	The project is not likely to have a significant effect on any Natura 2000 sites when considered alone, but the possibility of significant effects in combination with other plans and projects needs to be considered.
(c) If ANY rows in Column II of	The project is likely to have a significant effect on one or more Natura 2000 sites and therefore an appropriate

Table 3.2.2 are RED	assessment is required.
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4. Appropriate assessment of the project when considered alone

4.1 Assessment of project as currently defined

Natura 2000 site feature (from Table 3.2.2 – RED rows only)	Impact pathway(s) (from Table 3.2.2)	Description of impacts	Assessment in view of conservation objectives	Can adverse effect on site integrity be ruled out? 'YES' or 'NO' *
River Usk SAC				
<div> <div>Allis shad</div> <div>Twaite shad</div> <div>Bullhead</div> <div>River lamprey</div> <div>Brook lamprey</div> <div>Otter</div> <div>Sea lamprey</div> <div>Atlantic salmon</div> </div>	Reduction in flows in the River Usk as a result of the Brecon intake and reduction in flows within supporting habitat and into the River Usk as a result of the 6 other intakes.	Brecon Intake The CRT abstraction at Brecon Weir takes water directly from the River Usk, therefore, reducing flows in the River Usk SAC. This reduction in flow has the potential to impact on the habitat of and passage of Atlantic Salmon to their spawning grounds. The abstraction could also cause a risk of entrainment and/or impingement of fish at the intake point. Migrating salmon smolts are known to be present at this location . However, the habitat is not suitable for other life stages of salmonids. Sea lamprey, shad and river lamprey can't get up this far in the catchment.	The reduction in flows and risks of entrapment or entrainment to fish as a result of these abstractions could impact on availability of suitable fish habitat and fish movement within the River Usk SAC and its supporting habitat leading to negative impacts on the fish population. These effects may increase the risk of the following conservation objectives not being met; 4.1.1, 4.1.2, 4.1.3, 4.1.4 & 4.1.5 – the reduced flows could affect hydro morphological processes, suitable habitat and population levels. 4.1.8 & 4.1.10– the reduction in flow could impact on the ability of fish migration over existing structures. Impacts on fish population could have implications for Otters via impacts on prey abundance and therefore objective 4.3.1 & 4.3.2 are at risk of not being met.	No
Rivers with floating vegetation often dominated by water crowfoot	Migratory species are present within the River Usk and likely to be within the supporting habitat and be affected by low flows. Low river flows will also reduce available habitat. Risk to entrapment or entrainment to fish.	Previous HD RoC work, assessing the impact of the current unconstrained abstraction at Brecon showed it is having a significant impact on the River Usk. Modelling undertaken to aid determination of this application shows the abstraction is causing flows to frequently fall below the Habitats Directive Ecological River Flow		

		<p>(HDERF) line* (see Figure 9 in Annex B).</p> <p>*A Habitats Directive Ecological River Flow (HDERF) line was developed by the Habitats Directive Water Resources Technical Advisory Group (WR TAG) and established in 2002 as a national standard across England and Wales to help indicate where a pressure from abstraction (both spatially and temporally) may cause a risk of adverse effects to the integrity of a SAC site. The WR TAG guidance states that if the 'fully licensed' scenario flow is above the HDERF line then 'no adverse effect' on the integrity of the site can be concluded.</p> <p><u>Cwm Crawnnon Intake</u></p> <p>This abstraction is from supporting habitat and a river that flows into the River Usk SAC therefore, reducing flows in the River Usk SAC. This reduction in flow has the potential to impact on the habitat and passage of Atlantic Salmon to their spawning grounds. The abstraction could also cause a risk of entrainment and/or impingement of fish at the intake point.</p> <p>This abstraction was assessed during the HD RoC for the Usk SAC. The conclusion for this abstraction stated "following the changes to the Stage 4 abstractions, there was no requirement to modify the exempt British Waterways abstraction from the Afon Crawnnon, as a conclusion of no adverse effect on site integrity could be drawn". (British</p>		
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		<p>Waterways are now CRT)</p> <p>However, the exempt abstraction risk assessment (appended to the PDF version of the Usk_addendum_v3) indicated that the following applied "There is a risk of a known impact at the site i.e. you are aware that actual abstraction rates are affecting the site and it is likely that this is resulting in an impact." meaning "Future applications for exempt activities will require a full assessment under the Habitats Regulations"</p> <p>Since the HDROc was concluded, some SAC features have deteriorated and the Usk and Wye Abstractions Group (UWAG) work highlighted the importance of offside impacts (meaning supporting habitat such as the Crawnnon). Similarly, through working with UWAG, it was recognised that flows in the Crawnnon needed protecting to the HDERF, rather than just protecting flows in the Usk itself.</p> <p>Through the Usk Environment and Regulatory group (set up in relation to the current applications and future solutions) it was confirmed by NRW's ecologists that the flow objective that applies to the Crawnnon is the HDERF. The modelling, shows the current unconstrained abstraction at Crawnnon is having a significant impact on flows and the abstraction is causing flows to fall below the HDERF line (see CRT Feeders assessment spreadsheet in DMS file PAN-006994).</p>		
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		<p>The final documentation on the HD RoC is the "Usk_addendum_v3" (Feb 2011) is available in the following location L:\EAW\National N Drive\Habitats Directive\Plan Activities, Business Planning\South East Area\Usk\Final Documents</p> <p><u>Llangattock Intakes</u> These abstractions are from supporting habitat and rivers/streams that flow into the River Usk SAC.</p> <p>The Llangattock abstraction was partially assessed during the HD RoC but due to an absence of volumetric information it was not included within the HD RoC modelling.</p> <p>The exempt abstraction risk assessment indicated that the following applied "There is a risk of a known impact at the site i.e. you are aware that actual abstraction rates are affecting the site and it is likely that this is resulting in an impact."</p> <p>Through the Usk Environment and Regulatory group it was confirmed by NRW's ecologists that the flow objective that applies to the Nant Onnau is the HDERF and to protect from the risk of serious damage (and conclude no adverse effect) the abstraction needs to be curtailed to achieve this flow objective.</p> <p>The modelling, shows the current</p>		
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		<p>unconstrained abstraction from the Nant Onnau is having an impact on flows and the abstraction is causing flows to fall below the HDERF line (see CRT Feeders assessment spreadsheet in DMS file PAN-006994). The abstraction could also cause a risk of entrainment and/or impingement of fish at the intake point.</p> <p><u>Castle Turn Intake</u> This abstraction is from supporting habitat and a stream that flows into the River Usk SAC.</p> <p>The abstraction was partially assessed during the HD RoC but due to an absence of volumetric information it was not included within the HD RoC modelling.</p> <p>The exempt abstraction risk assessment indicated that the following applied "There is a risk of a known impact at the site i.e. you are aware that actual abstraction rates are affecting the site and it is likely that this is resulting in an impact."</p> <p>Through the Usk Environment and Regulatory group it was confirmed by NRW's Fisheries experts that the flow objective that applies to the Castle Turn intake is the CAMS EFI due to the absence of feature species in this location, the abstraction needs to be curtailed to achieve this flow objective.</p> <p>The modelling, shows the current</p>		
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		<p>unconstrained abstraction from the unnamed tributary of the River Usk is having an impact on flows and the abstraction is causing flows to fall below the CAMS EFI line (see CRT Feeders assessment spreadsheet in DMS file PAN-006994). Due to the absence of features species, the abstraction does not cause a risk of entrainment and/or impingement of fish at the intake point.</p> <p><u>Ochram Turn Intake</u> This abstraction is from supporting habitat and a stream that flows into the River Usk SAC.</p> <p>The abstraction was partially assessed during the HD RoC but due to an absence of volumetric information it was not included within the HD RoC modelling.</p> <p>The exempt abstraction risk assessment indicated that the following applied "There is a risk of a known impact at the site i.e. you are aware that actual abstraction rates are affecting the site and it is likely that this is resulting in an impact."</p> <p>Through the Usk Environment and Regulatory group it was confirmed by NRW's ecologists that the flow objective that applies to the Ochram Brook is the HDERF and to protect from the risk of serious damage (and conclude no adverse effect) the abstraction needs to be curtailed to achieve this flow objective.</p>		
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		<p>The modelling, shows the current unconstrained abstraction from the unnamed tributary of the brook is having an impact on flows and the abstraction is causing flows to fall below the HDERF line (see CRT Feeders assessment spreadsheet in DMS file PAN-006994). The abstraction could also cause a risk of entrainment and/or impingement of fish at the intake point.</p> <p><u>Mill Turn Intake</u> This abstraction is from supporting habitat and a stream that flows into the River Usk SAC.</p> <p>The was partially assessed during the HD RoC but due to an absence of volumetric information it was not included within the HD RoC modelling.</p> <p>The exempt abstraction risk assessment indicated that the following applied "There is a risk of a known impact at the site i.e. you are aware that actual abstraction rates are affecting the site and it is likely that this is resulting in an impact."</p> <p>Through the Usk Environment and Regulatory group it was confirmed by NRW's ecologists that the flow objective that applies to the Gwenffrwd is the HDERF and to protect from the risk of serious damage (and conclude no adverse effect) the abstraction needs to be curtailed to achieve this flow objective.</p>		
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		<p>The modelling, shows the current unconstrained abstraction from the Gwenffrwd is having an impact on flows and the abstraction is causing flows to fall below the HDERF line (see CRT Feeders assessment spreadsheet in DMS file PAN-006994).</p> <p>The abstraction could also cause a risk of entrainment and/or impingement of fish at the intake point.</p> <p><u>Trosnant Spring Intake</u> This CRT abstraction is from a spring known as Trosnant Spring. The spring water is captured in an underground chamber and diverted into the canal. The spring is adjacent to the Trosnant Brook which flows via a culverted section into the Afon Lwyd approximately 219m downstream. The Afon Lwyd then flows for approximately 16.9km before joining the River Usk in Caerleon and subsequently joining the Severn Estuary.</p> <p>The spring overflows to the brook and if the abstraction were not present, the spring would contribute flow to the brook, therefore we consider them hydrologically linked. The brook then flows into the Afon Lwyd which provides supporting habitat to the River Usk and Severn Estuary SAC and SAC migratory fish features are present in the Afon Lwyd (although not above the culvert within the brook itself). Reduction in flow in the supporting habitat in the Afon Lwyd has the potential to impact on the habitat and passage of the fish species for which the River Usk and Severn</p>		
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		<p>Estuary SAC are designated.</p> <p>The spring abstraction was previously licensed to a different holder (under licence number 19/55/12/0076) and was included in the documents for the HD RoC for the River Usk SAC. Following consultation and during a review of the previous HD RoC work, NRW noted that the previous licence present for Trosnant Spring had been included in the River Usk SAC HD RoC process (licensed at a lower volume of just over 1,000 cubic metres per day), impact as a result of that licence had been ruled out at Stage 2 of HD RoC (in approximately 2001). Having considered the previous HD RoC work there is no evidence this decision was based on any environmental assessment and no consideration had been made regarding impacts on the Severn Estuary RAMSAR and SAC migratory fish features and assemblage for which the Afon Lwyd provides supporting habitat. Therefore, the environmental impact needs to be considered.</p> <p>When assessing the application, due to the potential impact on supporting habitat of the River Usk and Severn Estuary designated sites , NRW have to consider whether the Trosnant Spring abstraction presents a risk of serious damage when considered alone. The 'alone' assessment has to consider the existing baseline which includes all licenced abstractions within the catchment (including the unused DCWW licences).</p>		
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		<p>The modelling provided (see email on DMS here dated 11/11/22) shows that the Afon Lwyd is already failing CAMS EFI due to the presence of the DCWW licences (based on fully licensed scenario). The abstraction from Trosnant Spring is reducing flows into the brook and therefore reducing flows in the Afon Lwyd, increasing the extent of the CAMS EFI failure on the Afon Lwyd.</p> <p><u>Note:</u> Copies of the previous HD RoC documents referenced in this section are available in the following location L:\EAW\National N Drive\Habitats Directive\Plan Activities, Business Planning\South East Area\Usk\Final Documents</p> <p>The final documentation on the HDRoC is the "Usk_addendum_v3" (Feb 2011), saved in the same location.</p>		
Severn Estuary SAC				
<p>Estuaries:</p> <p><i>Note, a sub feature of the Estuaries feature is 'Assemblage of fish species (>100 species)', which includes the 7 diadromous species (river lamprey, sea lamprey, twaite shad, allis shad, sea</i></p>		<p><u>Trosnant Spring Intake</u> This CRT abstraction is from a spring known as Trosnant Spring. The spring water is captured in an underground chamber and diverted into the canal. The spring is adjacent to the Trosnant Brook which flows via a culverted section into the Afon Lwyd approximately 219m downstream. The Afon Lwyd then flows for approximately</p>	<p>The reduction in flows and risks of entrapment or entrainment to fish and eels as a result of this abstraction could impact on availability of suitable fish habitat and fish movement within the Severn Estuary SAC and its supporting habitat leading to negative impacts on the fish population.</p> <p>These effects may increase the risk of the following conservation objectives not being met</p>	

<p><i>trout, Atlantic salmon and European eel.) considered below. The other fish species within the estuarine assemblage can be ruled out by virtue of a lack of functional linkage with the impacted reaches.</i></p>		<p>16.9km before joining the River Usk in Caerleon and subsequently joining the Severn Estuary.</p> <p>The spring overflows to the brook and if the abstraction were not present, the spring would contribute flow to the brook, therefore we consider them hydrologically linked. The brook then flows into the Afon Lwyd which provides supporting habitat to the Severn Estuary SAC and SAC migratory fish features are present in the Afon Lwyd (although not above the culvert within the brook itself). Reduction in flow in the supporting habitat in the Afon Lwyd has the potential to impact on the habitat and passage of the fish species for which the Severn Estuary SAC is designated.</p> <p>The spring abstraction was previously licensed to a different holder (under licence number 19/55/12/0076) and was included in the documents for the HD RoC for the River Usk SAC. Following consultation and during a review of the previous HD RoC work, NRW noted that the previous licence present for Trosnant Spring had been included in the River Usk SAC HD RoC process (licensed at a lower volume of just over 1,000 cubic metres per day), impact as a result of that licence had been ruled out at Stage 2 of HD RoC (in approximately 2001). Having considered the previous HD RoC work there is no evidence this decision was based on any environmental assessment and no consideration had been made regarding</p>	<p>for the Severn Estuary SAC; I, ii and iii.</p>	
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		<p>impacts on the Severn Estuary RAMSAR and SAC migratory fish features and assemblage for which the Afon Lwyd provides supporting habitat. Therefore, the environmental impact needs to be considered.</p> <p>When assessing the application, due to the potential impact on supporting habitat of the Severn Estuary designated sites , NRW have to consider whether the Trosnant Spring abstraction presents a risk of serious damage when considered alone. The 'alone' assessment has to consider the existing baseline which includes all licenced abstractions within the catchment (including the unused DCWW licences).</p> <p>The modelling provided (see email on DMS here dated 11/11/22) shows that the Afon Lwyd is already failing CAMS EFI due to the presence of the DCWW licences (based on fully licensed scenario). The abstraction from Trosnant Spring is reducing flows into the brook and therefore reducing flows in the Afon Lwyd, increasing the extent of the CAMS EFI failure on the Afon Lwyd.</p>		
River lamprey	As above	As above		No
Sea lamprey				
Twaite shad				
Severn Estuary Ramsar				
Assemblage of migratory fish species	As above.	As above.	As above	No

<p>Note, a sub feature of the Estuaries feature is 'Assemblage of fish species (>100 species)', which includes the 7 diadromous species (river lamprey, sea lamprey, twaite shad, allis shad, sea trout, Atlantic salmon and European eel.) considered below. The other fish species within the estuarine assemblage can be ruled out by virtue of a lack of functional linkage with the impacted reaches.</p>				
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4.2 Assessment of the project taking into account mitigating measures, conditions or restrictions¹

Natura 2000 Feature (from Table 4.1 – 'NO' rows only)	Description of adverse effect(s)	Can adverse effect(s) be mitigated?	Description of mitigation measures, and how they would be applied (e.g. contractual obligations, consent conditions)	Can adverse effect on site integrity be ruled
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¹ Highlighted text deleted in light of CEU ruling in case C-323/17 'People over Wind'.

				out?						
River Usk SAC										
Allis shad	The reduction in flows to below the HDERF and risks of entrapment or entrainment to fish as a result of these abstractions could impact on availability of suitable fish habitat and fish movement within the River Usk SAC and its supporting habitat leading to negative impacts on the fish population and risk of the relevant conservation objectives not being met.	Yes	<p>The HDERF is considered the relevant flow target for the River Usk SAC to support attainment of its conservation objectives (except for the Castle Turn intake as explained in the relevant paragraph below). The HDERF line is calculated as a percentage deviation from the naturalised flow across a flow duration curve. The percentage deviation is set according to the flow range (with less deviation allowed at lower flows), and the sensitivity of the riverine ecology to flow variation that may be caused by abstraction. The achievement of HDERF allows a conclusion of no adverse effect on site features from water abstraction.</p> <p>Modelling was undertaken for each of the abstractions detailed in section 4.1 above to establish what flow restrictions are required to meet the HDERF for the River Usk SAC. The results and subsequent restrictions for each site are detailed below.</p> <p><u>Brecon Intake</u></p> <p>For the Brecon Intake, modelling showed that a hands-off flow condition and abstraction cuts backs are needed to achieve the HDERF every day. The cut backs consist of a series of flow bands with a maximum permitted abstraction for each band.</p> <p>The restrictions required are;</p> <p>A Q99 hands off flows set at 90,000 cubic metres per day. When the unsupported flows in the River Usk at Brecon are below this, the abstraction must cease.</p> <p>When flows are above 90,000 cubic metres per day, the following cut backs are proposed.</p>	Yes						
Twaite shad										
Bullhead										
River lamprey										
Brook lamprey										
Otter										
Sea lamprey										
Atlantic salmon										
			<table><tr><th colspan="2">Table 1</th></tr><tr><th>When the unsupported rate of flow in the River Usk at Brecon is (cubic metres per day):</th><th>The maximum quantity of water to be abstracted shall not exceed (cubic metres per day):</th></tr><tr><td>90,000 – 95,000</td><td>133</td></tr></table>	Table 1		When the unsupported rate of flow in the River Usk at Brecon is (cubic metres per day):	The maximum quantity of water to be abstracted shall not exceed (cubic metres per day):	90,000 – 95,000	133	
Table 1										
When the unsupported rate of flow in the River Usk at Brecon is (cubic metres per day):	The maximum quantity of water to be abstracted shall not exceed (cubic metres per day):									
90,000 – 95,000	133									

			95,000 – 100,000	358	
			100,000 – 105,000	540	
			105,000 – 110,000	806	
			110,000 – 115,000	945	
			115,000 – 120,000	1,178	
			120,000 – 125,000	1,233	
			125,000 – 130,000	1,465	
			130,000 – 135,000	1,662	
			135,000 – 140,000	1,812	
			140,000 – 145,000	3,166	
			145,000 – 150,000	9,483	
			150,000 – 155,000	9,940	
			155,000 – 160,000	10,114	
			160,000 – 165,000	10,540	
			165,000 – 170,000	10,957	
			170,000 – 175,000	11,355	
			175,000 – 180,000	11,827	
			180,000 – 185,000	12,097	
			185,000 – 190,000	12,817	
			190,000 – 195,000	13,036	
			195,000 – 200,000	13,538	
			200,000 – 205,000	13,795	
			205,000 – 210,000	14,177	
			210,000 – 215,000	14,456	
			215,000 – 220,000	15,041	
			220,000 – 225,000	15,511	
			225,000 – 230,000	15,899	
			230,000 – 235,000	16,331	
			235,000 – 240,000	16,811	
			240,000 – 245,000	17,146	

			245,000 – 250,000	17,801	
			250,000 – 255,000	18,164	
			255,000 – 260,000	18,743	
			260,000 – 265,000	19,120	
			265,000 – 270,000	19,613	
			270,000 – 275,000	20,266	
			275,000 – 280,000	20,649	
			280,000 – 285,000	21,225	
			285,000 – 290,000	21,596	
			290,000 – 295,000	22,159	
			295,000 – 300,000	22,591	
			300,000 – 305,000	23,152	
			305,000 – 310,000	23,726	
			310,000 – 315,000	24,148	
			315,000 – 320,000	24,646	
			320,000 – 325,000	25,152	
			325,000 – 330,000	25,659	
			330,000 – 335,000	26,209	
			335,000 – 340,000	26,621	
			340,000 – 345,000	27,152	
			345,000 – 350,000	27,656	
			350,000 – 355,000	28,122	
			355,000 – 360,000	28,674	
			360,000 – 365,000	29,151	
			365,000 – 370,000	29,658	
			370,000 – 375,000	30,113	
			375,000 – 380,000	30,735	
			380,000 – 385,000	31,127	
			385,000 – 390,000	31,610	
			390,000 – 395,000	32,165	

			<table><tr><td>395,000 – 400,000</td><td>32,667</td></tr><tr><td>400,000 – 405,000</td><td>33,081</td></tr><tr><td>405,000 – 410,000</td><td>33,639</td></tr><tr><td>410,000 – 415,000</td><td>34,091</td></tr><tr><td>415,000 – 420,000</td><td>34,568</td></tr><tr><td>>420,000</td><td>35,000</td></tr></table>	395,000 – 400,000	32,667	400,000 – 405,000	33,081	405,000 – 410,000	33,639	410,000 – 415,000	34,091	415,000 – 420,000	34,568	>420,000	35,000	
395,000 – 400,000	32,667															
400,000 – 405,000	33,081															
405,000 – 410,000	33,639															
410,000 – 415,000	34,091															
415,000 – 420,000	34,568															
>420,000	35,000															
			<p>Plots from NRW hydrologists show these restrictions, which will be conditioned within the licence along with daily recording to demonstrate compliance with the conditions, result in a significant improvement in the impacts of the abstraction and ensure that the HDERF line adequately is met. Please refer to Figure 10 in Annex B which, when compared to Figure 9, shows the significant improvement to flows and achievement of the HDERF as a result of the HoF and abstraction cut backs. The full set of additional plots showing the modelled effects of the restrictions in specific months and dry years in the record can be found on DMS here in file PAN-006998, these plots show the restrictions imposed will result in a significant improvement in river flows by reducing this abstraction. Within one of these plots there is a small area of red remaining appearing to indicate a failure of the HDERF. This has been considered and is so small it is within the error margins of the modelling. The plots have been reviewed by Fisheries, Designated Sites and Hydrology who have confirmed they are satisfied that this apparent small deviation does not represent a risk to the SAC, see email dated 16/09/22 on DMS.</p> <p>In addition to the flow restrictions, the existing 10mm intake screening at the site, which has been confirmed as acceptable by NRW's Technical Fisheries Officers, will be included in the licence conditions to prevent entrapment or entrainment of fish at the intake.</p> <p>Therefore, with these restrictions in place, we can conclude that this abstraction will not adversely affect site integrity as the HDERF is being met and appropriate screening is in place. The restrictions imposed will result in a significant improvement in flow and a more natural flow regime in the River Usk.</p> <p>There are concerns that the existing weir at Brecon impacts on downstream migration of smolts. There is an existing River 4 LIFE project looking at potential improvements to downstream passage at Brecon Weir. Whilst we recognise this concern, the concern would exist even without abstraction taking place as it relates</p>													

		<p>to the presence of the weir. The weir cannot not be considered as part of the abstraction licence application as no amendments to the weir are being proposed. If, in future, amendments are proposed to the weir, an impoundment licence application would be required and would trigger consideration of the downstream passage of smolts.</p> <p><u>Cwm Crawnnon, Llangattock, Ochram Turn and Mill turn Intakes</u> For these intakes, modelling showed that a hands-off flow condition and flow split are needed to achieve the HDERF line.</p> <p>The restrictions required for each of these sites are set out below.</p> <table border="1"> <thead> <tr> <th>Site</th><th>Maximum abstraction rate (cubic metres/day)</th><th>Hands off flow (cubic metres/day)</th><th>Flow split</th></tr> </thead> <tbody> <tr> <td>Cwm Crawnnon</td><td>1,800</td><td>3,000 (Q99)</td><td>15%</td></tr> <tr> <td>Llangattock</td><td>1,000</td><td>1,000 (Q99)</td><td>15%</td></tr> <tr> <td>Ochram Turn</td><td>200</td><td>150 (Q99)</td><td>15%</td></tr> <tr> <td>Mill Turn</td><td>1,100</td><td>1,300 (Q98)</td><td>15%</td></tr> </tbody> </table> <p>It should be noted that while the HoF's appear very low, when coupled with the small percentage take of 15% (meaning 15% of the available flow above the hands off flow and up to the maximum abstraction rate), the overall amount of flow protection is still sufficient to protect the HDERF, which does allow a percentage deviation from naturalised flow even below Q95 (10%).</p> <p>The assessment spreadsheet from NRW's Hydrology Officer show's these restrictions, which will be conditioned within each of the licences for these sites, result in a significant improvement in the impacts of the abstractions and ensure that the HDERF line is adequately met at each site. Confirmation of Fisheries agreement that these restrictions are appropriate for fish can be found using the link above.</p> <p>Each licence will also include a requirement to measure the abstraction volumes and submit returns so compliance with the licence conditions can be checked.</p> <p>In addition to the flow restrictions, NRW's Fisheries Officers have confirmed that 9mm bar or mesh intake screening is appropriate at each of these sites to prevent</p>	Site	Maximum abstraction rate (cubic metres/day)	Hands off flow (cubic metres/day)	Flow split	Cwm Crawnnon	1,800	3,000 (Q99)	15%	Llangattock	1,000	1,000 (Q99)	15%	Ochram Turn	200	150 (Q99)	15%	Mill Turn	1,100	1,300 (Q98)	15%	
Site	Maximum abstraction rate (cubic metres/day)	Hands off flow (cubic metres/day)	Flow split																				
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Mill Turn	1,100	1,300 (Q98)	15%																				

		<p>entrapment or entrainment of fish at the intakes. 9mm is considered the appropriate size for salmonids and eels present in these locations, shad are not present in these tributaries. A condition will be included on each of these licences requiring the Licence Holder to install and maintain 9mm mesh or bar screens and to position and angle the screen to ensure an appropriate bywash to prevent the entrapment, entrainment or impingement of fish at the points of abstraction in accordance with the plans and specifications to be submitted to and approved in writing by NRW. This will ensure the design and positioning of the screens will be agreed with NRW and ensures there will be positioned to allow an appropriate approach velocity.</p> <p>Therefore, with these restrictions included in each licence, we can conclude that each of these abstractions will not adversely affect site integrity when considered alone. The restrictions imposed will result in a significant improvement in flow and a more natural flow regime in the supporting habitat of, and into, the River Usk SAC.</p> <p><u>Castle Turn Intake</u> NRW Fisheries Officers have considered the Fishtek consultant report provided by CRT and agree that in relation to this unnamed tributary there is no risk to designated site integrity (the Usk SAC or Estuarine sites) if this unaltered abstraction remains unscreened. NRW are satisfied that this tributary doesn't support feature species this judgement is based upon stream size and downstream barriers (altitude and gradient). Therefore, no intake screening conditions are required on the licence.</p> <p>NRW's Fisheries Officers confirmed that the appropriate flow standard for this site is the CAMS EFI, due to the absence of salmon. Modelling showed that the abstraction needs to be curtailed and a hands-off flow condition and flow split are needed to achieve the CAMS EFI line.</p> <p>The restrictions required for this site are set out below. These will be included with the licence conditions and the applicant will be required to measure their abstraction volumes and provide annual returns to demonstrate compliance with the conditions.</p> <table border="1"> <thead> <tr> <th>Site</th><th>Maximum abstraction rate (cubic metres/day)</th><th>Hands off flow (cubic metres/day)</th><th>Flow split</th></tr> </thead> <tbody> <tr> <td>Castle Turn</td><td>2,000</td><td>250 (Q99)</td><td>25%</td></tr> </tbody> </table>	Site	Maximum abstraction rate (cubic metres/day)	Hands off flow (cubic metres/day)	Flow split	Castle Turn	2,000	250 (Q99)	25%	
Site	Maximum abstraction rate (cubic metres/day)	Hands off flow (cubic metres/day)	Flow split								
Castle Turn	2,000	250 (Q99)	25%								

			<p>Therefore, with these restrictions in place, we can conclude that this abstraction will not adversely affect site integrity as the CAMS EFI is being met. The restrictions imposed will result in a significant improvement in flow and a more natural flow regime in the River Usk and its supporting habitat.</p> <p>Trosnant Spring Intake For this intake, the modelling has shown that this abstraction would cause a worsening of the CAM EFI failure on the Afon Lwyd, which provides supporting habitat to the Severn SAC fish features and also flows into the River Usk SAC. Therefore, to conclude no adverse impact on the SAC features, the abstraction must be curtailed to ensure it does not worsen the existing CAMs EFI failure on the Afon Lwyd. This can be achieved via the inclusion of a Hands-off flow condition on the licence.</p> <p>Following review of the modelling undertaken to establish the hands-off flow required, NRW are satisfied that a Q75 HOF will be sufficient to prevent worsening of current EFI failures on the Lwyd, as shown in the graphs below, and is sufficient to conclude no adverse impact on Severn Estuary SAC features, see email dated 16/11/22 on DMS.</p> <p>The HOF will be linked to Rhiwderin gauging station and will be conditioned on the licence.</p>	
Severn Estuary SAC				
River lamprey Sea lamprey Twaite shad	The reduction in flows to below the HDERF within the River Usk and risks of entrapment or entrainment to fish as a result of these abstractions could impact on availability of suitable fish habitat and fish movement within the River Usk SAC and	Yes	<p><u>Brecon, Cwm Crawnnon, Llangattock, Mill Turn, Ochram Turn and Castle Turn Intakes</u></p> <p>Please refer to the details above.</p> <p>These previously exempt abstractions have been operating for a significant period of time. As part of the licensing process now required, the modelling work completed has demonstrated the restrictions required to ensure the abstractions do not adversely affect flows within the River Usk and its tributaries. By ensuring the abstractions do not adversely affect flows within the River Usk SAC and its supporting habitat and by including restrictions to meet the relevant flow standards at each intake site along with appropriate intake screening conditions this will, in turn, ensure flows are not adversely impacted within the Severn Estuary SAC. The</p>	Yes

	<p>its supporting habitat leading to negative impacts on the fish population.</p> <p>The River Usk provides supporting habitat to the Seven Estuary SAC features and therefore these potential impacts cause risk of the relevant conservation objectives not being met.</p>		<p>restrictions imposed will result in a significant improvement in flow into the River Usk and therefore into the Severn Estuary and a more natural flow regime in the river.</p> <p>Trosnant Spring Intake For this intake, the modelling has shown that this abstraction would cause a worsening of the CAM EFI failure on the Afon Lwyd, which provides supporting habitat to the Severn SAC fish features and also flows into the River Usk SAC. Therefore, to conclude no adverse impact on the SAC features, the abstraction must be curtailed to ensure it does not worsen the existing CAMs EFI failure on the Afon Lwyd. This can be achieved via the inclusion of a Hands-off flow condition on the licence.</p> <p>Following review of the modelling undertaken to establish the hands-off flow required, NRW are satisfied that a Q75 HOF will be sufficient to prevent worsening of current EFI failures on the Lwyd, as shown in the graphs below, and is sufficient to conclude no adverse impact on Severn Estuary SAC features, see email dated 16/11/22 on DMS.</p> <p>The HOF will be linked to Rhiwderin gauging station and will be conditioned on the licence.</p>	
Severn Estuary Ramsar				
Assemblage of migratory fish species	As above	As above	As above.	Yes

4.3 Concluding the appropriate assessment of the project alone

<p>(a) If the right hand column of Table 4.1 and Table 4.2 (if applicable) is 'YES' for all features</p>	<p>It has been ascertained that the proposal, when considered alone, will not adversely affect the integrity of any Natura 2000 sites.</p>
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(b) If there are any 'NO's in the right hand column of Table 4.1 that have not been resolved to 'YES' through mitigation measures identified in Table 4.2	It has not been ascertained that the proposal, when considered alone, will not adversely affect the integrity of one or more Natura 2000 sites.
(c) Are there any residual effects of the project (net of any mitigation measures identified) which, though insignificant on their own, could be significant if considered in combination with the effects of other plans or projects?	No

6. Conclusion

HRA is not required because the whole of the project is directly connected with or necessary to the management of one or more Natura 2000/Ramsar sites, for the purposes of conserving the habitats or species for which the site(s) is/are designated, <u>and</u> the project is not likely to have a significant effect on any other Natura 2000/Ramsar sites. (As documented in section 2.1 and 2.2 of this form)	
HRA is not required because there is no conceivable impact pathway to any Natura 2000/Ramsar site (As documented in section 2.3 of this form)	

<p>This project is a renewal of a current permission which complies with NRW agreed criteria for ruling out significant effects of a renewal without conducting a project-specific LSE test. Therefore it is considered not likely to have a significant effect on any Natura 2000/Ramsar sites, either alone or in-combination with other plans and projects. (As documented in section 3.1 of this form)</p>	
<p>The project has been screened for likelihood of significant effects and, taking account of the advice received from protected sites advisors, is considered not likely to have a significant effect on any Natura 2000/Ramsar site (As documented in section 3.2 of this form, or section 5 if applicable)</p>	
<p>In light of the conclusions of an appropriate assessment, and taking account of the advice received from protected sites advisors, it has been established that the project will not adversely affect the integrity of any Natura 2000/Ramsar site, taking into account any conditions or restrictions as applicable, either alone or in-combination with other plans and projects. (As documented in section 4 of this form, and section 5 if applicable)</p>	X
<p>In light of the conclusions of the appropriate assessment, it has <u>not</u> been ascertained that the project will not adversely affect the integrity of any Natura 2000/Ramsar site, as documented in section 4 of this form, and section 5 is applicable.</p> <p>Approval for the project <u>cannot</u> be given unless either:</p> <ul style="list-style-type: none"> the project specification, and/or the terms under which it might be approved, are modified so as to remove the risk of adverse effects, and a revised HRA report is prepared, or the project satisfies the requirements of Article 6(4) of the Habitats Directive, an Article 6(4) Statement of Case is prepared (OGN 200 Form 3) and submitted for consideration by the appropriate authority, normally Welsh Ministers 	
<p>Signed: E.Allcorn</p> <p>Name: Emma Allcorn</p> <p>Position: Lead Specialist Officer (Water Resources Permitting)</p> <p>Date: 21/10/22 and amended and updated following discussion and reply to comments 23/11/22</p>	

7. Consultation with protected sites advisor(s) and how sections 2, 3, 4 and 5 of this HRA report (as applicable) take into account that advice.

Relevant section of the HRA report	Date(s) of correspondence* and any meeting(s) with protected sites advisor(s)	Description of how the comments from protected sites advisors have been taken into account
2	May 2022 Internal consultations for each of the 7 sites (available in the 7 relevant DMS folders linked on Pg 7 of this document)	Responses confirmed need for HRA for River Usk SAC.
3	26/10/2022 correspondence from Fisheries regrading Trosnant 09/11/2022 HRA review comments from Conservation and Marine advisors received A meeting has taken place on 15/11/22	In line with the advice from Marine, the HRA has been updated to <ul style="list-style-type: none"> - Include the fish assemblage sub feature of the Severn Estuary SAC and Ramsar Estuaries feature. - Amend the Trosnant Spring section and take forward to Appropriate Assessment stage. In line with Fisheries advice Trosnant has been updated to consider impact on Afon Lwyd, which provides supporting habitat for the Severn Estuary SAC.
4	09/11/2022 HRA review comments from Conservation and Marine advisors received A meeting has taken place on 15/11/22 22/11/2022 additional comments from Conservation officer added to HRA	A meeting has taken place on 15/11/22 to discuss the queries raised by Marine. The following elements were discussed, and additional explanation included within the HRA <ul style="list-style-type: none"> -Screen sizes for Brecon and other intakes and HRA updated to explain difference -Concerns regarding downstream smolt passage – an agreement was reached that this should not be addressed via the Brecon licence, but the HRA has been updated to capture the issue -discussion on hydrology elements and additional explanation including of what a flow split means has been added for clarity and agreed remaining comments could be removed. In light of further correspondence and discussion on 22/11/22 the HRA has been updated to reflect conservation and Marine views that Afon Lwyd also supports River Usk SAC.

5	<p>09/11/2022 HRA review comments from Conservation and Marine advisors received</p> <p>A meeting has taken place on 15/11/22</p>	Following the meeting on 15/11/22 agreed that section 5 in combination was not required as each abstraction has been addressed alone therefore section 5 was removed and Trosnant was assessed within section 4 and in line with the latest advice regarding impact on the Severn Estuary SAC.
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Form

Protected sites advisor response to an internal consultation on the Habitats Regulations Assessment of a project

OGN 200 Form 2

Document owner: Protected Sites Team, EPP

Version History:

Document Version	Date Published	Summary of Changes
1.0	March 2016	Document created
1.1	30 November 2017	Minor changes only

Next review date: April 2018

Protected sites advisor response to an internal consultation on the Habitats Regulations Assessment of a project

TO: Emma Allcorn

FROM: Ken Perry, Senior Officer, South Powys Environment Team

SUBJECT: Habitats Regulation Assessment of

PAN-006993 CRT abstraction at Llangattock

PAN-006994 CRT abstraction at Cwm Crawnnon

PAN-006995 CRT abstraction at Castle Turn

PAN-006996 CRT abstraction at Mill Turn

PAN-006997 CRT abstraction at Ochram Turn

PAN-006998 CRT abstraction at Brecon Weir

PAN-006999 CRT abstraction from Trosnant Spring

For Canal and Rivers Trust applications named above.

Thank you for consulting us on the above project and sending us a copy of the draft Form 1 HRA report dated 21 October 2022, which has since been commented on and amended with final amendments from yourself dated 23 November 2022.

I have added these additional dates to your Form 1.

The Marine advice Team and I have reviewed the HRA; our comments are as follows:

On the basis of the proposed abstraction licence conditions for flow restrictions (Q99 HOF and staged cutbacks at Brecon Weir; Q98/99 HOFs and 15% flow splits at Cwm Crawnnon, Llangattock, Ochram Turn and Mill Turn; Q99 HOF and 25% flow split at Castle Turn; and Q75 HOF at Trosnant Spring) and intake screening (10mm at Brecon Weir, 9mm at Cwm Crawnnon, Llangattock, Ochram Turn and Mill Turn) included as mitigation in the HRA, it is agreed that adverse effect on site integrity for the diadromous fish features and sub-features of the Severn Estuary SAC and Ramsar site can be ruled out.

On the same basis I confirm that adverse effect on site integrity for the features for the River Usk SAC can be ruled out if the conditions identified in the HRA

have been transposed into the licence conditions (I've already seen the Llangattock one you shared).

Signed:

A handwritten signature in black ink, appearing to be 'K. H. W.', written over a horizontal line.

Date: 24/11/22

Annex A – Site location maps

PAN-006993 CRT abstraction at Llangattock		
Site	NGR's	Watercourse name
Llangattock Intakes	SO 20844 16956 and SO 20857 16966	Nant Onnau Fach

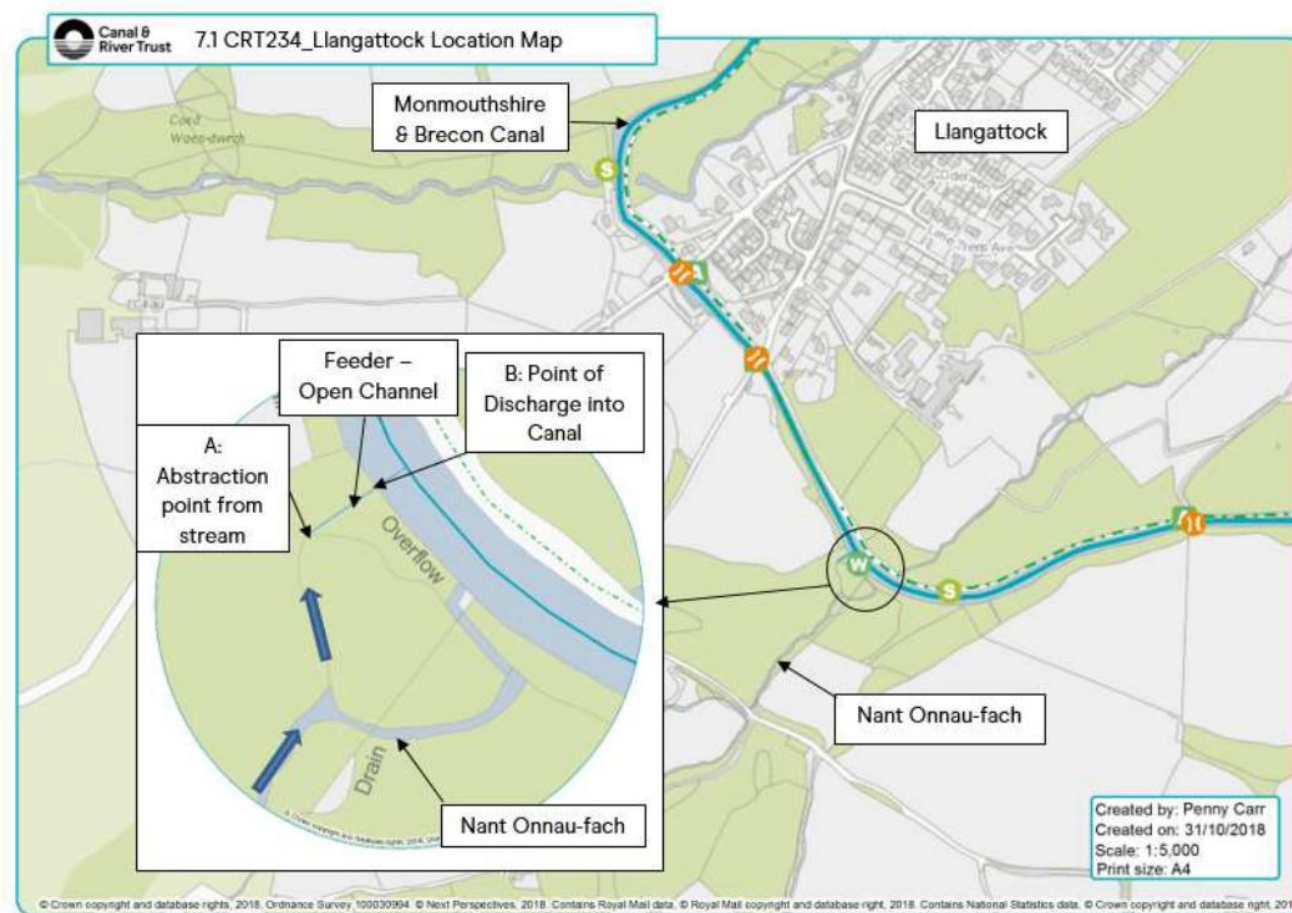


Figure 2. Map from CRT's supporting information document showing Llangattock intake locations.

www.naturalresources.wales

PAN-006994 CRT abstraction at Cwm Crawnnon		
Site	NGR's	Watercourse name
Cwm Crawnnon Intake	SO 14327 19473	Afon Crawnnon

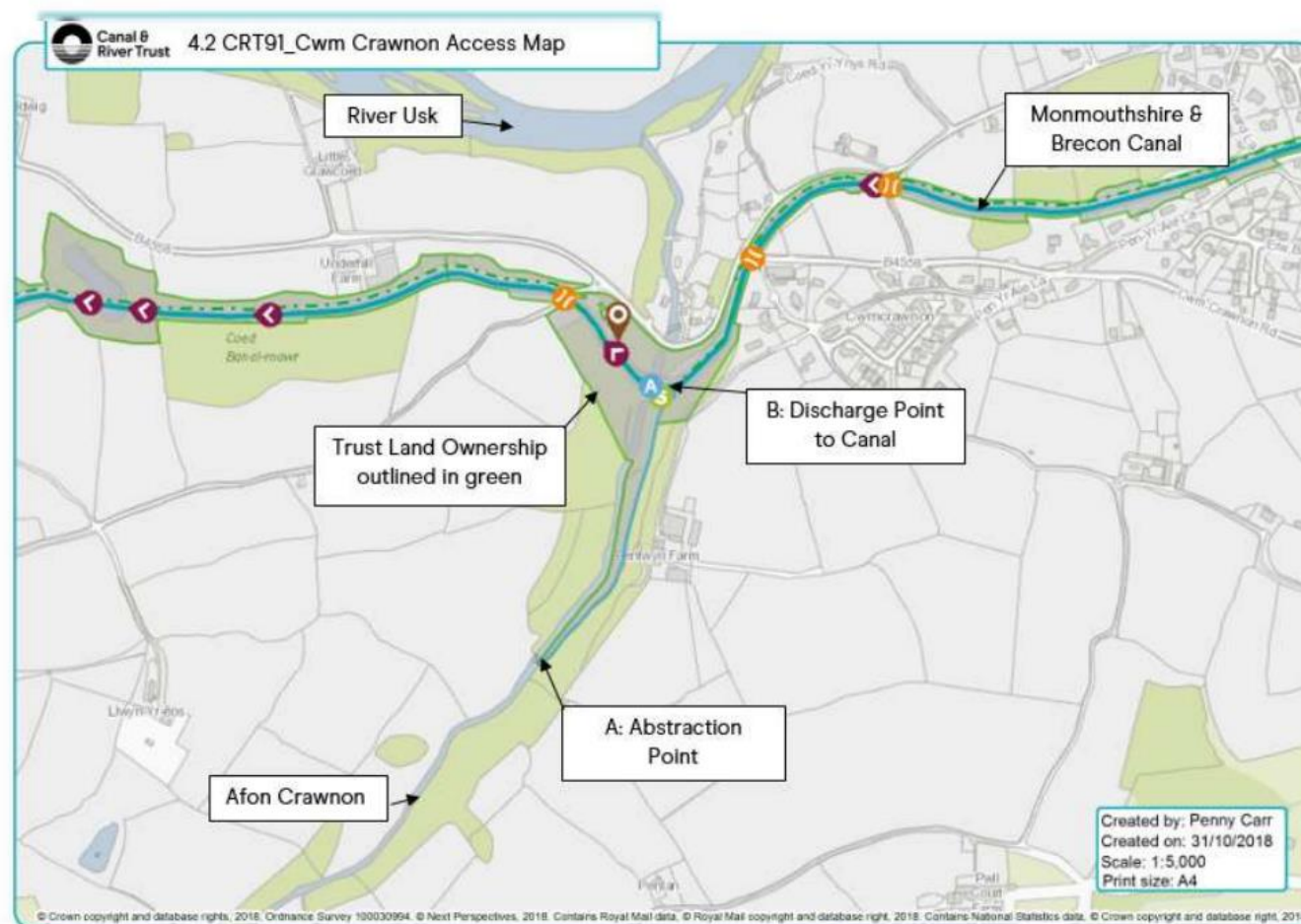


Figure 3. Map from CRT's supporting information document showing Cwm Crawnnon intake location.

PAN-006995 CRT abstraction at Castle Turn		
Site	NGR's	Watercourse name
Castle Turn Intake	SO 29207 11704	Unnamed tributary of the River Usk

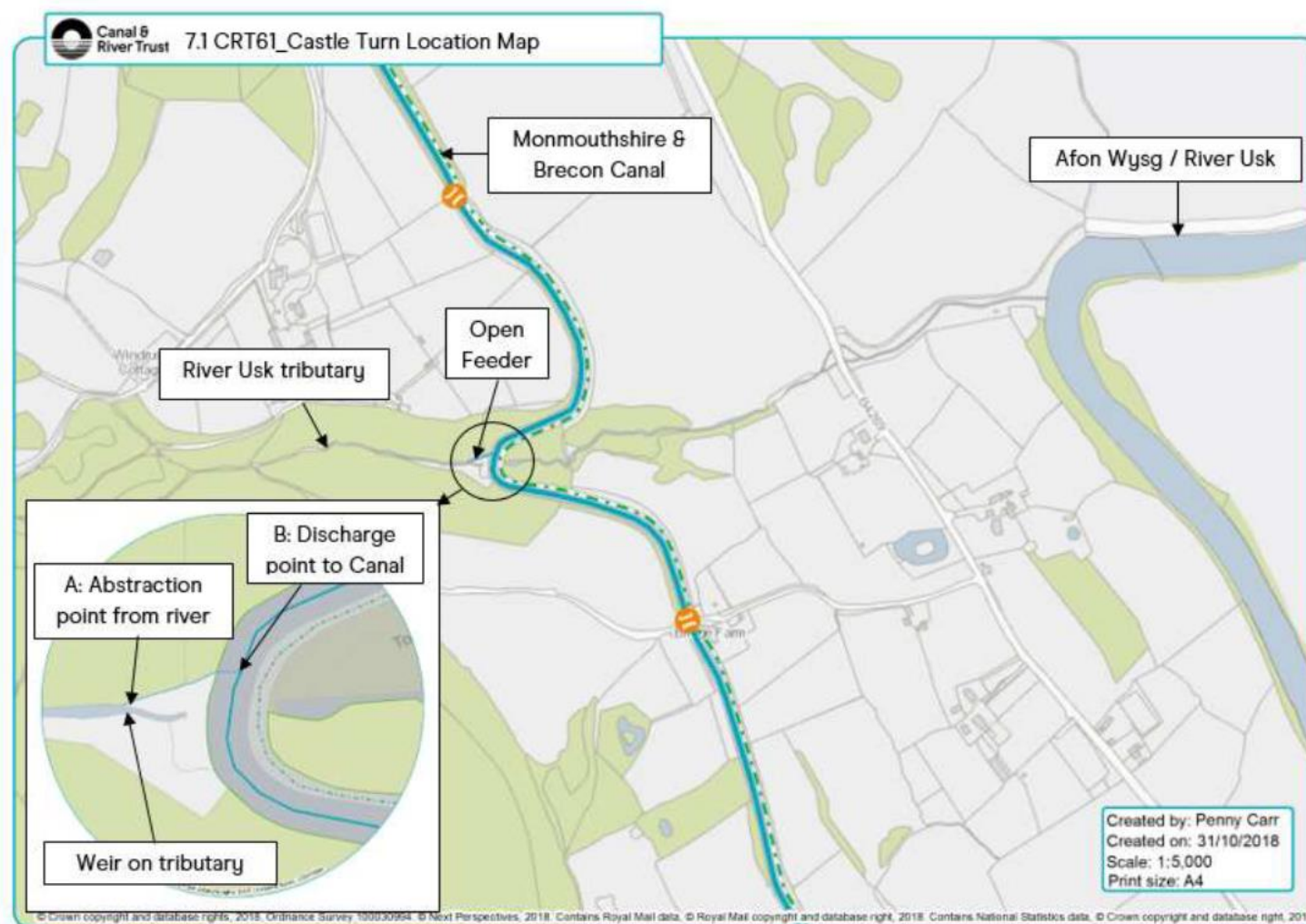


Figure 4. Map from CRT's supporting information document showing Castle Turn Intake location.

PAN-006996 CRT abstraction at Mill Turn		
Site	NGR's	Watercourse name
Mill Turn Intake	SO 30500 07288	Gwenffrwd

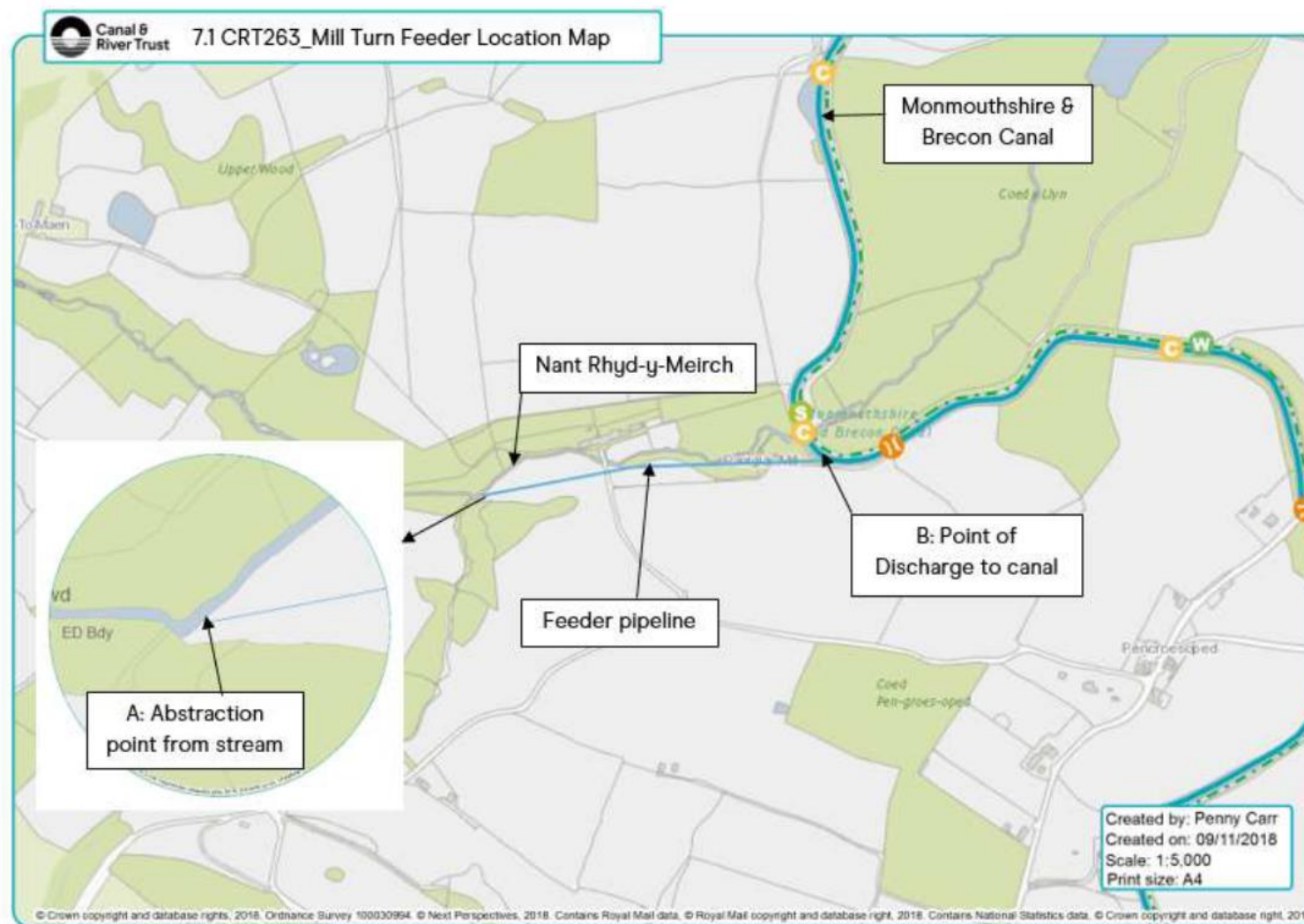


Figure 5. Map from CRT's supporting information document showing Mill Turn intake location.

PAN-006997 CRT abstraction at Orchram Turn		
Site	NGR's	Watercourse name
Ochram Turn	SO 29704 09116	Unnamed tributary or Ochram Brook

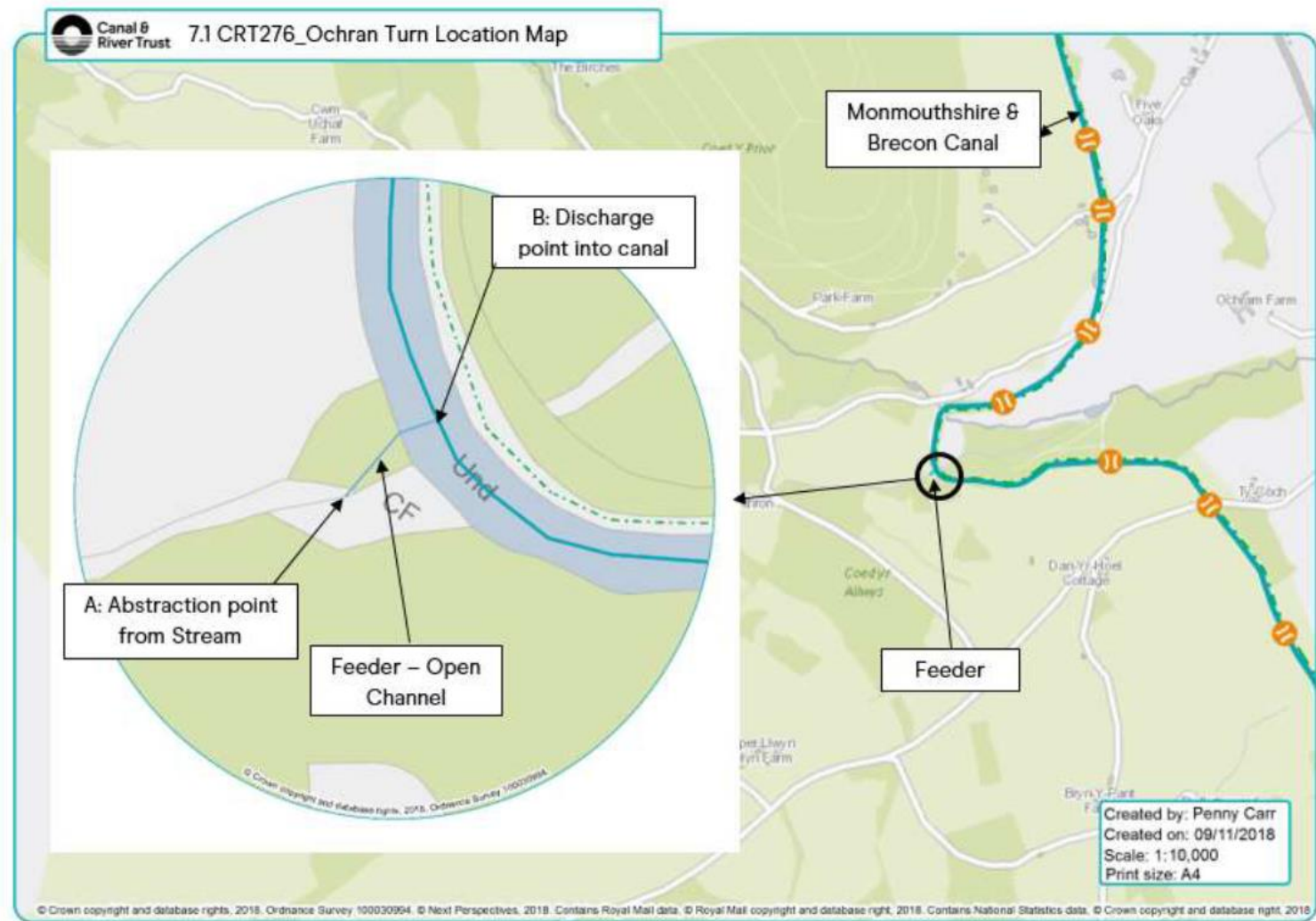


Figure 6. Map from CRT's supporting information document showing Ochram Turn intake location.

PAN-006998 CRT abstraction at Brecon Weir

www.naturalresources.wales

Site	NGR's	Watercourse name
Brecon Intake	SO 03975 28882	River Usk

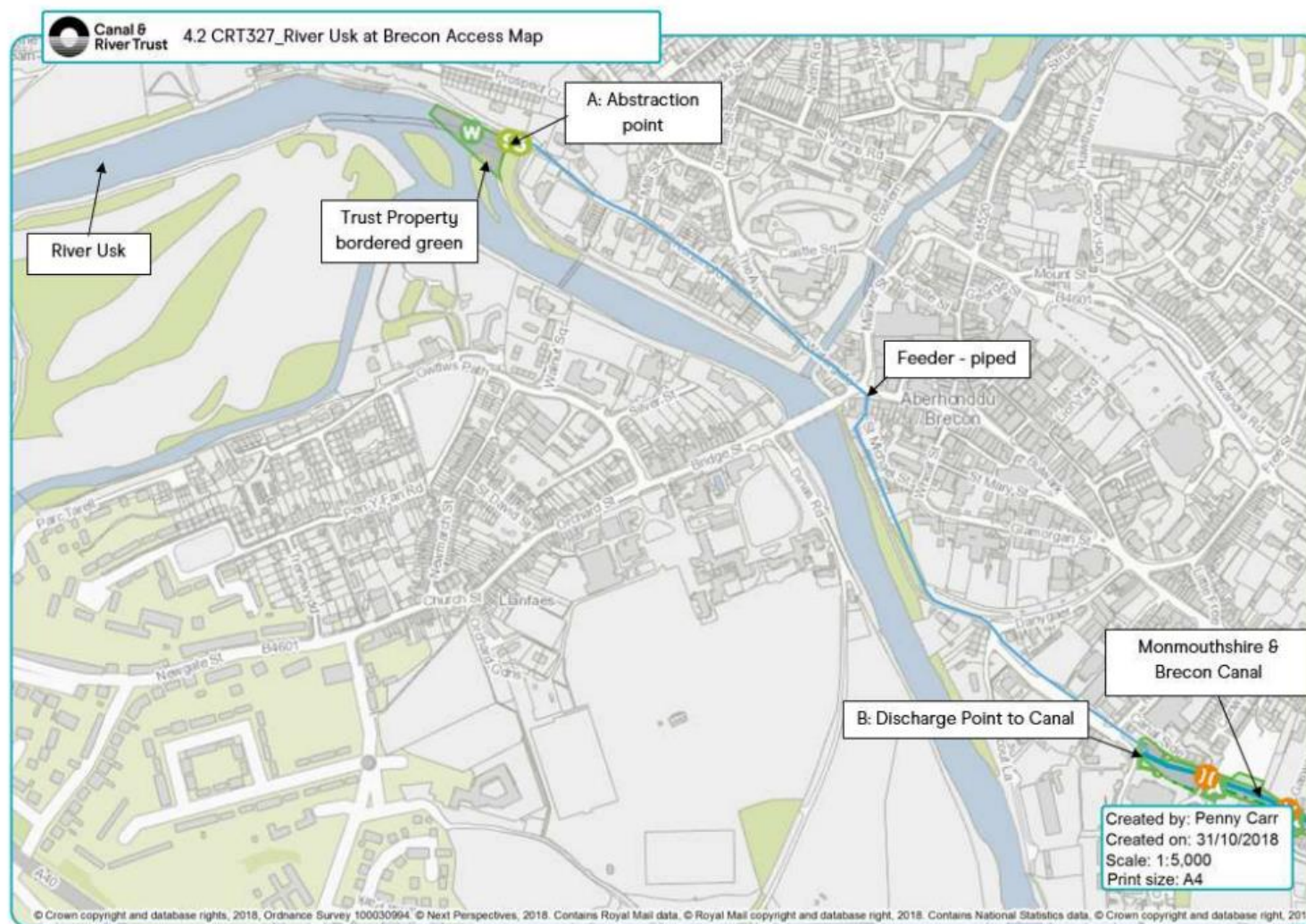


Figure 7. Map from CRT's supporting information document showing Brecon intake location.

PAN-006999 CRT abstraction from Trosnant Spring		
Site	NGR's	Watercourse name
Trosnant Spring Intake	SO 28420 00498	Trosnant Spring

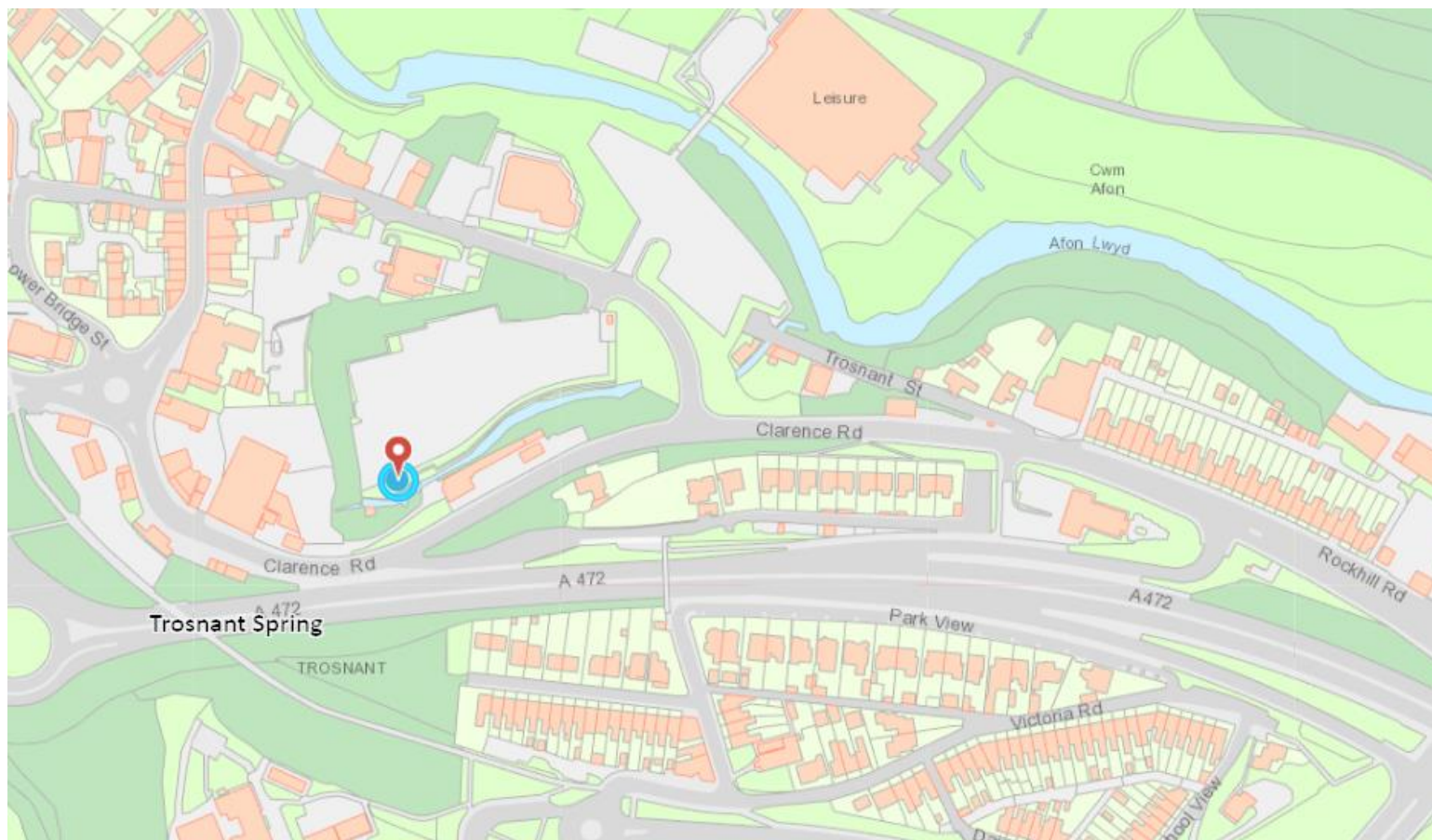


Figure 8. NRW map showing Trosnant Spring location.

Annex B – Hydrology Modelling

Current/historic scenario – unconstrained assuming 25 MI/d at all times

Note all graphs show the HDERF but the second y axis and “red” shaded series is incorrectly shown as “EFI”. This should read HDERF

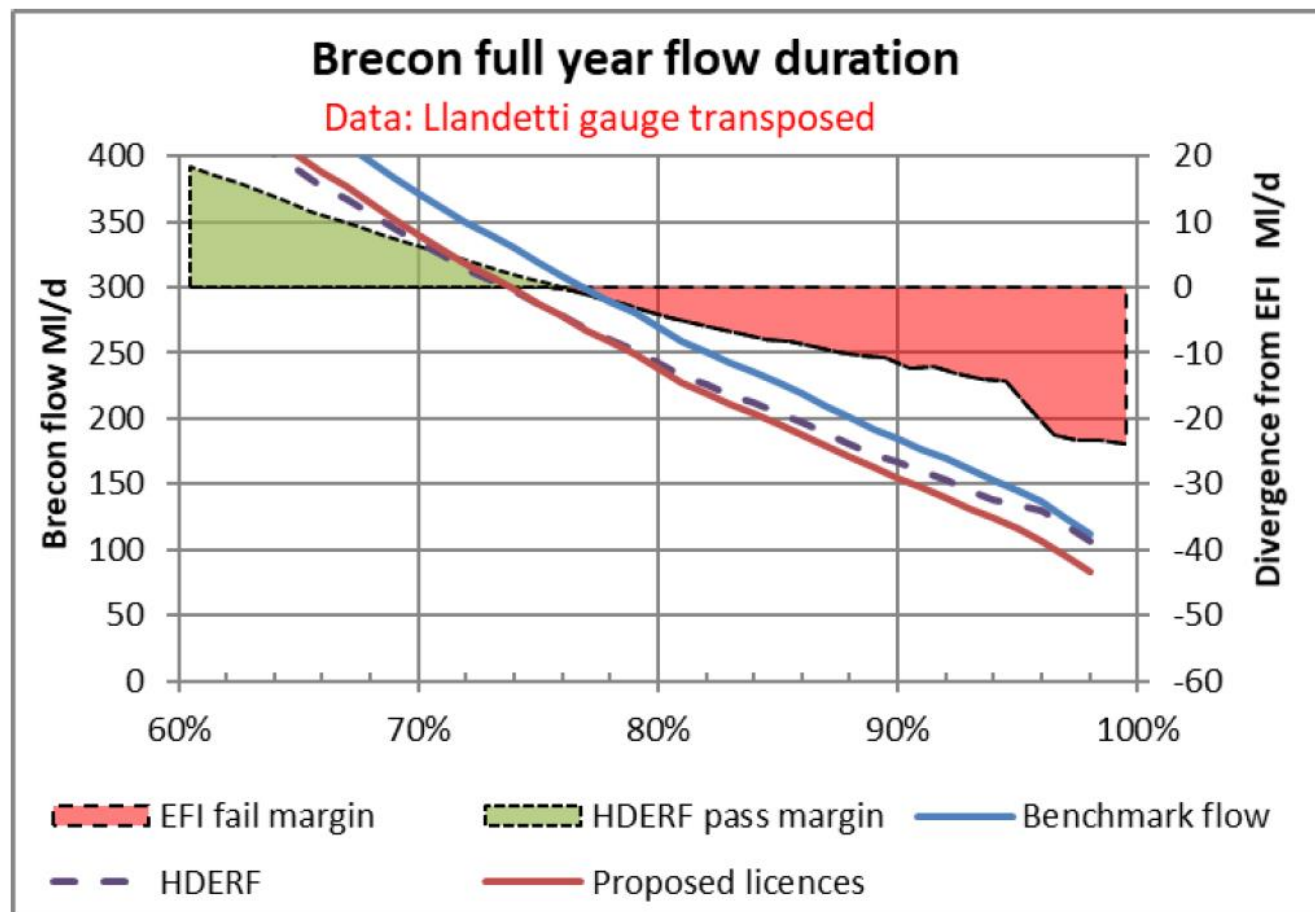


Figure 9. Plot showing impact of the current unconstrained abstraction at Brecon.

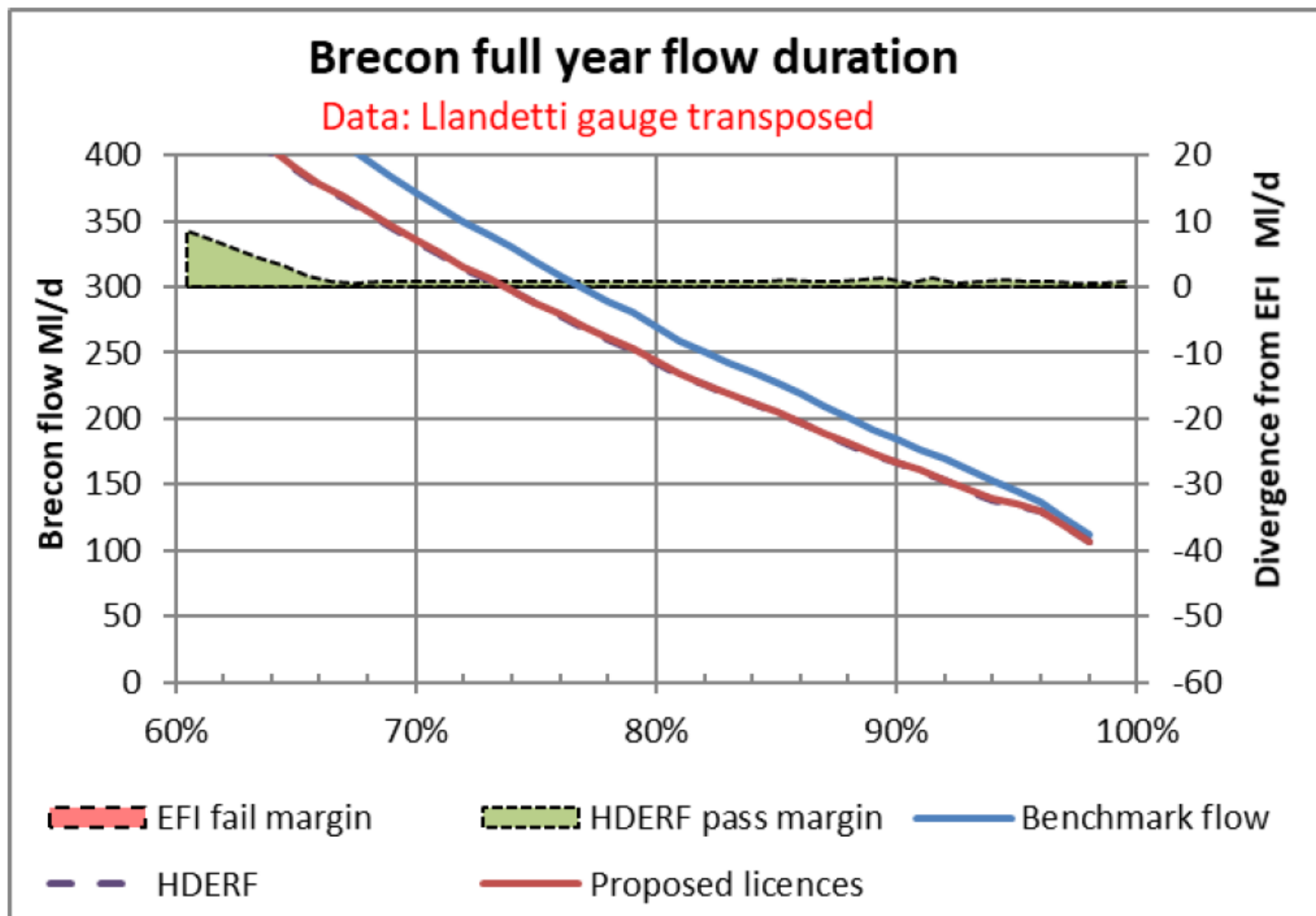



Figure 10. Plot showing the impact of the abstraction at Brecon with the proposed HoF and abstraction cut backs in place.

CRoW Act 2000: Natural Resources Wales application for permission - Formal Notice		 Cyfoeth Naturiol Cymru Natural Resources Wales																			
<p>Natural Resources Wales Formal Notice to Conservation Officer.</p> <p>Requirements of Section 28I of the Wildlife & Countryside Act 1981 as amended by the Countryside and Rights of Way Act (CRoW) 2000.</p> <p>Duty in relation to granting any consent, licence or permit for activities likely to damage Sites of Special Scientific Interest (SSSI).</p>																					
<p>Guide to filling in this form for Natural Resources Wales staff:</p> <p>To be completed by Permitting Officers for any applications for a permission which the Natural Resources Wales has considered under S28G duties to protect and enhance SSSIs. This applies to all proposed permissions within a SSSI, and to operations outside the SSSI boundary which are likely to damage its special features.</p> <p>Refer to OI 140 10 'Applying the Countryside and Rights of Way (CRoW) Act 2000 to applications for permits with potential for impact on Sites of Special Scientific Interest (SSSI)', including the flowchart in Appendix 2.</p> <p>Ensure you have completed all sections.</p>																					
1. Natural Resources Wales Area/WPCC hub:	Water Resources Permitting																				
2. Name of SSSI:	River Usk (Lower Usk) SSSI River Usk (Upper Usk) SSSI River Usk (Tributaries) SSSI Severn Estuary SSSI																				
3. Type of permission:	7 Water resources transfer licence applications under New Authorisations Transitional Regulations																				
4. Date for Natural Resources Wales permit determination:	13/12/22																				
5. Predicted 28 day date for Conservation Officer response (under S28 I(4)):	14/11/22 to align with associated HRA.																				
6. Natural Resources Wales reference no:	PAN-006993 CRT abstraction at Llangattock PAN-006994 CRT abstraction at Cwm Crawnnon PAN-006995 CRT abstraction at Castle Turn PAN-006996 CRT abstraction at Mill Turn PAN-006997 CRT abstraction at Ochram Turn PAN-006998 CRT abstraction at Brecon Weir PAN-006999 CRT abstraction from Trosnant Spring																				
7. National grid reference:	<table border="1"> <thead> <tr> <th>Site</th> <th>NGR's</th> </tr> </thead> <tbody> <tr> <td>Llangattock Intakes</td> <td>SO 20844 16956 and SO 20857 16966</td> </tr> <tr> <td>Cwm Crawnnon Intake</td> <td>SO 14327 19473</td> </tr> <tr> <td>Castle Turn Intake</td> <td>SO 29207 11704</td> </tr> <tr> <td>Mill Turn Intake</td> <td>SO 30500 07288</td> </tr> <tr> <td>Ochram Turn</td> <td>SO 29704 09116</td> </tr> <tr> <td>Brecon Intake</td> <td>SO 03975 28882</td> </tr> <tr> <td>Trosnant Spring Intake</td> <td>SO 28420 00498</td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table>	Site	NGR's	Llangattock Intakes	SO 20844 16956 and SO 20857 16966	Cwm Crawnnon Intake	SO 14327 19473	Castle Turn Intake	SO 29207 11704	Mill Turn Intake	SO 30500 07288	Ochram Turn	SO 29704 09116	Brecon Intake	SO 03975 28882	Trosnant Spring Intake	SO 28420 00498				
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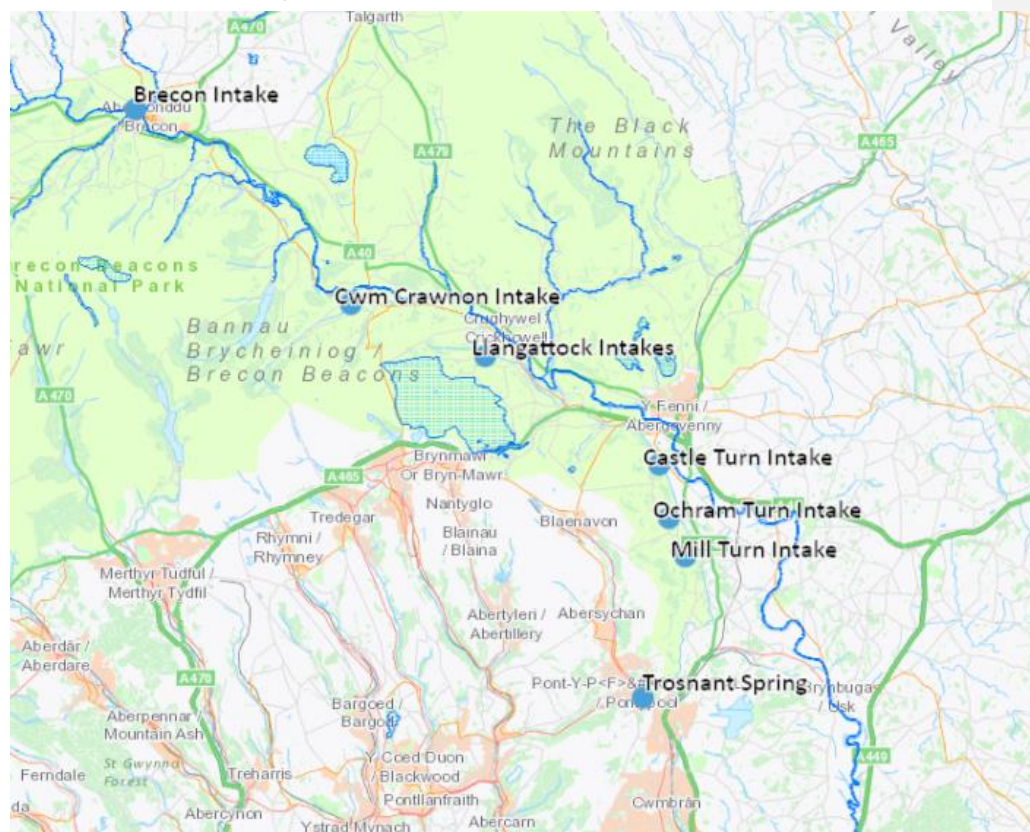
<p>8. Description of proposal:</p>	<p>Canal and River Trust (CRT) have applied under the New Authorisations Transitional regulations to licence their previously exempt abstractions. The abstractions have been legally occurring for a significant period of time but changes brought in by the Water Act 2003 via the transitional regulations now require CRT as a Navigation authority to apply for these abstractions to be licensed.</p> <p>The 7 applications being considered in this assessment are for the existing 7 intakes which transfer water from various locations within the Usk catchment, as detailed below, into the Monmouthshire and Brecon Canal for the purpose of keeping the water level within the canal within a Normal Operating Zone. This is to avoid business risk including damage to infrastructure caused by overtopping and damage to canal lining and canal bank collapse as well as maintaining a navigable depth.</p> <p><u>PAN-006993 CRT abstraction at Llangattock</u> This abstraction is from Nant Onnau-fach which is diverted into a feeder channel via two sets of removable boards. Normal operation is for boards to be inserted at the two locations parallel to the stream flow during the main boating season, April to October. Boards are generally removed, during the winter months, November to March. In exceptionally dry years e.g. 2011, flow may be diverted to the canal all year. Flow discharges via gravity to the Monmouthshire & Brecon Canal approx. 0.02m downstream of the abstraction point.</p> <p>CRT have applied for maximum quantities as follows: cubic metres per hour: 4,950.10 cubic metres per day: 118,802.80 cubic metres per year: 2,737,865.90 litres per second: 1,375</p> <p><u>PAN-006994 CRT abstraction at Cwm Crawnnon</u> This abstraction is from the main Afon Crawnnon, near Cwmcrawnnon, which is diverted into the feeder channel via a main river weir. Flow is diverted to the canal via a concrete main river weir with timber crest and fish pass. Flow into the feeder is then controlled by a 0.66m x 0.66m wooden sluice which discharges into an open channel. Flow continues through a trapezoidal flume, which is used to monitor the abstraction, before discharging to the M&B Canal, 0.4km downstream of the abstraction.</p> <p>The abstraction is monitored via the Trust's telemetry/SCADA (Supervisory Control and Data Acquisition) system approximately 0.4km downstream of the abstraction. A trapezoidal flume is installed at this location and head measurements are recorded. The flow is then calculated from the recorded head measurements using a standard equation.</p> <p>CRT have applied for maximum quantities as follows: cubic metres per hour: 1,759.60 cubic metres per day: 33,770 cubic metres per year: 2,180,388 litres per second: 488.80</p> <p><u>PAN-006995 CRT abstraction at Castle Turn</u> This abstraction is from a tributary of the River Usk which is diverted into the feeder channel via a weir across the tributary channel. Flow is diverted to the canal via a 2.650m wide V-notch (90 degree) thin plate weir across the tributary channel. Flow into the feeder is then controlled by a 550mm x 550mm sluice which discharges directly into a settling chamber. Flow continues over a 2.030m wide V-notch (90 degree) thin plate weir, before discharging via an open channel to the Monmouthshire & Brecon Canal.</p>
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	<p>CRT have applied for maximum quantities as follows:</p> <p>cubic metres per hour: 3,216.60</p> <p>cubic metres per day: 77,197.35</p> <p>cubic metres per year: 2,247,543.00</p> <p>litres per second: 894</p> <p><u>PAN-006996 CRT abstraction at Mill Turn</u></p> <p>This abstraction is from Nant Rhyd-y-Meirch which is diverted into a feeder pipeline via a rock dam/weir structure. Flow is diverted into a feeder pipeline via an approx. 3m wide rock dam/weir structure. Flow continues through a 0.300m diameter plastic pipeline for approx. 380m, before discharging by gravity to the M&B Canal.</p> <p>CRT have applied for maximum quantities as follows:</p> <p>cubic metres per hour: 637.90</p> <p>cubic metres per day: 15,310.10</p> <p>cubic metres per year: 1,941,148.80</p> <p>litres per second: 177</p> <p><u>PAN-006997 CRT abstraction at Ochram Turn</u></p> <p>This abstraction is from an unnamed tributary of Ochram Brook which is diverted into the feeder channel via a weir across the channel. Flow is diverted to the canal via a 2.000m wide V-notch (90 degree) thin plate weir across the tributary channel. Flow into the feeder is then controlled by a 560mm x 560mm sluice which discharges directly into a settling chamber. Flow continues over a 2.100m wide V-notch (90 degree) thin plate weir, before discharging via an open channel to the Monmouthshire & Brecon Canal.</p> <p>CRT have applied for maximum quantities as follows:</p> <p>cubic metres per hour: 1,692.90</p> <p>cubic metres per day: 40,629.49</p> <p>cubic metres per year: 1,197,813.20</p> <p>litres per second: 470</p> <p><u>PAN-006998 CRT abstraction at Brecon Weir</u></p> <p>This abstraction is from the main River Usk at Brecon which is diverted into the feeder channel via a main river weir. Flow is diverted to the canal via a 220m main river weir. Flow into the feeder is then controlled by a sluice which discharges into a settling pond. A secondary automated 0.9m x 0.9m sluice then discharges from this pond into a culvert which then discharges to the Monmouthshire & Brecon canal at Brecon Basin, 1km downstream. The abstraction is monitored via the Trust's telemetry/SCADA (Supervisory Control and Data Acquisition) system approximately 1km downstream of the abstraction on the Monmouthshire & Brecon Canal. An ADCP (Acoustic Doppler Current Profiler) is installed at the location.</p> <p>CRT have applied for maximum quantities as follows:</p> <p>cubic metres per hour: 2,295.40</p> <p>cubic metres per day: 39,660</p> <p>cubic metres per year: 8,623,778</p> <p>litres per second: 680</p>
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	<p><u>PAN-006999 CRT abstraction from Trosnant Spring</u></p> <p>This abstraction is from a spring before it enters a watercourse. The spring is captured underground in a chamber, the chamber is trapezoid back to the retaining wall, then there is a 1m cubed alcove stretching beyond the retaining wall and then at the back of this there is a 50cm wide by 30cm high by 30cm deep alcove further into the retaining wall/hillside. The whole structure is brick until the back wall of the very deepest part which is broken stone. Flow goes to the canal via a 6inch pipe to the canal.</p> <p>CRT have applied for maximum quantities as follows:</p> <p>cubic metres per hour: 566.30</p> <p>cubic metres per day: 5,180.00</p> <p>cubic metres per year: 16,850.00</p> <p>litres per second: 157</p>
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Location of Intakes		
Site	NGR's	Watercourse name
Llangattock Intakes	SO 20844 16956 and SO 20857 16966	Nant Onnau Fach
Cwm Crawnon Intake	SO 14327 19473	Afon Crawnon
Castle Turn Intake	SO 29207 11704	Unnamed tributary of the River Usk
Mill Turn Intake	SO 30500 07288	Gwenffrwd
Ochram Turn	SO 29704 09116	Unnamed tributary of Ochram Brook
Brecon Intake	SO 03975 28882	River Usk
Trosnant Spring Intake	SO 28420 00498	Trosnant Spring

Please see overall location map below



<p>9. Is the proposed activity within (wholly or partially) the SSSI boundary?</p>	<p><u>Brecon Intake - Yes</u></p> <p>The CRT abstraction at Brecon Weir takes water directly from the River Usk within the Upper Usk SSSI boundary.</p>
	<p><u>Cwm Crawnon Intake - No</u></p> <p>This CRT abstraction is from the Afon Crawnon. The Crawnon flows into the River Usk (and the River Usk (Upper Usk) SSSI) approximately 638m downstream of the abstraction point.</p>
	<p><u>Llangattock Intake - No</u></p> <p>This CRT abstraction is from 2 intake points on the Nant Onnau-fach. The Nant Onnau-fach flows into the River Usk (and the River Usk (Upper Usk) SSSI) approximately 1.45km downstream of the</p>

	<p>abstraction points.</p> <p><u>Castle Turn Intake - No</u> This CRT abstraction is from an unnamed tributary of the River Usk. The tributary flows into the River Usk (and the River Usk (Lower Usk) SSSI) approximately 698m downstream of the abstraction point.</p> <p><u>Ochram Turn Intake - No</u> This CRT abstraction is from an unnamed tributary of the Ochram Brook. The tributary flows for approximately 378m before joining the Ochram Brook which then flows a further 2.4km before joining the River Usk (and the River Usk (Lower Usk) SSSI).</p> <p><u>Mill Turn Intake - No</u> This CRT abstraction is from the Gwenffrwd which is a tributary of the River Usk. The Gwenffrwd (which becomes the Nant Rhyd-y-Meirch) flows for approximately 4.93km before the River Usk (and the River Usk (Lower Usk) SSSI).</p> <p><u>Trosnant Spring Intake - No</u> This CRT abstraction is from a spring known as Trosnant Spring. The spring water is captured in an underground chamber and diverted to the canal. The spring is adjacent to Trosnant Brook which flows via a culverted section into the Afon Lwyd approximately 219m downstream. The Afon Lwyd then flows for approximately 16.9km before joining the River Usk in Caerleon (and the River Usk (Lower Usk) SSSI).</p> <p>The River Usk then flows into the Severn Estuary SSSI at Newport.</p>
10. Has there been any pre-application discussion or correspondence with Natural Resources Wales?	<p>YES</p> <p>No formal pre application was undertaken for these applications, however, there have been extensive discussions through 2 working groups set up in relation to licensing these abstractions. These are the Water Resources Modelling Group and the Environment and Regulatory Group. Each group had representatives from CRT, DCWW and NRW attending.</p> <p>Meeting notes from the Environment and Regulatory Group can be found in folder PAN-006998, for meeting notes from the Modelling Group, please contact Hydrology.</p>
11. What aspect(s) of the proposed permission may damage the features which are of special interest for the SSSI?	<p>The following 'Operations Requiring Consent' (or other activities associated with the permission) that may cause damage) are relevant to the proposed permission.</p> <ul style="list-style-type: none"> - The changing of water levels and tables and water utilisation (including irrigation, storage and abstraction from existing water bodies and through boreholes). <p>The following SSSI features and mechanisms of impact have been considered to assess the likelihood of damage:</p> <p>RIVER USK (UPPER USK)</p> <p>The Upper Usk is of special interest for three main river types: rivers on sandstone; mesotrophic rivers and oligo-mesotrophic rivers. The upper reaches in particular support community's characteristic of shaded upland rivers on rich geological strata and upland rivers with gravel and peat. It is also of special interest for its mosses and lichens as well as for otter and its fish populations.</p> <p>RIVER USK (LOWER USK)</p> <p>Of special interest are the craneflies associated with silty river margins in the vicinity of Newbridge on Usk. The fish</p>

Commented [PK1]: Please note that this is not necessarily a complete list of SSSI features; the best place to get these from are the site SMS statements, but I don't believe it will impact considerations in the assessment which is being conditioned to deliver improvements in flows on the River Usk SAC.

fauna is of international significance including several rare and scarce species and there is an expanding population of otters. Several scarce higher plant species occurring along the river's tidal reaches are also of special interest.

RIVER USK (TRIBUTARIES)

The site is of special interest for its internationally important populations of otter, Atlantic salmon *Salmo salar*, bullhead *Cottus gobio*, brook lamprey *Lampetra planeri* and river lamprey *Lampetra fluviatilis*. These species thrive in the largely un-modified streams and medium sized rivers that comprise the Usk Tributaries

SEVERN ESTUARY

The estuarine fauna includes: internationally important populations of waterfowl; invertebrate populations of considerable interest; and large populations of migratory fish, including the nationally rare and endangered Allis Shad (*Alosa alosa*). Seven species of migratory fish move through the Estuary between the sea and rivers. There are particularly large numbers of Atlantic Salmon *Salmo salar* and Common Eel *Anguilla anguilla*. The other species are Allis Shad, the nationally rare Twaite Shad *Alosa fallax*, the Sea Trout *Salmo trutta*, Sea Lamprey *Petromyzon marinus* and the Lamprey or River Lamprey *Lampetra fluviatilis*.

The abstractions from the River Usk and its tributaries have potential to reduce in flows into and within the River Usk and therefore has the potential to affect these SSSI's and their fish features. Migratory species are present within the River Usk and some of the tributaries and could be affected by lower flows which could reduce the availability of suitable habitat and impact on migration. The unscreened intakes also pose a risk of entrapment or entrainment to fish which are part of the reason for designation of these SSSI's.

12.Decision

ii) The permission is **not likely to damage** any of the flora, fauna or geological or physiological features which are of special interest because of **conditions**.

Risk of entrapment or entrainment of Fish/eel

During determination it has been confirmed that the following intakes are accessible to various fish species (including eels) and therefore appropriate intake screening conditions will be included on the licences to prevent entrapment or entrainment of fish at the intake points. Please see the table below for details of the screening that will be required.

Application reference	Site	Fish screening conditions
PAN-006998	Brecon weir	10mm bar or mesh screen
PAN-006664	Cwm Crawnnon	9mm bar or mesh screen
PAN-006663	Llangattock	9mm bar or mesh screen
PAN-006667	Ochram Turn	9mm bar or mesh screen
PAN-006666	Mill Turn	9mm bar or mesh screen

The intake screen required at Brecon is already in place and this will be conditioned on the licence to ensure it remains in place and is maintained. For the other sites in the table above, CRT will need to install new 9mm screening in accordance with the condition below that will be included on the licences.

- (i) *Prior to abstraction taking place under this licence, the Licence Holder shall install an intake screen with mesh or bar spacing no greater than 9 millimetres. The intake screen shall be positioned and angled to ensure an appropriate bywash to prevent the entrapment, entrainment or impingement of fish at the point of abstraction in accordance with the plans and specifications to be submitted to and approved in writing by NRW.*
- (ii) *The Licence Holder shall maintain, repair or replace the intake screen to ensure that it remains effective at all times.*

For the remaining sites, PAN-006999 Trosnant Spring and PAN-006995 Castle Turn, NRW Fisheries Officers have confirmed that intake screening is not required. The abstraction from Trosnant Spring is from an underground catchpit which captures the spring water and is therefore not accessible to fish. Regarding the Castle Turn intake, NRW accept the applicants view that there will be no migratory salmon or eels present at this location based upon stream size and downstream barriers (altitude and gradient) and therefore no screening is required.

Impact on flows and therefore suitable habitat and migration

The reduction in flows as a result of the abstractions could impact on availability of suitable fish habitat and fish movement within the River Usk leading to negative impacts on the fish population. The River Usk is also an SAC and its tributaries provide supporting habitat to the SAC. Previous modelling work, assessing the impact of the current unconstrained abstractions has showed they are having a significant impact on flow. The modelling work done to inform the restrictions required to ensure the abstractions do not have a significant adverse impact on the SAC has led to the following flow restrictions, these restrictions are also considered appropriate to prevent damage to the SSSI features.

Brecon Intake

For the Brecon Intake, modelling showed that a hands-off flow condition and abstraction cuts backs are needed to ensure the HDERF line is adequately met. The cut backs consist of a series of flow bands with a maximum permitted abstraction for each band.

The restrictions required are;

A Q99 hands off flows set at 90,000 cubic metres per day. When the unsupported flows in the River Usk at Brecon are below this, the abstraction must cease.

When flows are above 90,000 cubic metres per day, the following cut backs are proposed.

Table 1	
When the unsupported rate of flow in the River Usk at Brecon is (cubic metres per day):	The maximum quantity of water to be abstracted shall not exceed (cubic metres per day):
90,000 – 95,000	133
95,000 – 100,000	358

100,000 – 105,000	540
105,000 – 110,000	806
110,000 – 115,000	945
115,000 – 120,000	1,178
120,000 – 125,000	1,233
125,000 – 130,000	1,465
130,000 – 135,000	1,662
135,000 – 140,000	1,812
140,000 – 145,000	3,166
145,000 – 150,000	9,483
150,000 – 155,000	9,940
155,000 – 160,000	10,114
160,000 – 165,000	10,540
165,000 – 170,000	10,957
170,000 – 175,000	11,355
175,000 – 180,000	11,827
180,000 – 185,000	12,097
185,000 – 190,000	12,817
190,000 – 195,000	13,036
195,000 – 200,000	13,538
200,000 – 205,000	13,795
205,000 – 210,000	14,177
210,000 – 215,000	14,456
215,000 – 220,000	15,041
220,000 – 225,000	15,511
225,000 – 230,000	15,899
230,000 – 235,000	16,331
235,000 – 240,000	16,811
240,000 – 245,000	17,146
245,000 – 250,000	17,801
250,000 – 255,000	18,164
255,000 – 260,000	18,743
260,000 – 265,000	19,120
265,000 – 270,000	19,613
270,000 – 275,000	20,266
275,000 – 280,000	20,649
280,000 – 285,000	21,225
285,000 – 290,000	21,596
290,000 – 295,000	22,159
295,000 – 300,000	22,591
300,000 – 305,000	23,152
305,000 – 310,000	23,726
310,000 – 315,000	24,148
315,000 – 320,000	24,646
320,000 – 325,000	25,152
325,000 – 330,000	25,659
330,000 – 335,000	26,209
335,000 – 340,000	26,621
340,000 – 345,000	27,152
345,000 – 350,000	27,656
350,000 – 355,000	28,122

355,000 – 360,000	28,674
360,000 – 365,000	29,151
365,000 – 370,000	29,658
370,000 – 375,000	30,113
375,000 – 380,000	30,735
380,000 – 385,000	31,127
385,000 – 390,000	31,610
390,000 – 395,000	32,165
395,000 – 400,000	32,667
400,000 – 405,000	33,081
405,000 – 410,000	33,639
410,000 – 415,000	34,091
415,000 – 420,000	34,568
>420,000	35,000

Plots from NRW hydrologists show these restrictions, which will be conditioned within the licence along with daily recording to demonstrate compliance with the conditions, result in a significant improvement in the impacts of the abstraction and ensure that the HDERF line is adequately met. Please refer to [Figure 10](#) in Annex B which, when compared to [Figure 9](#), shows the significant improvement to flows and achievement of the HDERF as a result of the HoF and abstraction cut backs. The full set of additional plots showing the modelled effects of the restrictions in specific months and dry years in the record can be found on DMS [here](#) in file PAN-006998, these plots show the restrictions imposed will result in a significant improvement in river flows by reducing this abstraction.

Cwm Crawnnon, Llangattock, Ochram Turn and Mill turn Intakes

For these intakes, modelling showed that a hands-off flow condition and flow split are needed to adequately meet the HDERF line.

The restrictions required for each of these sites are set out below.

Site	Maximum abstraction rate (cubic metres/day)	Hands off flow (cubic metres/day)	Flow split
Cwm Crawnnon	1,800	3,000 (Q99)	15%
Llangattock	1,000	1,000 (Q99)	15%
Ochram Turn	200	150 (Q99)	15%
Mill Turn	1,100	1,300 (Q98)	15%

The [assessment spreadsheet](#) from NRW's Hydrology Officer show's these restrictions, which will be conditioned within each of the licences for these sites, result in a significant improvement in the impacts of the abstractions and ensure that the HDERF line is adequately met at each site. Confirmation of Fisheries agreement that these restrictions are appropriate for fish can be found using the link above.

Each licence will also include a requirement to measure the abstraction volumes and submit returns so compliance with the licence conditions can be checked.

It should be noted that while the HoF's appear very low, when coupled with the small percentage take of 15% (meaning 15% of the available flow above the hands off flow and up to the maximum abstraction rate), the overall amount of flow protection is still sufficient to protect the HDERF, which does allow a percentage deviation from naturalised flow even below Q95 (10%).

Castle Turn Intake

Modelling showed that the abstraction needs to be curtailed and a hands-off flow condition and flow split are needed to achieve the CAMS EFI line. The restrictions required for this site are set out below. These will be included with the licence conditions and the applicant will be required to measure their abstraction volumes and provide annual returns to demonstrate compliance with the conditions.

Site	Maximum abstraction rate (cubic metres/day)	Hands off flow (cubic metres/day)	Flow split
Castle Turn	2,000	250 (Q99)	25%

Trosnant Spring Intake

Trosnant Spring Intake

This CRT abstraction is from a spring known as Trosnant Spring. The spring water is captured in an underground chamber and diverted into the canal. The spring is adjacent to the Trosnant Brook which flows via a culverted section into the Afon Lwyd approximately 219m downstream. The Afon Lwyd then flows for approximately 16.9km before joining the River Usk in Caerleon and subsequently joining the Severn Estuary.

The spring overflows to the brook and if the abstraction were not present, the spring would contribute flow to the brook, therefore we consider them hydrologically linked. The brook then flows into the Afon Lwyd which provides supporting habitat to the River Usk SSSIs and Severn Estuary SSSI and migratory fish features are present in the Afon Lwyd (although not above the culvert within the brook itself). Reduction in flow in the supporting habitat in the Afon Lwyd has the potential to impact on the habitat and passage of the fish species for which the River Usk and Severn Estuary SSSI are designated.

NRW's modelling (see email on DMS [here](#) dated 11/11/22) shows that the Afon Lwyd is already failing CAMS EFI due to the presence of the DCWW licences (based on fully licensed scenario). The abstraction from Trosnant Spring is reducing flows into the brook and therefore reducing flows in the Afon Lwyd, increasing the extent of the CAMS EFI failure on the Afon Lwyd.

Therefore, to prevent damage to the River Usk and Severn Estuary SSSI features, the abstraction must be curtailed to ensure it does not worsen the existing CAMS EFI failure on the Afon Lwyd. This can be achieved via the inclusion of a Hands-off flow condition on the licence.

Following review of the modelling undertaken to establish the hands-off flow required, NRW are satisfied that a Q75 HOF will be sufficient to prevent worsening of current EFI failures on the Lwyd, as shown in the graphs below, and is sufficient to protect the River Usk and Severn Estuary SSSI fish features, see [email](#) dated 16/11/22 on DMS. The HOF will be linked to Rhiwderin gauging station and will be conditioned on the licence.

Fish passage

As the flow restrictions being imposed will result in less water being abstracted than previously taken, NRW Fisheries Officers have confirmed that the increase in flows over the intake structures will potentially improve upstream fish passage and therefore no upstream fish passage improvements/conditions are required as part of the licensing of these New Authorisations applications. Should amendments be made to those intake structures in future, Fish passage requirements may need to be re considered with any future applications.

Following the above considerations and with the restrictions included as detailed above, NRW are satisfied that the abstractions will not cause damage to the SSSI's identified.

The Natural Resources Wales is minded to:

Issue the permission with conditions to ensure no damage to SSSI

13.Name and job title of Permitting Officer:	Emma Allcorn – Lead Specialist Officer (Water Resources Permitting)
---	---

14.Date form sent to Conservation Officer:	08/11/22
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For Natural Resources Wales use only, once Conservation Officer response received

15.Conservation Officer comment on assessment:	<p><i>Please delete as appropriate:</i></p> <p>ii) Conservation Officer advise the operation can go ahead with conditions, which are those flow conditions identified in the tables above along with any fish screening requirements that have been listed as necessary.</p> <p>Any conditions identified or methods of control of flow cannot be modified, without giving the Environment Team notice and waiting 21 days. If you decide not to apply any of the conditions then it will be necessary to explain how the SSS features are being protected and our advice has been taken into account.</p> <p>Please ensure that the Conservation Team response is attached to this Formal Notice.</p>
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16.Name and job title of Conservation Officer:	Ken Perry, Senior Officer, South Powys Environment Team
---	---

17.Date of receipt of Conservation Officer response:	24/11/22
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From: Allcorn, Emma
Sent: 07 December 2022 19:36
To: WA 2003 New Authorisations; Nicholas Saiz
Cc: Kathryn Maye; Adam Comerford
Subject: PAN-006999 Trosnant Spring - Inclusion of annual volume

Dear all,

Following our discussions earlier this week, I would like to respond on the point raised and provide some further explanation. Please see below. Please can I draw your attention to the brief opportunity to provide any additional evidence you have for Trosnant by close of play on this Friday 09/12/22.

Regarding the inclusion of annual volumes on Trosnant

Following our discussions I am aware of your concerns regarding the inclusion of an annual volume on this licence as it limits abstraction to less than 365 days a year. Having considered this further, we remain satisfied that this is necessary in line with New Authorisations Policy and I have provided further explanation below to explain our decision. As highlighted in my previous emails sharing the draft licences, I have already reviewed the Ystalyfera licence you referenced during the meeting on Monday and can confirm there is no inconsistency with that licence. The licence for Ystalyfera licence does not contain quantity conditions, the only flow restriction is the means of abstraction has been limited to the existing operation, as per NA policy.

The purpose of New Authorisations (NA) is to bring previously exempt abstractions into the licensing system. As part of that process, we are required to ensure the licences issued reflect the historic abstraction that has taken place. As part of the NA process, we also had to consider whether the abstraction presented a risk of serious damage. As a result of the serious damage consideration, your abstractions have been restricted via the HoF's, cutbacks and screening requirements. The inclusion of these conditions to prevent serious damage to designated sites does not negate the need to also ensure there is a mechanism within the licences to control or limit abstraction to historic levels.

The NA guidance does allow some flexibility with how that control is achieved on transfer licences. i.e. it does not have to be via the inclusion of volumes if there is another suitable method.

Trosnant Spring

With regards to Trosnant Spring, the evidence provided does contain significant gaps over the qualifying period which you have advised is due to pipe blockages or broken telemetry. However, the evidence does include a continuous period of 27 months abstraction data. The highest daily abstraction during that period was 490 cubic metres a day and the annual figure is 87,230 cubic metres which has been included on the licence.

The licence as written allows you just over 43 days abstraction per year at the maximum daily rate of 2,000 cubic metres. This comes out very low due to the high daily volume that has been agreed via the modelling group.

Looking at the data again, on reflection, we think the daily volume of 2,000 cubic metres that was agreed at the modelling group is generous. This figure was only exceeded twice within the evidence and those 2 data points are significantly higher than the rest and are potentially outliers/errors. If those 2 outliers are removed, the evidence shows a maximum of 1240 cubic metres per day, although there are only 4 readings above 780 cubic metres. We don't intend to revisit the daily volume now but the high figure agreed causes the number of days abstraction to appear very low. Once the blanks are removed from the evidence, the average daily abstraction from the data available for the 7 year period was 302.3 cubic metres a day. At this rate the licence allows 288.5 days abstraction per year.

As the daily volume that has been agreed via the modelling group would take you over the annual evidenced figure if it was allowed for 365 days a year, we need to include a mechanism within the licence to ensure the abstraction remains within the historic use to comply with NA policy. Including the pipe diameter on the licence isn't sufficient to achieve this in this case, therefore we consider it necessary to include the annual volume on the licence.

We make our decisions based on the best available evidence. If you have any additional evidence that we could consider, please could you submit this by close of play on Friday 09/12/22.

Kind Regards,

Emma

Emma Allcorn

Swyddog Arbenigol Arweiniol (Adnoddau Dŵr) / Lead Specialist Officer (Water Resources)

Cyfoeth Naturiol Cymru/ Natural Resources Wales

Ffôn/ Phone: 03000 65 4202

Tŷ Cambria, 29 Heol Casnewydd, Caerdydd, CF24 0TP / Cambria House, 29 Newport Road, Cardiff, CF24 0TP

We are reviewing our regulatory fees and charges, please find more information on our consultation here:

[Consultation on our regulatory fees and charges for 2023/2024 - Natural Resources Wales Citizen Space - Citizen Space \(cyfoethnaturiol.cymru\)](#)

Rydym yn adolygu ein ffioedd rheoleiddio, mae rhagor o wybodaeth am ein hymgyngoriad ar gael yma:

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Yn falch o arwain y ffordd at ddyfodol gwell i Gymru trwy reoli'r amgylchedd ac adnoddau naturiol yn gynaliadwy.

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Croesewir gohebiaeth yn Gymraeg a byddwn yn ymateb yn Gymraeg, heb i hynny arwain at oedi. Correspondence in Welsh is welcomed, and we will respond in Welsh without it leading to a delay.

Allcorn, Emma

From: WA 2003 New Authorisations <New.Authorisations@canalrivertrust.org.uk>
Sent: 13 December 2022 17:01
To: Allcorn, Emma; WA 2003 New Authorisations
Cc: Kathryn Maye; Adam Comerford; Helen Sillitto; Mathew Wells
Subject: RE: PAN-006999 Draft Trosnant Spring Abstraction Licence

Follow Up Flag: Follow up
Flag Status: Completed

Hi, these are our comments in response to the operator review of the draft licence supplied to the Trust on 5 December 2022.

As a general point please amend any reference to "Monmouthshire & Brecon Canal" with an "&" and not "and".

6.1:
Please consider altering the definition of the day: "A day means any period of 24 consecutive hours". This effectively makes the daily mean an hourly flow condition. It therefore is not clear how the data should be recorded and supplied to NRW in condition 8. As drafted, the licence does not require any more than 1 measurement being recorded at the same time each day. We suggest for clarity that the definition of a "day" in 6.xx be changed to "24 hours starting midnight".

The annual maximum from historic record:

The Trust is concerned that this condition has been based on incomplete/partial data from the qualifying period, as explained in the supporting information. The Trust considers that a more appropriate annual maximum should be based on the daily maximum multiplied by 365 days. Furthermore, the previous collaborative working with NRW did not highlight any environmental issues with a 2MI/d abstraction all year round.

8.2:
It is a regulatory burden to supply data every March on a transfer licence and so we request the following text: "The Licence Holder shall send to NRW a copy of the record required by condition 8.1 or summary data to NRW ~~within 28 days after 31 March in each year and also~~ within 28 days of being so requested in writing by NRW."

9.1:
Regarding the annual maximum proposed:
In regards to the proposed Q75 Hands Off Flow condition, the Trust has not received a copy of the HRA Stage 1 and Stage 2 reports which are being used as the justification of this condition and we will need to consider our position. Furthermore, the previous work with NRW did not indicate any requirement for such a protective HOF, especially because NRW had previously advised that the Trosnant Brook does not impact on the River Usk SAC.

Reasons for Conditions:

9.1: remove apostrophe in Area's

All the best,

Nicholas Saiz

Project Manager

M 07584 543214

E nicholas.saiz@canalrivertrust.org.uk

From: Allcorn, Emma <Emma.Allcorn@cyfoethnaturiolcymru.gov.uk>

Sent: 05 December 2022 17:29

To: WA 2003 New Authorisations <New.Authorisations@canalrivertrust.org.uk>; Nicholas Saiz

<Nicholas.Saiz@canalrivertrust.org.uk>; Adam Comerford <Adam.Comerford@canalrivertrust.org.uk>; Kathryn Maye <Kathryn.Maye@canalrivertrust.org.uk>

Subject: PAN-006999 Draft Trosnant Spring Abstraction Licence

CAUTION: This email originated from an external source. DO NOT CLICK/OPEN links or attachments unless you are certain of their origin.

Dear all,

Following our meeting this afternoon, I am pleased to attach a draft copy of the licence for the above application. Should you have any comments on the draft, please provide them by **Monday 12/12/2022**. I appreciate this is a tight turnaround but it is necessary to meet the determination timeline of 16/12/22 which was set for these licences and has been included in the work programme discussions to date. Whilst we are not able to reconsider technical issues such as screening or flow restrictions at this stage, this is an opportunity to check for any administrative issues.

Following our discussion this afternoon I am aware of your concerns regarding the inclusion of an annual volume on this licence. This is something I will look into this week to check whether NA policy allows any flexibility and I will aim to provide a response on this point before the end of the week. I have already reviewed the Ystalyfera licence you referenced during the meeting and can confirm there is no inconsistency with that licence. The licence for Ystalyfera licence does not contain quantity conditions, the only flow restriction is the means of abstraction has been limited to the existing operation. Therefore it not a relevant consideration to the inclusion of an annual volume on this licence.

Should you have any queries or concerns, please do not hesitate to contact me.

Kind Regards,
Emma

Emma Allcorn

Swyddog Arbenigol Arweiniol (Adnoddau Dŵr) / Lead Specialist Officer (Water Resources)

Cyfoeth Naturiol Cymru/ Natural Resources Wales

Ffôn/ Phone: 03000 65 4202

Tŷ Cambria, 29 Heol Casnewydd, Caerdydd, CF24 0TP / Cambria House, 29 Newport Road, Cardiff, CF24 0TP

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Croesewir gohebiaeth yn Gymraeg a byddwn yn ymateb yn Gymraeg, heb i hynny arwain at oedi. Correspondence in Welsh is welcomed, and we will respond in Welsh without it leading to a delay.

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Cadw mewn cysylltiad

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Mae'r e-bost hwn a'i atodiadau ar gyfer defnydd y derbynnydd bwriedig yn unig. Os nad chi yw derbynnydd bwriedig yr e-bost hwn a'i atodiadau, ni ddylech gymryd unrhyw gamau ar sail y cynnwys, ond yn hytrach dylech eu dileu heb eu copïo na'u hanfon ymlaen a rhoi gwybod i'r anfonwr eich bod wedi eu derbyn ar ddamwain. Mae unrhyw farn neu safbwynt a fynegir yn eiddo i'r awdur yn unig ac nid ydynt o reidrwydd yn cynrychioli barn a safbwyntiau Glandŵr Cymru.

Mae Glandŵr Cymru yn gwmni cyfyngedig drwy warant a gofrestrwyd yng Nghymru a Lloegr gyda rhif cwmni 7807276 a rhif elusen gofrestredig 1146792. Swyddfa gofrestredig: National Waterways Museum Ellesmere Port, South Pier Road, Ellesmere Port, Cheshire CH65 4FW.

Canal & River Trust
National Waterways Museum Ellesmere Port
South Pier Road
Ellesmere Port
Cheshire
England
CH65 4FW

19/12/2022

Decision on your Transitional Licence application (PAN-006999 Trosnant Spring)

Licence number: WA/056/0012/0004

Dear Dr Comerford

We are pleased to tell you that your application for a transfer licence to authorise a previously exempt abstraction has been successful.

Please read your licence carefully as it is a legal document. You will have to keep to the conditions shown on it and do any monitoring in line with the licence conditions.

Your transfer licence will remain in force until 31/03/2029, in line with our policy on setting time limits. The time limit is linked to future reviews of water resources within a Catchment Abstraction Management Strategy (CAMS) area. At the end of the time limit, we should be able to renew the licence if:

- there is no damage to the environment,
- the need for the abstraction can still be justified,
- water is being used efficiently; and
- you still meet the usual legal requirements for getting a licence.

We do not guarantee that we will renew the licence. We will contact you before your licence ends to tell you about the renewal process.

Hands off Flow / Hand off Level

Please note that your licence includes a Hands off Flow (HoF) condition; a flow in the river which when reached you should stop abstracting. No abstraction shall take place when the flow in the River Ebbw as gauged at Rhiwderin gauging station is equal to or less than 220,000 cubic metres per day. 220,000 cubic metres per day is equal to a level of 0.372 metres at the Rhiwderin gauging station. You can view the river level of the River Ebbw at Rhiwderin gauging station via [Ebbw at Rhiwderin - River levels, rainfall and sea data \(naturalresources.wales\)](http://naturalresources.wales). This condition is included to protect against adverse impacts to

the Severn Estuary SAC. As NRW considers serious damage to apply where an abstraction is affecting or has the potential to affect sites designated under the Habitats Regulations, the condition is also considered necessary to protect against serious damage.

Compliance

We regularly make routine visits to make sure that the terms of licences are up to date and that any work to abstract or impound water keeps to the licence conditions. One of our representatives will contact you, before they visit, to discuss the terms of the licence. They may visit you again later without giving you notice. If you have any queries regarding the future regulation of your licence then please contact the Monmouthshire and Torfaen Environment team.

It is your responsibility to make sure that the water you abstract is suitable for the purpose it will be used for. You must continue to monitor the water to make sure you are using it efficiently. It is also your responsibility to make sure that you have any other permission (for example, planning permission) you need in connection with your proposed work.

If you wish to apply to increase your application abstraction quantities you should do this through our normal application procedure, details of which are available on the '[Apply to change an existing abstraction or impoundment licence](#)' page of our website, which can also be found via the following pathway: [Home](#) > [Permits and Permissions](#) > [Water abstraction and impoundment licences](#) > [Apply to change an existing abstraction or impoundment licence](#).

Biosecurity

Any work undertaken should take account of biosecurity risks, and mitigation measures should be put in place. The most important measure is to ensure that all equipment (plant, tools, footwear etc) that come to site, arrive clean, and are cleaned again before leaving site. This applies to all sites, not just those where an invasive non-native species (INNS), pest or disease has been previously identified. Information on how to assess biosecurity risks; simple steps to reduce risks; and specific measures for higher risk activities can be found on the [GBNNS website](#) for INNS, or for tree health on [our website](#). If you need any further help, please feel free to contact our [INNS and Biosecurity](#) team or our [Tree Health](#) team.

EU Exit

Following the UK's departure from the EU on 31 January 2020 and the end of the transition period on 31 December 2020, the legal obligations relating to compliance with environmental permits and legislation will continue to apply. NRW will continue to issue and regulate all permits and licences in line with our current practice. If you have any questions about your permits or licences and/or site management, please contact our Customer Care Centre on 03000 653 000.

Right of Appeal

If you are not satisfied with the conditions set on your licence, you can appeal to Planning and Environment Decisions Wales at the following address:

Planning and Environment Decisions Wales
Crown Buildings
Cathays Park
Cardiff
CF10 3NQ
Telephone: 0300 0604400
Email: PEDW.Casework@gov.wales

You can get a standard notice of appeal from the address above. You must return the notice of appeal **within 28 days** of the date of this notice, and send a copy to us. The notice must give the reasons for the appeal and you must also send:

- the application it relates to,
- any information or reports you sent us with the application,
- this decision notice; and
- any other relevant correspondence.

You must send written notice of the appeal and the documents listed above to Planning and Environment Decisions Wales at the address above. At the same time you must send us a copy of the notice and documents to:

Permitting Service Manager
Permitting Service
Natural Resources Wales
Tŷ Cambria
29 Newport Road
Cardiff CF24 0TP
Phone: 0300 065 3000

You can withdraw an appeal at any time before a decision has been made. In exceptional circumstances, Planning and Environment Decisions Wales have the power to allow a longer period for serving a notice of appeal.

If you have any questions about your licence, please contact me on the number below.

Yours sincerely
Emma Allcorn
Lead Specialist Officer (Water Resources)

Direct phone line: 03000 654202
Direct e-mail: Emma.Allcorn@cyfoethnaturiolcymru.gov.uk

6.1:

Please consider altering the definition of the day: “A day means any period of 24 consecutive hours”. This effectively makes the daily mean an hourly flow condition. It therefore is not clear how the data should be recorded and supplied to NRW in condition 8. As drafted, the licence does not require any more than 1 measurement being recorded at the same time each day. We suggest for clarity that the definition of a “day” in 6.xx be changed to “24 hours starting midnight”.

The definition of a day is standard definition used across all modern licences and therefore will remain the same. Condition 8.1 requires you to take a reading of the measuring device at the same time each day. This device would usually be a meter and show the amount abstracted in a running total, rather than an instantaneous rate at a particular time. As written, the licence allows you to pick what time of day you take this reading. Changing the definition to midnight to midnight would require condition 8.1 to be changed to require the measurement to be taken at midnight which would reduce your flexibility and likely be impractical.

The annual maximum from historic record:

The Trust is concerned that this condition has been based on incomplete/partial data from the qualifying period, as explained in the supporting information. The Trust considers that a more appropriate annual maximum should be based on the daily maximum multiplied by 365 days. Furthermore, the previous collaborative working with NRW did not highlight any environmental issues with a 2Ml/d abstraction all year round.

As explained in my email dated 07/12/22, the purpose of New Authorisations (NA) is to bring previously exempt abstractions into the licensing system. As part of that process, we are required to ensure the licences issued reflect the historic abstraction that has taken place. As the daily volume that has been agreed via the modelling group would take you over the annual evidenced figure if it was allowed for 365 days a year, we need to include a mechanism within the licence to ensure the abstraction remains within the historic use to comply with NA policy. Including the pipe diameter on the licence isn't sufficient to achieve this in this case, therefore we consider it necessary to include the annual volume on the licence. We know from the supporting information says that abstraction has not taken place at all times due to pipe blockages therefore the best available information has been used to inform the annual volume, this is the maximum annual figure from the evidence provided.

8.2:

It is a regulatory burden to supply data every March on a transfer licence and so we request the following text: “The Licence Holder shall send to NRW a copy of the record required by condition 8.1 or summary data to NRW ~~within 28 days after 31 March in each year and~~ **also** within 28 days of being so requested in writing by NRW.”

This condition is the standard returns conditions used across all modern licences that require returns for all year abstractions. NRW will send you a form by email to complete throughout the year. NRW will contact you when the information is due. Further information on the returns process can be found on our website here [Natural Resources Wales / Submit your water abstraction return](#)

NRW agreed to remove this element specifically for the Llantysilio (Llangollen) abstraction due to the conjunctive abstraction with United Utilities and the fact that there is an existing arrangement for CRT to submit data to NRW. We are not looking to change this requirement for any of the other abstractions.

9.1:

Regarding the annual maximum proposed:

In regards to the proposed Q75 Hands Off Flow condition, the Trust has not received a copy of the HRA Stage 1 and Stage 2 reports which are being used as the justification of this condition and we will need to consider our position. Furthermore, the previous work with NRW did not indicate any requirement for such a protective HOF, especially because NRW had previously advised that the Trosnant Brook does not impact on the River Usk SAC. As explained during our meeting on 05/12/22, we encountered unforeseen difficulties during the HRA process with regards to Trosnant Spring and had to reconsider the abstraction in light of the potential impact on the Afon Lwyd which provides supporting habitat to the Severn Estuary SAC. As discussed during the meeting, the Afon Lwyd is already failing CAMs EFI due to the presence of the DCWW abstraction licences.

As part of the modelling group, the restrictions that were previously discussed for Trosnant spring were to achieve CAMs EFI in the Trosnant Brook. However, during the HRA process and discussions, the advice was that the Afon Lwyd, which the Trosnant Brook flows into, is considered supporting habitat to the Severn Estuary SAC as it contains Fish features of the estuary SAC. The modelling undertaken showed that the Trosnant abstraction causes a worsening of the CAM EFI failure on the Afon Lwyd.

The previously discussed restrictions to ensure protection of CAMS EFI in Trosnant Brook were not sufficient to prevent increased impact on the already failing Afon Lwyd and therefore a hands-off flow of Q75 was required to prevent worsening of current EFI failures on the Lwyd.

A copy of the HRA undertaken for the applications has been included with this response.

The Severn Estuary / Môr Hafren European Marine Site

comprising :

**The Severn Estuary / Môr Hafren
Special Area of Conservation (SAC)**

**The Severn Estuary
Special Protection Area (SPA)**

**The Severn Estuary / Môr Hafren
Ramsar Site**

**Natural England & the
Countryside Council for Wales' advice
given under Regulation 33(2)(a) of the Conservation
(Natural Habitats, &c.) Regulations 1994, as amended.**

June 2009



A Welsh version of all or part of this document can be made available on request
from the Countryside Council for Wales

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SUMMARY

This document contains Natural England and the Countryside Council for Wales' (CCW's) advice issued under Regulation 33 of the Conservation (Natural Habitats, &c.) Regulations 1994, for the *Severn Estuary European Marine Site (EMS)*, which comprises the *Special Area of Conservation (SAC)*, *Special Protection Area (SPA)*, and *Ramsar site*, namely conservation objectives and advice on operations. It also includes an explanation of the purpose and format of Natural England and CCW's "Regulation 33 advice".

Section 1 provides the legal basis and practical requirements for setting conservation objectives for Natura 2000 sites, as understood by Natural England and CCW. It also briefly explains the legal and practical basis of the operations advice.

Section 2 details the qualifying features for the Severn Estuary SAC, SPA and Ramsar site under the EU Habitats and Birds directives and the Convention on Wetlands of International Importance.

Section 3 provides a description of the features of the Severn Estuary EMS

Section 4 contains Natural England and CCW's advice as to the conservation objectives (Regulation 33(2)(a)) for SAC, SPA and Ramsar site. This section also includes the favourable condition tables for the SAC, SPA and Ramsar site.

Section 5 contains Natural England and CCW's advice on operations which may cause deterioration or disturbance of the habitats and species for which the SAC, SPA and Ramsar site has been selected (Regulation 33(2)(b)). This is provided to assist the relevant authorities and others in understanding the implications of the designation of these sites and the requirements of the Habitats Regulations and government policy.

Section 6 contains the references.

Section 7 contains a glossary of terms.

Appendices 1-9 provide maps of the extent of the SAC, SPA and Ramsar designations; the indicative extent of the habitat features, and sub features where information is available; and the low-tide distribution of birds.

Appendices 10-11 provide additional background information useful to the understanding of this advice.

Notes :

CCW and Natural England's predecessor English Nature, issued advice under Regulation 33(2)(a) and 33(2)(b) in relation to the SPA in February 2005 which is now superseded by this document.

This advice does not cover the terrestrial areas of the Severn Estuary SPA (ie ground which lies behind flood defences and which are not subject to the tidal influence of the estuary and are not therefore within the European Marine Site.

CCW and Natural England also issued advice under Regulation 33(2)(a) in relation to the cSAC in June 2008 which is also superseded by this document.

1. Introduction

This document provides advice under Regulation 33 (2) for the Severn Estuary European Marine Site (EMS), which comprises the following sites :

- Severn Estuary Special Area of Conservation (SAC)*
- Severn Estuary Special Protection Area (SPA)
- Severn Estuary Ramsar Site

(*At the time of issue of this document the Severn Estuary has been accepted by the European Commission as a Site of Community Importance (SCI) but formal notices have not yet been issued (expected to take place in 2009). Given the imminent notification of the SAC the Severn Estuary SCI is referred to as SAC throughout this document).

The indicative extent and relationship of these designated sites is shown in Appendix 1

This document:

- is designed to help relevant and competent authorities responsible for complying with the requirements of the Habitats Directive to understand the international importance of the site and the underlying physical and ecological processes supporting the habitats and species for which each of the above designated sites has been selected.
- is intended to assist the relevant authorities to develop, if considered appropriate, a management scheme under Regulation 34 of the Habitats Regulations, under which they shall exercise their functions in accordance with the requirements of the Directive;
- contains Natural England and CCW's advice to competent authorities as to the conservation objectives of each of the above designated sites, for the purpose of considering plans and projects in accordance with Article 6 of the Habitats Directive and Parts IV and IVa of the Habitats Regulations. Natural England and CCW will provide more detailed advice to competent authorities to assess the implications of particular plans or projects, where appropriate, at the time those plans or projects are being considered.

Anyone proposing to undertake plans or projects with a potential impact on site features are encouraged to consult Natural England or CCW early in the planning stages to identify possible issues of concern.

The advice in this document is subject to review by Natural England and CCW, for example to:

- add further advice on monitoring requirements in order to assess the degree to which the conservation objectives are being achieved in future;
- add further advice on operations likely to damage the features for which the SPA, SAC and Ramsar Site are selected (under Habitats Regulation 33(2)(b));
- take account of new information about the SPA, SAC and Ramsar site or its features, or any future changes to the designations.

Notes :

CCW and Natural England's predecessor English Nature, issued advice under Regulation 33(2)(a) and 33(2)(b) in relation to the SPA in February 2005 which is now superseded by this document.

This advice does not cover the terrestrial areas of the Severn Estuary SPA (ie ground which lies behind flood defences are which are not subject to the tidal influence of the estuary and are not therefore within the European Marine Site.

CCW and Natural England also issued advice under Regulation 33(2)(a) in relation to the cSAC in June 2008 which is also superseded by this document.

1.1 Natura 2000

The European Union Habitats¹ and Birds² Directives are international obligations which set out a number of actions to be taken for nature conservation. They represent one of the ways in which EU member states are fulfilling the commitments they made at the “Earth Summit” in Rio de Janeiro in 1992, for the conservation of the Earth’s biological diversity³. The Habitats Directive aims to promote the maintenance of biodiversity, taking account of economic, social, cultural and regional requirements, and sets out measures to maintain or restore, natural habitats and species of European Union interest at favourable conservation status⁴.

European sites include Special Areas of Conservation (SACs) designated under the 1992 Habitats Directive, which support natural habitats and species of European importance, and Special Protection Areas (SPAs) classified under the 1979 Birds Directive, which support internationally important wild bird populations. UK and Welsh Assembly Government policy also requires that Ramsar sites should receive the same level of protection as European sites⁵.

The Habitats Directive is given effect in the UK largely through the Conservation (Natural Habitats, &c.) Regulations 1994 (“the Habitats Regulations”)⁶. These Regulations set out the powers and duties of UK statutory bodies towards compliance with the requirements of the Habitats Directive. Under these Regulations, SACs together with Special Protection Areas (SPAs) classified under the 1979 EC Birds Directive for the conservation of birds, are called “European sites” and will form a network of conservation areas to be known as ‘Natura 2000’. Where SAC or SPA consist of marine areas they are referred to as European Marine Sites.⁷

There are various sources of guidance on the legal framework for European sites and European Marine Sites.⁸

A note on Ramsar :

The Convention on Wetlands of International Importance especially as Waterfowl Habitats (Ramsar Convention) was signed in Ramsar, Iran in 1971. The broad objectives of the Convention are to stem the loss and progressive encroachment on wetlands now and in the future, including through the designation of Ramsar sites.

A habitat can qualify as a Ramsar site for its representation of a wetland, or for the plant or animal species, including waterbirds, that it supports.

In accordance with Office of the Deputy Prime Minister (2005) *Planning Policy Statement 9: Biological and Geological Conservation*, Welsh Office Planning Guidance *Technical Advice Note No. 5* (TAN5), the DETR and NAW statements *Ramsar Sites in England* (November 2000) and *Ramsar Sites in Wales* (February

¹ Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora.

² Council Directive 79/409/EEC on the conservation of wild birds.

³ Biological diversity is defined as “the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.” (1992 International Convention on Biological Diversity, Article 2. <http://www.biodiv.org/convention/>)

⁴ A habitat or species is defined as being at favourable conservation status when its natural range and the areas it covers within that range are stable or increasing and the specific structure and functions which are necessary for its long term maintenance exist and are likely to continue to exist for the foreseeable future.

⁵ Office of the Deputy Prime Minister (2005) *Planning Policy Statement 9: Biological and Geological Conservation*, Welsh Assembly Government (2006) *Draft Revised Technical Advice Note 5 Nature Conservation and Planning*, DETR (2000) *Ramsar sites in England*, National Assembly for Wales (20010, *Ramsar sites in Wales*.

⁶ SI 1994/2716, HMSO, London. http://www.legislation.hmsso.gov.uk/si/si1994/uksi_19942716_en_1.htm

⁷ “Marine areas” are defined in the Habitats Regulations as areas “continuously or intermittently covered by tidal waters or any part of the sea in or adjacent to Great Britain up to the limit of territorial waters.”

⁸ *European Marine Sites in England & Wales: A guide to the Conservation (Natural Habitats &c.) Regulations 1994 and to the Preparation and Application of Management Schemes* (DETR & The Welsh Office, 1998), Office of the Deputy Prime Minister (2005) *Planning Policy Statement 9: Biological and Geological Conservation*, Welsh Assembly Government (2006) *Draft Revised Technical Advice Note 5 Nature Conservation and planning*, CCW (undated) *Natura 2000: European wildlife sites*.

2001); Ramsar sites classified under the Convention on Wetlands of International Importance should be given the same consideration as European sites when considering plans and projects that may affect them.

1.2 The role of Natural England and the Countryside Council for Wales

Regulation 33 of the Habitats Regulations requires Natural England and the Countryside Council for Wales (CCW) to advise the relevant authorities⁹ for each European Marine Site in, or partly in, England and Wales as to

- (a) the conservation objectives for that site, and
- (b) any operations which may cause deterioration of natural habitats or the habitats of species, or disturbance of species, for which the site has been designated.

This document contains Natural England and CCW's advice under Regulation 33 in relation to the designated sites which comprise the Severn Estuary EMS.

The Conservation (Natural Habitats &c.) Regulations 1994, as amended transpose the Habitats Directive into law in Great Britain. They give Natural England and CCW a statutory responsibility to advise relevant authorities as to the conservation objectives for European Marine Sites and Ramsar Sites in England and Wales and to any operations which may cause deterioration of natural habitats or the habitats of species, or disturbance of species for which the sites have been designated. This information will be a key component of any management scheme that may be developed for this site. It will also aid competent authorities in defining the scope and nature of 'appropriate assessment' which the Habitats Directive requires to be undertaken for 'plans and projects' having a significant effect on the European site (Habitats Regulations 20, 48, 50, 60-62 and 85B). Note that Natural England and CCW will also advise competent authorities on individual plans and projects as they arise. Natural England and CCW are also competent and relevant authorities under the Habitats Regulations.

1.3 The precautionary principle

The advice on operations contained within this package has been made based on the precautionary principle and any actions which may need to be taken in response to concerns identified as a result of monitoring undertaken by Natural England and the Countryside Council for Wales will also be made on this basis. All forms of environmental risk should be tested against the precautionary principle which means that where there are real risks to the site, lack of full scientific certainty should not be used as a reason for postponing measures that are likely to be cost effective in preventing such damage. It does not however imply that the suggested cause of such damage must be eradicated unless proved to be harmless and it cannot be used as a licence to invent hypothetical consequences. Moreover, it is important, when considering whether the information available is sufficient, to take account of the associated balance of likely costs, including environmental costs, and benefits (DETR & the Welsh Office, 1998).

1.4 The role of other competent and relevant authorities

The Conservation (Natural Habitats &c.) Regulations 1994 require competent authorities to exercise their functions so as to secure compliance with the requirements of the Habitats and Birds Directives. The term "competent authority" includes all public bodies and statutory undertakers. The Regulations identify a number of competent authorities as "relevant authorities", with particular functions in relation to European Marine Sites. In addition to their duties as competent authorities, under Regulation 34 the relevant authorities may establish a management scheme for a European Marine Site under which they shall exercise their relevant functions. Such a management scheme should be guided by the information contained in this document. Relevant authorities must, within their areas of jurisdiction, have regard to both direct and indirect effects on an interest feature of the site. This may include consideration of issues outside the boundary of the European Marine Site.

⁹ The types of bodies that are "relevant authorities" are identified in Regulation 5 of the Habitats Regulations.

Relevant authorities should ensure that all plans for the area integrate with the management scheme for the European Marine Site. Such plans may include Shoreline Management Plans, the Environment Agency's Flood Risk Management Strategy and Catchment Flood Management Plans, Local Development Plans/Frameworks, Sites of Special Scientific Interest management plans, local Biodiversity Action Plans and sustainable development strategies for estuaries. This must occur to ensure that there is only a single management scheme through which all relevant authorities exercise their duties under the Conservation (Natural Habitats &c.) Regulations 1994.

Relevant authorities also need to have regard to changing circumstances of the European Marine Site and may therefore need to modify the management scheme and/or the way in which they exercise their functions so as to maintain the favourable condition of interest features concerned in the long term. There is no requirement for relevant authorities to take any actions outside their statutory functions. For the purposes of this document the term 'interest feature' refers to any of the habitat types or species for which the European Marine Sites have been designated.

Under certain circumstances, where another relevant authority is unable to act for legal reasons, or where there is no other relevant authority, Natural England and CCW are empowered to use their bylaw-making powers under Regulation 36 of the Habitats Regulations 1994.

None of the information contained in this document legally binds any organisation (including Natural England and CCW) to any particular course of action. However, in exercising their functions in accordance with the requirements of the Habitats Directive, as required by the Habitats Regulations, and in accordance with government policy on Ramsar sites, the relevant authorities should be guided by the advice contained in this document. This applies amongst other things to the establishment of a "management scheme"¹⁰, if such a scheme is established.

1.5 Responsibilities under other conservation designations

In addition to its SAC, SPA and Ramsar Site status, parts of the Severn Estuary are also notified as Sites of Special Scientific Interest (SSSIs) under the 1981 Wildlife and Countryside Act and Bridgwater Bay is also a National Nature Reserve. The obligations of relevant authorities and other organisations under such designations are not directly affected by the advice contained in this document.

Relevant authorities and others may have obligations towards the conservation of habitats and species that are not features for which the Severn Estuary European Marine Site has been designated, and such obligations are not affected by this document.

1.6 Role of advice provided under Regulation 33

The information provided under Regulation 33 is in two parts: the conservation objectives, and the advice on operations. The legal context for each of these elements, the format of the advice and its underlying rationale are explained here. Sections 4 (conservation objectives and favourable condition tables) and 5 (operations advice) should be read in conjunction with these explanatory notes.

The information contained in this document is based on best available knowledge at time of writing and is subject to review at Natural England and CCW's discretion.

As referred to under section 1.1. above, there are various sources of guidance on the legal framework for European sites and European Marine Sites.¹¹

¹⁰ Regulation 34 of the Habitats Regulations.

¹¹ European Marine Sites in England & Wales: A guide to the Conservation (Natural Habitats &c.) Regulations 1994 and to the Preparation and Application of Management Schemes (DETR & The Welsh Office, 1998), Office of the Deputy Prime Minister (2005) Planning Policy Statement 9: Biological and Geological Conservation, Welsh Assembly Government (2006) Draft Revised Technical Advice Note 5 Nature Conservation and planning, CCW (undated) Natura 2000: European wildlife sites.

1.6.1 Outline of legal context and purpose of conservation objectives

The conservation objectives for a European Marine Site are intended to represent the aims of the Habitats and Birds Directives in relation to that site. The Habitats Directive requires that measures taken under it, including the designation and management of SACs, be designed to maintain or restore habitats and species of European Community importance at “favourable conservation status” (FCS), as defined in Article 1 of the Directive as follows;

Favourable conservation status as defined in Article 1 of the Habitats Directive

Conservation status of a natural habitat means the sum of the influences acting on a natural habitat and its typical species that may affect its long-term natural distribution, structure and functions as well as the long-term survival of its typical species within the territory referred to in Article 2.

The conservative [sic] status of a natural habitat will be taken as ‘favourable’ when:

- its natural range and the areas it covers within that range are stable or increasing, and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- conservation status of typical species is favourable as defined in [Article] 1(i).

Conservation status of a species means the sum of the influences acting on the species concerned that may affect the long-term natural distribution and abundance of its populations within the territory referred to in Article 2;

The conservation status of a species will be taken as ‘favourable’ when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis

In addition, the Birds Directive requires that, in relation to certain species of birds listed in Annex 1 of the Directive and regularly occurring migratory species, special measures are taken in order to ensure their survival and reproduction in their area of distribution. The species listed in Annex 1 of the Birds Directive are the subject of special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area of distribution. Species listed on Annex 1 are in danger of extinction, rare or vulnerable. Annex 1 species that regularly occur at levels over 1% of the national population meet the SPA qualifying criteria.

Therefore, the conservation objectives for the Severn Estuary SAC, SPA and Ramsar site represents Natural England and the Countryside Council for Wales' current judgement of the appropriate contribution of the site to the achievement of the favourable conservation status of the habitats and species of the European Marine Site. The conservation objectives in this document are intended to guide relevant and competent authorities in the exercise of their functions to comply with the requirements of the Directives outlined above.

1.7 Condition

Natural England and CCW use the term “favourable condition” for the condition represented by the achievement of the conservation objectives, in other words the desired condition for a designated habitat or a species on an individual site.

On many terrestrial European sites, we know sufficient about the required condition of qualifying habitats to be able to define favourable condition with confidence. In contrast understanding the functioning of large, varied, dynamic marine and estuarine sites, which experience a variety of pressures resulting from historic and current activities, is much more difficult. Consequently it is much harder to precisely define favourable condition in sites like the Severn Estuary. In general the conservation objectives provided are based on a working assumption that the current condition of the features is favourable for most attributes. Nevertheless there are certain instances where the assumption does not apply. In particular some of the intertidal habitats of the Severn are subject to coastal squeeze. Where existing problems *have* been identified, the relevant objectives reflect this.

If it becomes evident that the condition of other features is significantly degraded, and is therefore unfavourable, then restorative management actions will need to be undertaken to return the interest feature to favourable condition. In future revisions of our advice under Regulation 33, Natural England and CCW will keep our assumption under review in light of ongoing and future monitoring and our developing understanding of the features and the factors affecting them.

1.8 Favourable Condition Tables

The detailed information regarding the measures and targets that may be used during site monitoring to determine whether favourable condition is being achieved in practice is presented within the Favourable Condition Tables in section 4.

The favourable condition table specifies the following (in columns from left to right):

- **Features:** interest features for which the SAC, SPA or Ramsar site is selected.
- **Subfeatures:** ecologically important sub-divisions of an interest feature. In the case of a habitat interest feature, subfeatures would be component habitats or communities (eg. defined by type and/or by geographic location within the site). In the case of species interest features, subfeatures include the population itself, or any ecologically relevant subdivisions of the population, and any habitats or communities on which it/they depend.
- **Attributes:** particular characteristics of the features or sub-features which provide an indication of the condition of the feature (eg. total population size, extent of a habitat type).
- **Measures:** what exactly about the attributes will be measured, in terms of the units of measurement to be used, arithmetic nature and an indication of the frequency at which the measurement is taken. An indication of the method that is likely to be used to obtain the observed values of attributes. The method is closely linked to the way in which the measure is expressed. It is important to note that in many cases the precise monitoring method to be used may not be known at this stage.
- **Targets:** These define the attribute values that equate to favourable condition. If changes are observed that are ‘significantly’ different from the target, this will act as a trigger for further investigation as to the cause of the change, or remedial management action. In general the targets in the favourable condition table are subject to natural processes as set out in the conservation objectives; i.e. where natural processes alone dictate that targets are not met this will not result in the condition of the feature being classed as unfavourable. The term ‘subject to natural processes’ is explained further in Section 4.1.
- **Comments:** notes on the rationale for the use of each attribute and measure.

The favourable condition table is intended to supplement the conservation objectives, including with respect to the management of established and ongoing activities, future requirements of monitoring and reporting on the condition of the features of the site and, together with the conservation objectives, informs the scope and

nature of any appropriate assessment that may be needed. The table **does not by itself** provide a comprehensive basis on which to assess plans and projects as required under the Habitats Regulations. It should be noted that appropriate assessments are a separate activity to condition monitoring, requiring consideration of issues specific to individual plans or projects. Natural England and CCW will provide more detailed advice to competent and relevant authorities to assess the implications of any given plan or project under the Regulations, where appropriate, at the time a plan or project is being considered.

The favourable condition table specifies the main types of information that Natural England and CCW may use to assess the condition of interest features. On many terrestrial European sites, we know sufficient about the preferred or target condition of qualifying species and habitats to be able to define measures and associated targets for all attributes. In European Marine Sites favourable condition is generally harder to define precisely since our knowledge of features is still developing. Accordingly, in the absence of such information, condition of interest features in European Marine Sites will, in the first instance, be assessed against targets based on their condition at the time the sites were selected, which may need to be established through baseline surveys in many cases.

The information contained within the favourable condition table is not necessarily what will be monitored but provides a basis for discussions with management and advisory groups. The attributes and associated measures and targets may be modified over time. The selection of attributes is based on the current understanding of the habitats and species and the available measuring techniques.

The appropriateness of individual attributes as indicators of condition will be reviewed as more knowledge of the condition of interest features is obtained and/or survey and monitoring techniques develop. Monitoring of the attributes may be of fairly coarse methodology, underpinned by more rigorous methods on specific areas within the site.

The favourable condition table will be an important, but not the only, driver of the site monitoring programme. Other data, such as results from compliance monitoring and appropriate assessments, will also have an important role in assessing condition of interest features. The monitoring programme will be developed as part of the management scheme process through discussion with the relevant authorities and other interested parties. Natural England and the Countryside Council for Wales will be responsible for collating the information required to assess condition, some of which may be collected by other organisations, and for judging the condition of each feature within the site, taking into account all available information and using the favourable condition table as a guide.

The conservation objectives and associated Favourable Condition Tables in this document are intended to guide relevant and competent authorities in the exercise of their functions to comply with the requirements of the Directives outlined above.

1.9 Advice on operations

1.9.1 Legal context

Natural England and CCW's specific duty in Regulation 33 to give advice on operations that are potentially damaging needs to be seen in the context of the Habitats Directive, which requires that:

- the necessary conservation measures are established which correspond to the ecological requirements of the habitats and species on the site;
- appropriate steps are taken to avoid deterioration of habitats and significant disturbance of species.
- any plan or project which is likely to have a significant effect on a site is subject to an appropriate assessment in view of the site's conservation objectives.

The operations advice, in combination with the conservation objectives, is designed to assist relevant authorities and other decision-makers in complying with these provisions. The operations advice given in this document is without prejudice to other advice given, including the conservation objectives themselves

and other advice which may be given by Natural England and CCW from time to time in relation to particular operations.

The term “operations” is taken to cover all types of human activity, irrespective of whether they are under any form of regulation or management.¹² This is because the obligations in the Directive are

defined by the conservation requirements of the habitats and species, not by existing regulatory or management regimes. Thus the advice contains reference to operations which may not be the responsibility of any of the relevant authorities.

1.9.2 Practical requirements

Operations manifest themselves through one or more factors¹³. The conservation status of a given habitat or species could potentially be affected by many different types of factor, and hence many different types of operation.¹⁴ The key practical purpose of the Regulation 33 operations advice is to assist in the identification of priorities for management, by identifying operations to which features are both ‘sensitive’ and ‘vulnerable’. Sensitivity is defined as ‘the intrinsic intolerance of a habitat, community or individual of a species to damage from an external factor.’ Vulnerability is defined as ‘the likelihood of exposure of a habitat, community or individual of a species to a factor to which it is sensitive’.¹⁵ Thus the potential for an operation to deteriorate or disturb a feature depends both on the sensitivity of the feature to the operation – through its associated factors - and the location, intensity, duration and frequency of the operation and the factors that it affects or causes.

Formulating the operations advice has three main elements:

1. Identifying factors to which the features are sensitive.
2. Identifying the types of operation that can cause or affect those factors.
3. Assessing the likelihood of those factors (and hence the features) being affected by those operations, in other words the vulnerability of the feature to those effects.

The first and second of these elements relies on current understanding of the inherent sensitivity of features to particular factors, and the effect of operations on factors. Although there will be site-specific elements to this information, it may often rely on information from a variety of sources which are not specific to this site. The third stage is very site-specific, relying on information about the types, location, intensity, duration and so on, of operations occurring or likely to occur in or around the site.

Given that in many cases, information of the type indicated in the previous paragraph is rudimentary, or simply not available a precautionary approach is adopted for the identification of factors and operations. The operations advice clearly has to be based on the best available knowledge at the time and is subject to continual review. It necessarily involves an element of risk assessment, both in terms of assessing the likelihood of an operation or factor occurring, and the likelihood of it having an adverse effect on a feature.

Natural England and CCW’s advice to the relevant authorities is that, as a minimum, the extent and management of the operations identified in Section 5 should be reviewed in the context of the conservation objectives. The advice should also help to identify the types of plans or projects that would be likely to have a significant effect and should be subject to appropriate assessment, noting that such judgements will need to be made on a case-specific basis.

¹² The term also includes what the Habitats Directive and Regulations call “plans and projects” (see footnote 9).

¹³ A factor is defined as “A component of the physical, chemical, ecological or human environment that may be influenced by a natural event or a human activity” (*Sensitivity and mapping of inshore marine biotopes in the southern Irish Sea (Sensmap): Final report*. CCW, Bangor, December 2000.)

¹⁴ The complexity of formulating operations advice is compounded by the “many-to-many” relationship that exists between operations and factors, where an operation may manifest itself through several factors, and a factor may be affected by several operations, in different ways and to different magnitudes.

¹⁵ Adapted from Hiscock, K. [ed] 1996. *Marine Nature Conservation Review: rationale and methods*. Peterborough: JNCC.

The advice in Section 5 of this document is not a list of prohibited operations, or operations necessarily requiring consultation with, or consent¹⁶ from, Natural England or CCW. The input of the relevant authorities and others is a legal and practical necessity in determining the management needs of the site. Thus, the operations advice is provided specifically with the intention of initiating dialogue between Natural England, CCW and the relevant authorities.

Note : The advice on operations previously issued for the SPA in February 2005 is superseded by the advice given in Section 5.

¹⁶ However, in relation to land included within the European Marine Site, which has been notified as a Site of Special Scientific Interest (SSSI), owners or occupiers require Natural England or CCW's consent for any operations included in the SSSI notification, and statutory bodies intending to carry out or permit potentially damaging operations must notify Natural England or CCW and comply with certain other provisions. (Wildlife and Countryside Act 1981, section 28, as amended by the Countryside and Rights of Way Act 2000, section 75). General guidance on the operation of SSSIs is given in the CCW leaflet *Sites of Special Scientific Interest: A guide for landowners and occupiers* (Countryside Council for Wales, Bangor, 2001).

2. Qualifying features under the EU Habitats and Birds Directives and the Convention on Wetlands of International Importance

Table 1 shows the wide range of nature conservation features for which the estuary is valued and the interrelationship of these features by designation. This table outlines features of European and International importance in their own right and others of national importance for which the Severn Estuary has been designated as a Site of Special Scientific Interest (SSSI) but which form an intrinsic part of the Severn ecosystem and therefore contribute to the overarching “estuary” feature of the SAC and Ramsar Site.

Table 1 : Summary of Notified features of each designation :

Feature	SAC	SPA	Ramsar Site	SSSI (Nationally important feature)
Estuary	Yes	<i>Supporting habitat to designated bird interests</i>	Yes	(Yes)
Subtidal sandbanks	Yes	No – outside boundary of SPA	No – outside boundary of Ramsar Site	<i>No – outside boundary of SSSI</i>
Intertidal Mud and Sand	Yes	<i>Supporting habitat to designated bird interests</i>	<i>Component of Ramsar “estuaries” feature and supporting habitat to designated bird interests</i>	Yes
Atlantic salt meadow / salt marshes	Yes	<i>Supporting habitat to designated bird interests</i>	<i>Component of Ramsar “estuaries” feature and supporting habitat to designated bird interests</i>	Yes
Reefs	Yes	No	<i>Intertidal Sabellaria contiguous with subtidal reefs is a component of the hard substrates subfeature of the Ramsar “estuaries” feature</i>	No – outside boundary of SSSI
Migratory fish (river & sea lamprey & twaite shad)	Yes	No	Yes	(Yes)
Migratory fish (salmon, eel, sea trout and Allis Shad)	<i>Part of notable species sub-feature of estuary feature</i>	No	Yes	(Yes)
Assemblage of fish species (>100 species)	<i>Notable species sub-feature of estuary feature</i>	No	<i>Notable species sub-feature of estuary feature</i>	(Yes)
Internationally important populations of migratory bird species	<i>Notable species sub-feature of estuary feature</i>	Yes	Yes Internationally important populations of waterfowl	Yes
Internationally important populations of wintering bird species	<i>Notable species sub-feature of estuary feature</i>	Yes		Yes
Assemblage of nationally important populations of waterfowl	<i>Notable species sub-feature of estuary feature</i>	Yes	Yes	Yes
Hard substrate habitats (Rocky shores)	<i>Notable species sub-feature of estuary feature</i>	<i>Supporting habitat to designated bird interests</i>	<i>Component of Ramsar “estuaries” feature and supporting habitat to designated bird interests</i>	Yes
Freshwater grazing marsh / Neutral grassland	No	<i>Supporting habitat to designated bird interests within SPA but outside European Marine Site and therefore not addressed in this Regulation 33 advice document</i>		Yes (currently England only)

2.1 Qualifying interest features of the Severn Estuary / Môr Hafren SAC

The Severn Estuary has been designated an SAC on the basis that it supports occurrences of habitat types and species listed in Annexes I and II respectively of the Habitats Directive that are considered important in a European context and meeting the criteria in Annex III of the Directive. These are the interest features of the SAC and are listed in the Table 2 and their relationships are shown in Figure 1.

The designation includes an overarching “**estuaries**” feature within which **subtidal sandbanks, intertidal mudflats and sandflats, Atlantic salt meadows** and **reefs** (of *Sabellaria alveolata*) and **three species of migratory fish** are defined as both features in their own right and as sub-features of the estuary feature.

In addition **hard substrate habitats** including **eel grass beds**, the estuary-wide **assemblage of fish species** and the **assemblage of waterfowl species** (for which the Ramsar Site and SPA are specifically designated) are identified as **notable estuarine assemblages** which are an intrinsic part of the estuary ecosystem – these are therefore covered by the “estuaries” feature.

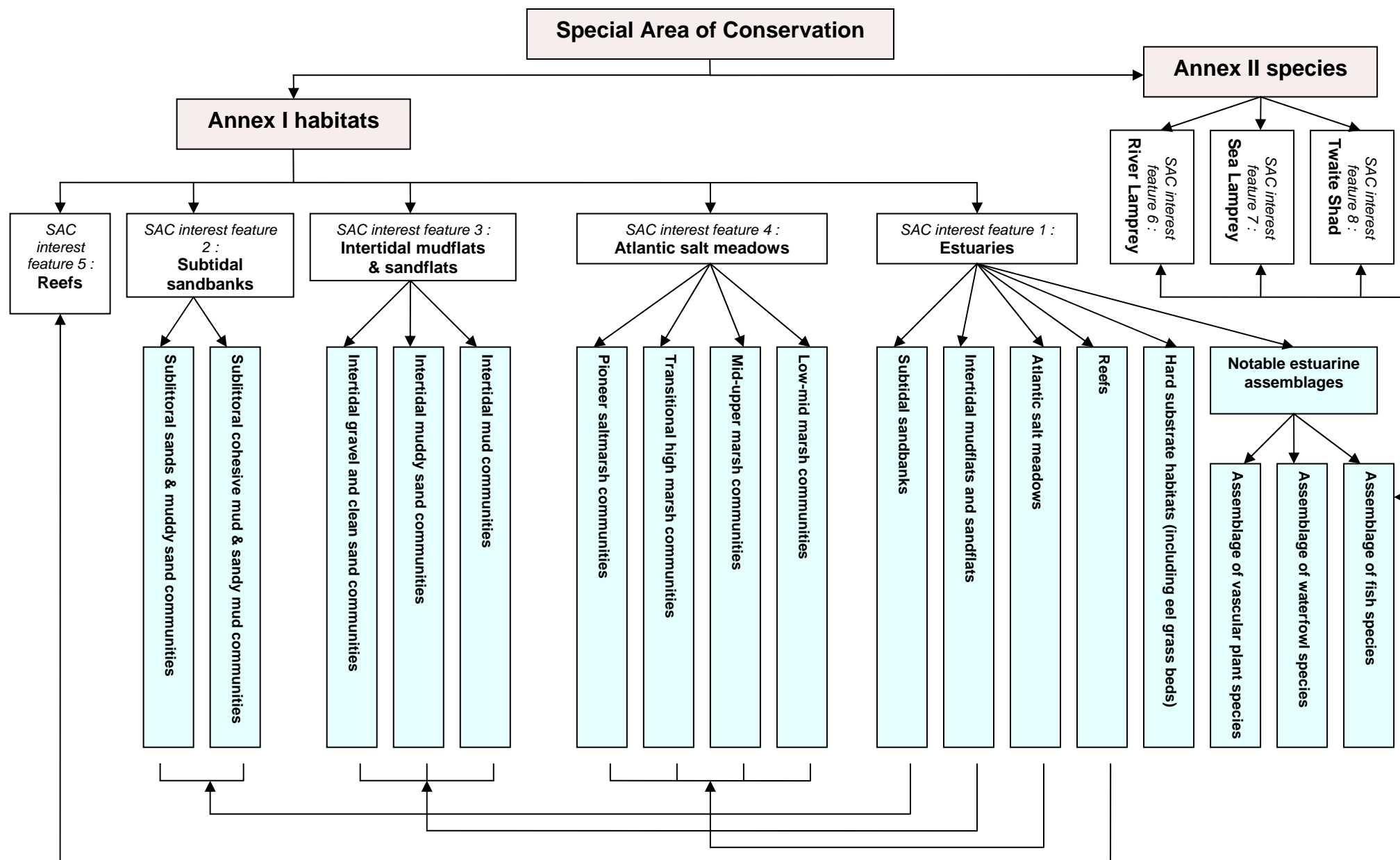
Table 2 : Interest features of the SAC

Feature name	Scientific term ¹⁰	EU Code ¹⁷
Annex I habitat types		
SAC interest feature 1: Estuaries	Estuaries	1130
SAC interest feature 2: Subtidal sandbanks	Sandbanks which are slightly covered by seawater all the time	1110
SAC interest feature 3: Intertidal mudflats and sandflats	Mudflats and sandflats not covered by seawater at low tide	1140
SAC interest feature 4: Atlantic salt meadows	Atlantic salt meadows (<i>Glauco puccinellietalia maritima</i>)	1330
SAC interest feature 5: Reefs	Reefs	1170
Annex II species		
SAC interest feature 6: River lamprey	<i>Lampetra fluviatilis</i>	1099
SAC interest feature 7: Sea lamprey	<i>Petromyzon marinus</i>	1095
SAC interest feature 8: Twaite shad	<i>Alosa fallax</i>	1103

Each interest feature has a conservation objective in Section 4 of this document.

¹⁷ European Commission (2007) Interpretation Manual of EU Habitats EUR27 July 2007, and Natura 200- Standard Data Form Explanatory Notes, Appendix C.

Figure 1 : Flow chart showing the relationship between the interest features of the Severn Estuary SAC (shown in white boxes) and their component sub features (shown in blue boxes). NB Some habitats that are sub features of the Annex II estuary feature are also features in their own right with their own sub features.



2.2 Qualifying interest features of the Severn Estuary / Môr Hafren SPA

The Severn Estuary was classified as an SPA on 13 July 1995 (subsuming a previously designated SPA called the Upper Severn Estuary) . The 1995 citation accompanying the classification is the baseline for the advice issued in this document. The qualifying interest features of the Severn Estuary SPA are shown in Table 3.

It should be noted that since designation changes in bird numbers have occurred in relation to the qualifying thresholds, which have themselves changed. These changes are highlighted by the SPA review published by the JNCC and details are also shown in Table 3. These changes are likely to be the subject of formal changes to the SPA designation in due course, however at present the legally protected species remain those in the original 1995 citation. (Note : Further information on the peak counts of the SPA species and waterfowl assemblage between 1988/9 and 2006/07 are given in Appendix 11.)

The SPA within the European Marine Site boundary includes saltmarshes and the adjacent extensive areas of intertidal mud, sand and rocky shores. All these habitats provide essential food and resting places for the wide range of wintering and migratory waterfowl and are therefore identified as key “supporting habitats” for the conservation of these species. The relationship between the features and supporting habitats supporting habitats is shown in Table 3. The supporting habitats are mapped in Appendix 8 to show their distribution and extent.

Notes relating to Table 3

*¹ Severn Estuary SPA original citation from July 1995 (though updated by Natural England in July 2002, version 2.3).

*² JNCC Severn Estuary SPA Review, dated 2001 available from the JNCC www.jncc.gov.uk/pdf/SPA/UK9015022.pdf (Stroud, DA, et al., 2001)

*³ JNCC Natura 2000 Standard Data Form, May 2006, version 1.1.

*⁴ 5 year peak mean, 1988/89 – 1992/93.

*⁵ 5 year peak mean, 1991/92 – 1995/96.

*⁶ 5 year peak mean, 01/04/1998.

Table 3 : The qualifying interest features and supporting habitats of the Severn Estuary SPA.

Species	Original SPA citation (1995) * ¹	SPA Review (2001) * ²	Natura 2000 form (2006) * ³	Notes	Supporting habitats
Internationally important populations of regularly occurring Annex 1 species [under Article 4.1 of the EU Birds Directive].					
SPA interest feature 1 : Bewick's swan <i>Cygnus columbianus bewickii</i>	✓	✓	✓	Over-wintering	Intertidal mudflats and sandflats Saltmarsh
Internationally important populations of regularly occurring migratory bird species [under Article 4.2 of the EU Birds Directive].					
SPA interest feature 2 : European white-fronted goose <i>Anser albifrons albifrons</i>	✓	x	✓	Over-wintering	Intertidal mudflats and sandflats Saltmarsh Hard substrate habitats (Freshwater coastal grazing marsh, improved grassland and open standing waters also occur within the SPA but these habitats lie outside EMS boundary)
SPA interest feature 3 : Dunlin <i>Calidris alpina alpina</i>	✓	✓	✓		
SPA interest feature 4 : Redshank <i>Tringa totanus</i>	✓	✓	✓		
SPA interest feature 5 : Shelduck <i>Tadorna tadorna</i>	✓	✓	✓		
SPA interest feature 6 : Gadwall <i>Anas strepera</i>	✓	x	✓		
Curlew <i>Numenius arquata</i>	x	✓	x		
Pintail <i>Anas acuta</i>	x	✓	x		
Ringed plover <i>Charadrius hiaticula</i>	x	✓	x	On passage	
SPA interest feature 7 : Internationally important assemblage of waterfowl (wildfowl & waders) [under Article 4.2 of the EU Birds Directive].					
Bewick's swan <i>Cygnus columbianus bewickii</i>	✓	✓	The Natura 2000 data form does not list separate waterfowl species within this assemblage.	The wintering waterfowl assemblage includes all regularly occurring waterfowl. Species that qualify as a listed component of the assemblage include all the internationally important regularly occurring migratory species as well as the Annex 1 wintering species. The list also includes species present in nationally important numbers or species whose populations exceed 2,000 individuals In the original citation, in winter, it is stated that the area regularly supported 68,026 individual waterbirds * ⁴ . In the SPA Review it is stated that the area regularly supports 93,986 individual waterfowl in winter * ⁵ . In the Natura 2000 form, in winter, it is stated that the area regularly supports 84,317 waterfowl * ⁶ .	Intertidal mudflats and sandflats Saltmarsh Hard substrate habitats (Freshwater coastal grazing marsh, improved grassland and open standing waters also occur within the SPA but these habitats lie outside EMS boundary)
European white-fronted goose <i>Anser albifrons albifrons</i>	✓	✓			
Dunlin <i>Calidris alpina alpina</i>	✓	✓			
Redshank <i>Tringa totanus</i>	✓	✓			
Shelduck <i>Tadorna tadorna</i>	✓	✓			
Gadwall <i>Anas strepera</i>	✓	✓			
Wigeon <i>Anas penelope</i>	✓	✓			
Teal <i>Anas crecca</i>	✓	✓			
Pintail <i>Anas acuta</i>	✓	✓			
Pochard <i>Aythya ferina</i>	✓	✓			
Tufted duck <i>Aythya fuligula</i>	✓	✓			
Ringed plover <i>Charadrius hiaticula</i>	✓	x			
Grey plover <i>Pluvialis squatarola</i>	✓	✓			
Curlew <i>Numenius arquata</i>	✓	✓			
Whimbrel <i>Numenius phaeopus</i>	✓	✓			

Species	Original SPA citation (1995) * ¹	SPA Review (2001) * ²	Natura 2000 form (2006) * ³	Notes	Supporting habitats
Spotted redshank <i>Tringa erythropus</i>	✓	x			
Lapwing <i>Vanellus vanellus</i>	x	✓			
Mallard <i>Anas platyrhynchos</i>	x	✓			
Shoveler <i>Anas clypeata</i>	x	✓			

Information on populations of bird species using the Severn Estuary European Marine Site at the time the SPA was classified is contained in Table 4 and their relationships are shown in Figure 2.

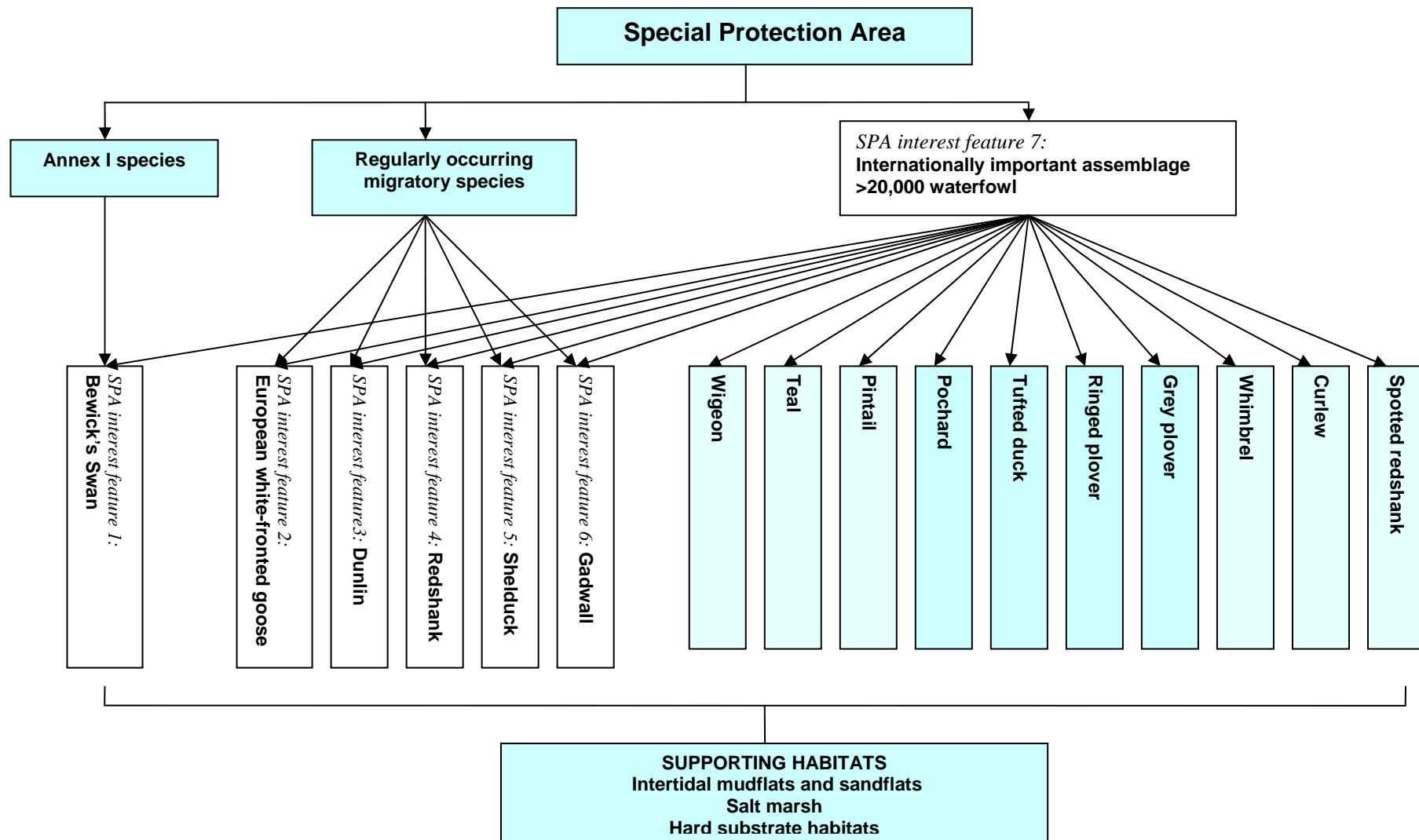
Table 4 : Information on populations of bird species using the Severn Estuary European Marine Site at the time the Severn Estuary SPA was classified (1995).

Internationally important populations of regularly occurring Annex 1 species		
Species	Population (5 yr peak mean :1988/9 to 1992/3)	
SPA interest feature 1: Bewick’s swan	289 birds	4.1% Great Britain 1.7% NW Europe
Internationally important populations of regularly occurring migratory bird species		
Species (wintering)	Population (5 yr peak mean: 1988/9 to 1992/3)	
SPA interest feature 2: European white-fronted goose	3,002	50% British, 1% North West Europe
SPA interest feature 3: Dunlin	41,683	2.9% East Atlantic flyway
SPA interest feature 4: Redshank	2,013	1.3% East Atlantic flyway
SPA interest feature 5: Shelduck	2,892	1.2% North West Europe
SPA interest feature 6: Gadwall	330	2.8 % NW Europe
SPA interest feature 7: An internationally important assemblage of waterfowl (Assemblage includes above species plus the following listed nationally important populations)		
Importance	Population (5 yr peak mean: 1988/9 to 1992/3)	
The Severn Estuary supports over 20,000 wintering waterfowl.	68,026 individual birds comprising 17,502 wildfowl and 50,524 waders	
Nationally important bird populations within internationally important assemblage of waterfowl		
Species	Population (5 yr peak mean: 1988/9 to 1992/3)	
Wigeon	3,977 birds	1.6% Great Britain
Teal	1,998	2.0% Great Britain
Pintail	523	2.1% Great Britain
Pochard	1,686	3.8% Great Britain
Tufted duck	913	1.5% Great Britain
Ringed plover	227	1.0% Great Britain
Grey plover	781	3.7% Great Britain
Curlew	3,096	3.4% Great Britain
Whimbrel	246	4.9% Great Britain
Spotted redshank	3	1.5% Great Britain
Notes : 1. Previous advice issued in respect of the Severn Estuary SPA in February 2005 excluded Gadwall for the listed species of internationally important populations of regularly occurring migratory birds as they were considered not to use the European Marine Site area to any significant degree. Further recent evidence (2002/03 Low Tide Bird Counts) has demonstrated that this species does make use of areas within the European Marine Site and has consequently now been included. 2. The SPA review has identified that since the classification of the Severn Estuary SPA in 1995 the Severn Estuary now supports nationally important populations of Mallard, Lapwing and Shoveler.		

(Note : Further information on the peak counts of the SPA species and waterfowl assemblage between 1988/9 and 2006/07 are given in Appendix 11.)

Each interest feature has a conservation objective in Section 4 of this document. Reference should also be made to sections of this document that relate to the Severn Estuary SAC interest features (particularly with respect to the conservation requirements of the supporting habitats) and the Severn Estuary Ramsar Site interest features.

Figure 2 : Flow chart showing the relationship between the qualifying bird species features (in white boxes) of the Severn Estuary SPA and their supporting habitats



2.3 Qualifying interest features of the Severn Estuary/ Môr Hafren Ramsar Site

The Severn Estuary was classified as a Ramsar Site on 13 July 1995 (subsuming a previously designated Upper Severn Estuary Ramsar Site). The 1995 citation is the basis for the advice issued in this document as this defines the legally protected species covered by the Ramsar designation at this time.

It should be noted that a number of changes have been made to the criteria since the listing of the Severn Estuary Ramsar Site and it is these new (2005) criteria which are now presented on the JNCC website used by many authorities as a reference source. For completeness qualification under both the criteria used at the time of 1995 Ramsar designation and the revised 2005 criteria have been outlined in Table 5 which provides a confirmation of the defined Ramsar features for which Conservation Objectives have been written.

The qualifying interest features of the Severn Estuary Ramsar Site overlap with those of the Severn Estuary SPA and SAC. To facilitate the development of integrated objectives across the designations the Ramsar criteria have been interpreted and the Ramsar features defined so that they are consistent with those already identified in the SAC and SPA sections of this document.

Table 5 : confirmation of Ramsar features in context of 1995 and 2005 Ramsar criteria

Ramsar Features (for which conservation objectives have been written)	Criteria at designation (1995) (original criteria)	Revised Criteria (2005) (criteria currently used on JNCC website)
Ramsar interest feature 1: *Estuaries <i>- characteristic physical form and flow, estuarine habitat communities and species assemblages</i> <i>- estuarine habitat communities and species assemblages</i>	Criterion 1 : qualifies due to its immense tidal range affecting both the physical environment and biological communities present	Criterion 1 : qualifies due to immense tidal range (second-largest in world), this affects both the physical environment and biological communities.
	Criterion 2b : qualifies due to its unusual estuarine communities, reduced species diversity and high productivity. The high tidal range leads to strong tidal streams and high turbidity, producing communities characteristic of the extreme physical conditions of liquid mud and tide swept sand and rock	Criterion 3 : qualifies due to its unusual estuarine communities, reduced diversity and high productivity
Ramsar interest feature 2: Assemblage of migratory fish species : Sea Lamprey River Lamprey Twaite Shad Allis Shad Salmon Sea Trout Eel	Criterion 2c : qualifies as it is important for the run of migratory fish between sea and river via estuary. Species include Salmon <i>Salmo salar</i> , sea trout <i>S. trutta</i> , sea lamprey <i>Petromyzon marinus</i> , river lamprey <i>Lampetra fluviatilis</i> , allis shad <i>Alosa alosa</i> , twaite shad <i>A. fallax</i> , and eel <i>Anguilla anguilla</i> .	Criterion 4 : qualifies as it is important for the run of migratory fish between sea and river via estuary. Species include Salmon <i>Salmo salar</i> , sea trout <i>S. trutta</i> , sea lamprey <i>Petromyzon marinus</i> , river lamprey <i>Lampetra fluviatilis</i> , allis shad <i>Alosa alosa</i> , twaite shad <i>A. fallax</i> , and eel <i>Anguilla anguilla</i> .
<i>* The wider estuarine fish assemblage is covered as a "notable species assemblage" sub feature of the SAC "Estuaries" feature</i>		Criterion 8 : qualifies as the fish assemblage of the whole estuarine and river system is one of the most diverse in Britain, with over 110 species recorded.

Table continued ...

Ramsar Features (for which conservation objectives have been written)	Criteria at designation (1995) (original criteria)	Revised Criteria (2005) (criteria currently used on JNCC website)
<p><i>Ramsar interest feature 3:</i> Bewick's Swan</p> <p><i>Ramsar interest feature 4:</i> European white-fronted goose</p> <p><i>Ramsar interest feature 5:</i> Dunlin <i>Ramsar interest feature 6:</i> Redshank <i>Ramsar interest feature 7:</i> Shelduck <i>Ramsar interest feature 8:</i> Gadwall</p> <p>ie Internationally important populations of waterfowl</p>	<p>Criterion 3c : qualifies by regularly in winter supporting internationally important populations (1% or more) of species of waterfowl</p> <p>Bewick's swan European white-fronted goose Dunlin Redshank Shelduck Gadwall</p>	<p>Criterion 6 : qualifies as it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.</p> <p>Species with peak counts in winter - at designation: Tundra/Bewick's swan Greater /European white-fronted goose Dunlin Common redshank Common shelduck Gadwall</p>
<p><i>Ramsar interest feature 9:</i> Internationally important assemblage of waterfowl</p> <p>This feature incorporates :</p> <ul style="list-style-type: none"> waterfowl which contribute to the total peak winter count (criterion 3a) the above internationally important wintering populations (qualifying under criterion 3c) the migratory passage species (qualifying under criterion 2c) the nationally important populations (identified under other notable features of the Ramsar Site citation) <p>The species are as follows : (w = wintering and p = passage):</p>	<p>Qualifies under Criterion 2c as it is particularly important for migratory birds during passage periods in spring and autumn. Nationally important populations of :</p> <p>Ringed plover Dunlin Whimbrel Redshank</p>	<p>Populations identified subsequent to designation: Ringed plover (spring/autumn) Eurasian teal (winter) Northern pintail (winter) Lesser black-backed gull (breeding)</p>
	<p>Criterion 3a : qualifies by regularly supporting in winter over 20,000 waterfowl - (1988/89 to 1992/93 average peak count was 68,026 waterfowl: 17,502 wildfowl and 50,524 waders)</p>	<p>Criterion 5 : qualifies as it supports an assemblage of international importance - (1998/99-2002/2003 5 year peak mean was 70,919 waterfowl)</p>
<p>Bewick's swan (w) European white-fronted goose (w) Shelduck (w) Dunlin (w, p) Redshank (w, p) Gadwall (w) Ringed plover (w, p) Whimbrel (p) Teal (w) Pintail (w) Wigeon (w) Pochard (w) Tufted duck (w) Grey plover (w) Curlew (w) Spotted redshank (w)</p>	<p>Other notable features : Nationally important wintering populations of:</p> <p>Wigeon, teal, pintail, pochard, tufted duck, ringed plover, grey plover, curlew and spotted redshank. Also nationally important breeding population of Lesser Black backed gull</p>	

Each interest feature has a conservation objective in Section 4 of this document.

Reference should also be made to sections of this document that relate to the Severn Estuary SAC interest features (particularly with respect to the conservation requirements of the supporting habitats) and the Severn Estuary SPA interest features.

Information on the populations of bird species using the Severn Estuary Ramsar Site at the time of designation is contained in Table 6 and their relationships are shown in Figure 3. Ramsar interest feature 9 incorporates both wintering and passage populations of some birds and hence some species are included more than once in the lists given in Table 6.

Table 6 : Information on populations of bird species using the Severn Estuary Ramsar Site at the time of classification (1995)

<i>Ramsar interest features3 to 8:</i> Internationally important <u>populations</u> of wintering waterfowl (1995 Ramsar Criterion 3c)		
Species	Population (5 yr peak mean: 1988/9 to 1992/3)	
<i>Ramsar interest feature 3: Bewick’s swan</i>	289	4.1% Great Britain, 1.7% North West Europe
<i>Ramsar interest feature 4: European white-fronted goose</i>	3,002	50% British, 1% North West Europe
<i>Ramsar interest feature 5: Dunlin</i>	41,683	2.9% East Atlantic flyway, 9.6% British
<i>Ramsar interest feature 6: Redshank</i>	2,013	1.3% East Atlantic flyway, 2.6% British
<i>Ramsar interest feature 7: Shelduck</i>	2,892	1.2% NW European, 3.9 % British
<i>Ramsar interest feature 8: Gadwall</i>	330	2.8 % NW European, 5.5 % British
<i>Ramsar interest feature 9:</i> Internationally important <u>assemblage</u> of waterfowl (1995 Ramsar Criterion 2c, 3a and 3c) <i>(Assemblage includes above wintering species populations plus the following listed nationally important populations (migratory passage and wintering species))</i>		
International importance (1995 Ramsar Criterion 3a)	Population (5 yr peak mean: 1988/9 to 1992/3)	
Regularly supporting in winter over 20,000 waterfowl.	68,026 individual birds comprising 17,502 wildfowl and 50,524 waders	
Nationally important bird populations within internationally important assemblage of waterfowl (1995 Ramsar Criterion 2c and other nationally important populations)		
Species	Population (5 yr peak mean: 1987/8 to 1991/2)	
Dunlin	3,510 (spring migration) 5,500 (autumn migration)	1.7 % British passage 2.7 % British passage
Redshank	2,456 (autumn migration)	2 % British passage
Ringed plover	442 (spring migration) 1,573 (autumn migration)	1.4 % British passage 5.2 % British passage
Whimbrel	246 (spring migration) 66 (autumn migration)	4.9 % British passage 1.3 % British passage
	Population (5 yr peak mean: 1988/9 to 1992/3)	
Wigeon	3,977 birds	1.6% Great Britain
Teal	1,998	2.0% Great Britain
Pintail	523	2.1% Great Britain
Pochard	1,686	3.8% Great Britain
Tufted duck	913	1.5% Great Britain
Grey plover	781	3.7% Great Britain
Curlew	3,096	3.4% Great Britain
Spotted redshank	3	1.5% Great Britain

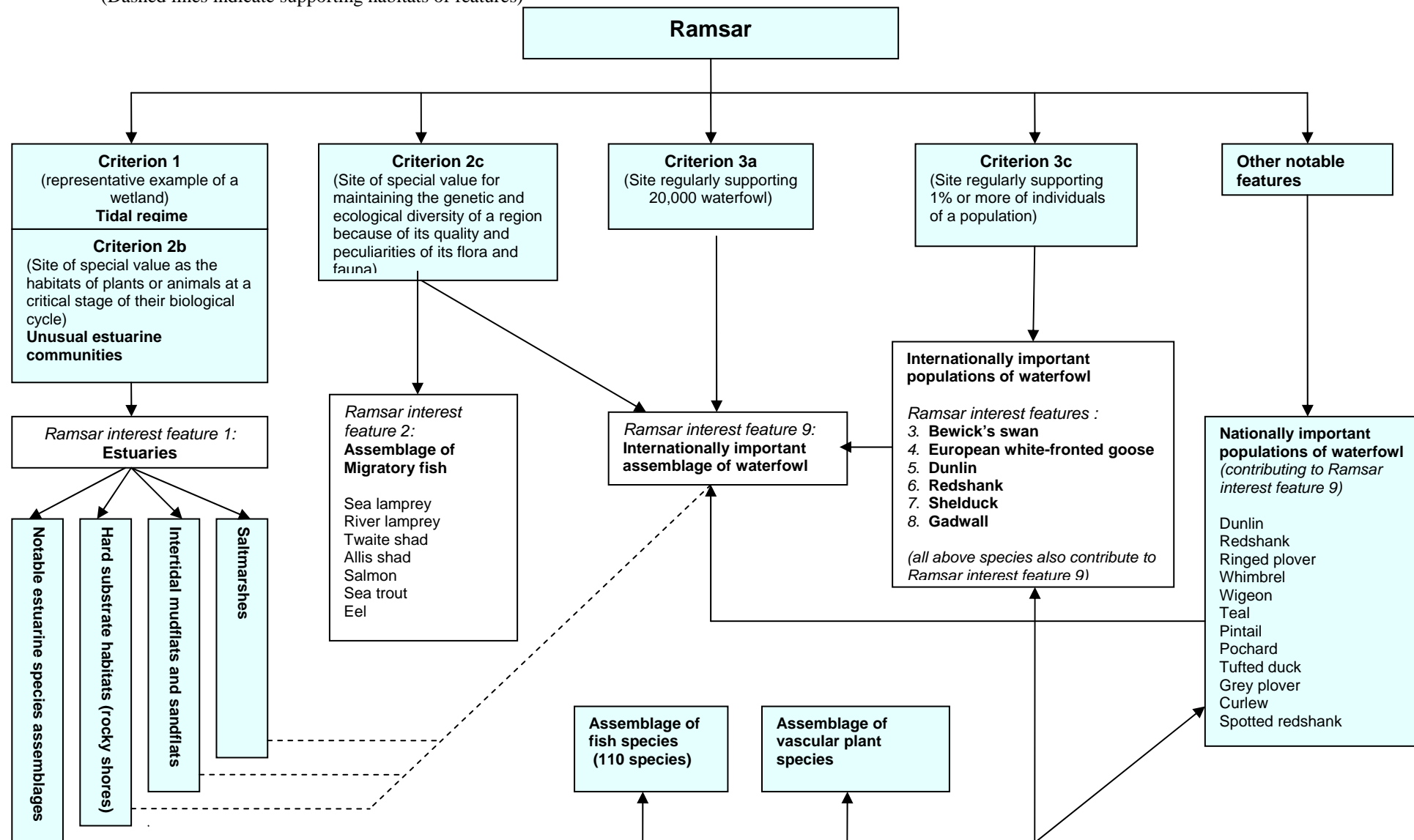
(Note : Further information on the peak counts of the SPA species and waterfowl assemblage between 1988/9 and 2006/07 are given in Appendix 11.)

The Ramsar Site within the European Marine Site boundary includes saltmarshes and the adjacent extensive areas of intertidal mud, sand and rocky shores. All these habitats provide essential food and resting places for the wide range of wintering and migratory waterfowl and are therefore identified as key “supporting habitats” for the conservation of these species. The relationship between the Ramsar Site bird features (Ramsar interest features 3 to 9) and their supporting habitats is shown in Table 7. The supporting habitats are mapped in Appendix 8 to show their distribution and extent.

Table 7 : A summary of the qualifying bird features and associated supporting habitats within the Severn Estuary Ramsar Site

Designation	Qualifying feature	Protected Supporting habitats		
		Estuary		
		Intertidal mudflats and sandflats	Hard substrate habitats (rocky shores)	Saltmarsh
Ramsar Site (classified 13 July 1995)	<i>Ramsar interest features 3 to 8 :</i> Internationally important populations of individual species of waterfowl	✓	✓	✓
	<i>Ramsar interest feature 9:</i> Internationally important assemblage of waterfowl	✓	✓	✓

Figure 3 : Flow chart showing the relationship between the interest features (in white boxes) for which the Severn Estuary Ramsar Site qualifies.
(Dashed lines indicate supporting habitats of features)



3. General description of the Severn Estuary and its designated features

Introduction

The Severn Estuary is the largest example of a coastal plain estuary in the United Kingdom and one of the largest estuaries in Europe. The overall area of the European and International conservation designations is 73,715.4 ha (see Appendix 1) of which roughly two thirds is composed of subtidal habitats (stable sandbanks and shifting sediments of gravel, sand and mud) and one third is composed of intertidal habitats (tide washed mud and sand, saltmarshes and rocky shores).

The estuary lies in the broad Severn Vale, with most of the sediments on the margins of the estuary having accumulated since the last ice age. As with many other estuaries in England and Wales, it has been a focus for human activity, a location for settlement, a source of food, water and raw materials and a gateway for trading and exploration. The Estuary and its coastal hinterland support the cities of Cardiff, Bristol, Newport and Gloucester. Today, major industries are sited around the Estuary's shores. There are modern port installations, chemical processing companies and nuclear power stations among others. Exploitation of the natural resources includes commercial shrimp fishing and fishing for salmon using putchers, lave nets, draught nets and bag nets. The Severn supports an important eel and elver fishery. Aggregate extraction also occurs within the estuary.

Alongside all these competing activities, the Estuary also supports a wide array of habitats and species of international importance for nature conservation.

Human activity has increasingly influenced the character of the marginal wetland mudflats and marshes, with extensive land claim occurring during and since the Roman period. Sediment flows and fluxes affecting the estuary are of particular importance for estuarine processes and ecology and the morphology of the estuary is constantly changing due to the complex hydrodynamics. Sediment deposits provide essential material to maintain the mudflats, sandflats and saltmarsh. Estuary-wide fluctuations in the wind-wave climate over recent centuries have led to major movements of the high-tide shoreline, and some reclaimed lands have been lost (Allen, 1990, Atkins, W.S. 2004). In addition, the Severn Estuary CHaMP (ABPMer, 2006) predicts losses of intertidal mudflats and sandflats and saltmarsh habitats over the next 100 years in response to rising sea-level.

A number of habitats and species have also been recognised through the designation of several Sites of Special Scientific Interest (most notably, the Upper Severn Estuary, Severn Estuary and Bridgwater Bay SSSIs in the 1980's) which underpin the European and International designations.

The following sections briefly describe each of the main habitat and species features covered by the three designations and the inter-relationships between them. All feature descriptions are based on best available knowledge at the present time and in some cases this is limited. For example there is limited information on the extent of the subtidal reef habitat within the estuary. Maps showing the distribution of the habitats are indicative only and the advice in this document is provided on the basis of current knowledge and may be subject to change as knowledge improves.

3.1 Estuaries

3.1.1 Range

Estuaries are habitat complexes which comprise an interdependent mosaic of subtidal and intertidal habitats, which are closely associated with surrounding terrestrial habitats. Many of these habitats, such as mudflats and sandflats not covered by sea water at low tide, saltmarshes, sandbanks which are slightly covered by sea water all the time and reefs, are identified as Annex I habitat types in their own right.

Estuaries are defined as the downstream part of a river valley, subject to the tide and extending from the limit of brackish water. There is a gradient of salinity from freshwater in the river to increasingly marine conditions towards the open sea.

Estuaries are widespread throughout the Atlantic coasts of Europe. Approximately one-quarter of the area of estuaries in north-western Europe occurs in the UK. The UK has over 90 estuaries¹⁸.

The selection of estuary sites has taken account of the UK's EU responsibility for this habitat type, and the SAC series contains a high proportion of the total UK resource. Sites have been selected to represent the geographical range of estuaries in the UK, and to encompass examples of the four geomorphological sub-types (coastal plain, bar-built, complex, and ria estuaries) and the associated range of communities. Selection has generally favoured larger estuaries, as they display a wider variety of habitats, but smaller estuaries have also been selected where they have specific features of interest, such as undisturbed transitions from marine to terrestrial habitats, or are representative of a particular geomorphological sub-type.

The Severn Estuary is the largest example of a coastal plain estuary in the UK, and one of the largest estuaries in Europe. It contributes approximately 30% of the UK Natura 2000 resource for estuaries, by area.¹⁹

3.1.2 Extent and Distribution

The extent of the Estuary feature is 73678 ha.

The Severn Estuary SAC covers the extent of the tidal influence from an upstream limit between Frampton and Awre in Gloucestershire out seawards to a line drawn between Penarth Head in Wales and Hinckley point in Somerset. It includes subtidal and intertidal areas landward to the line of high ground and flood defences (banks and walls) that provide the limit of tidal inundation.

The Estuary is an over-arching feature which incorporates all aspects of the physical, chemical and biological attributes of the estuary as an ecosystem. The physical nature of the tidal regime determines not only the structure of the estuary and individual habitats but also the conditions affecting it and the biological communities it therefore supports.

3.1.3 Structure and Function

The Severn Estuary is important for its immense tidal range, which affects both the physical environment and the diversity and productivity of the biological communities. The tidal range is the second largest in the world, reaching in excess of 13 m at Avonmouth²⁰. This macrotidal environment is partly due to the estuary's funnel shape which concentrates the tidal wave as it moves up the Bristol Channel. Tidal currents

¹⁸ JNCC website

¹⁹ Based on Natura 2000 Standard data forms for all UK Natura 2000 sites which have estuaries as a feature- source: JNCC website <http://www.jncc.gov.uk/ProtectedSites/SACselection/habitat.asp?FeatureIntCode=H1130>

²⁰ Data on tidal range can be found on the Proudman Oceanographic Laboratory website <http://www.pol.ac.uk/ntsIf/tides/?port=0060>.

are also amplified and exceed 7 metres per second close to Avonmouth (British Geological Survey, 1996). These factors make the estuary important in representing one of the most dynamic estuarine systems in the UK, Europe and the world.

There are several major rivers, including the Taff, Usk, Wye, Severn, Avon and Parrett which feed into the estuary, and influence the salinity regime. Together these rivers tend to produce a marked east-west salinity gradient and a range of conditions varying from brackish to fully saline, depending on the season and rainfall, which in turn influences the occurrence and distribution of habitats and species throughout the estuary and its fringes.

Fine sediments which are mainly derived from erosion of the intertidal zone and suspended sediments in river water entering the estuary create high turbidity, which has its highest average level between Avonmouth and the outer part of Bridgwater Bay (British Geological Survey, 1996, ABPMer, 2006). The strong tidal currents create a highly dynamic environment and the resultant scouring of the seabed and high turbidity give rise to low diversity communities. The Severn has an extreme type of hydrodynamic and sedimentary regime which distinguishes it from other estuaries and which dominates the whole system. It is estimated that the estuary carries 10 million tons of suspended sediments on spring tides (Kirby & Parker, 1983; Kirby, 1986). Such conditions were initiated by the start of sea-level rise in late glacial times, with some evidence for steady sedimentation persisting for at least 5000 years, during which there has been a steady rise in sea level of 5 m, a trend which is continuing at present (British Geological Survey, 1996). Defra guidance²¹ indicates sea-level rise for Wales and the South West to be 3.5 mm per annum to 2025, rising to 8 mm per annum (2025-2055), 11.5 mm (2055-2085) and 14.5 mm (2085-2115).

3.1.4 Typical Habitats and Species

The extreme hydrodynamic and sedimentary conditions essentially determine the type of habitats and species present and result in characteristic animal and plant communities. Typical species for each habitat are given in the individual habitat sections.

The predominant unconsolidated sediments are muds and sands which form the basis of the structure of the estuarine habitats which include saltmarshes (section 3.5), intertidal mud and sand flats (section 3.4) and subtidal sand banks (section 3.3), mixed mud and sand, rock outcrops, boulder and shingle shores (section 3.7) as well as biogenic (worm built) reefs (section 3.6). There are also sandy beaches on the southern shores in the outer part of the estuary, backed by sand dunes.

The intertidal zone of mudflats, sandbanks, rocky platforms and saltmarsh is one of the largest and most important in Britain and this range of habitats provide an ecosystem of great importance for a wide range of fish (section 3.8) and bird (section 3.9) species – for feeding, breeding, resting and migration.

3.1.5 Natural Processes

The structure of estuaries is largely determined by geomorphological and hydrographic factors, with the original shaping forces having their beginnings in the geological origins of the adjacent land areas and the influence of major geological events such as ice ages and periods of higher and lower sea levels.

The shape of the estuaries, their macro- and micro-topography, and bathymetry, are important components of the character of the habitats and influences the distribution and abundance of marine life, *i.e.* the features' typical species. It is both determined by, and influences, natural environmental processes and consequently, can be impacted either directly or indirectly (through changes to natural processes) by man.

Estuaries are complex dynamic systems that have a natural tendency to accumulate sediment, thereby changing their form from their original Holocene morphology to a state where tidal energy is dissipated by

²¹ Defra, 2006. Flood and Coastal Defence Appraisal Guidance FCDPAG3 Economic Appraisal Supplementary Note to Operating Authorities – Climate Change Impacts October 2006

sub- and intertidal sediment banks. The width and depth of the estuary will therefore change over time towards a state of dynamic equilibrium or “most probable state”.

The velocities of currents passing through the mouth are determined partly by the tidal range and partly by the cross sectional area of the mouth itself. If these velocities are higher than the sediment erosion threshold, erosion will widen the channel and lower velocities will ensue. If velocities are lower than the sediment depositional threshold, deposition will narrow the mouth and higher velocities will ensue. In this way, an equilibrium cross section will evolve which balances tidal prism, velocities and erosion/depositional thresholds. Sea level rise means that estuaries will show a natural tendency to migrate inland (roll-over) and may erode at the mouth. Where changes in extent are attributable to the estuary adjusting to equilibrium, then the feature should be determined favourable. Where this process is constrained by hard sea defence, then this would be considered as coastal squeeze. (JNCC Common Standards Monitoring Guidance for Estuaries (version 4)).

A complex pattern and combination of physical, chemical and biological conditions and processes operates within estuaries, with many parameters varying temporally and spatially. These parameters establish the baseline conditions in the estuary and continually shape the estuaries and the habitats and wildlife they support. The key parameters are: the flood hydrograph²²; the nature of the catchment and its influence on freshwater flow and nutrient and sediment input; the nature of the estuary sediment; and the relatively high sediment levels in the estuaries resulting in low water retention within the estuary system and exposure of significant proportions of sediment at low tide. The biological communities of the estuaries have developed in response to these prevailing conditions and the daily patterns of water flow, exposure, sediment movement and water chemistry.

3.2 Subtidal sandbanks

3.2.1 Range

Sandbanks which are slightly covered by sea water all the time (subtidal sandbanks) consist of sandy sediments that are permanently covered by shallow sea water, typically at depths of less than 20 m below chart datum (but sometimes including channels or other areas greater than 20 m deep). The habitat comprises distinct banks (i.e. elongated, rounded or irregular ‘mound’ shapes) which may arise from horizontal or sloping plains of sandy sediment. Where the areas of horizontal or sloping sandy habitat are closely associated with the banks, they are included within the Annex I type.

Sandbanks which are slightly covered by sea water all the time occur widely on the Atlantic coasts of north-west Europe, and occur widely around the UK coast. They are widespread in inshore waters (within 12 nautical miles of the coast) and also occur offshore in the southern North Sea and in the Irish Sea (between 12 and 200 nautical miles).

The UK SAC series includes large sublittoral sandbanks showing good habitat structure and function. The selected sites represent the range of variation within the four main sub-types (gravelly and clean sands, muddy sands, eelgrass beds, and maerl beds), which are often associated with different physiographic features (e.g. estuaries, open coast, bays, sea lochs). The differing character of this habitat around the UK coast has also been taken into account.

The Severn Estuary subtidal sandbanks can be considered to contribute to the gravelly and clean sand sandbank resource. The Severn Estuary contributes approximately 3% of the UK Natura 2000 resource for subtidal sandbanks, by area.²³

²² A flood hydrograph is a dual plot of river discharge (line) and rainfall (bars) over time

²³ Based on Natura 2000 Standard data forms for all UK Natura 2000 sites which have estuaries as a feature- source: JNCC website <http://www.jncc.gov.uk/ProtectedSites/SACselection/habitat.asp?FeatureIntCode=H1130>

3.2.2 Extent and Distribution

The subtidal sandbanks are largely restricted to the middle and outer parts of the estuary. The sand banks of the Middle and Welsh Grounds are relatively permanent sandbank features in the Severn Estuary, along with other long established sandbank features at Cardiff Grounds and in Bridgwater Bay. The tops of these banks are intertidal, and the permanently submerged parts of the banks are considered to contribute to the subtidal sandbanks habitat.

There are other areas of subtidal sandbank habitat within the Estuary, again sometimes the top of the bank may be exposed at low tide, with the submerged sections contributing to the subtidal sandbanks habitat. These banks are more ephemeral in nature, but are still considered part of the feature, and reflect the dynamic nature of the Severn Estuary. The areas where ephemeral subtidal sandbanks are known to occur include areas offshore from Avonmouth and at English Grounds (near Clevedon).

The approximate area of the more permanent subtidal sandbanks is 1,300 hectares and there are approximately 10,440 hectares of associated ephemeral sandbanks. Areas of associated sediments have been defined by using the sediment environments of the Bristol Channel Marine Aggregates Resources and Constraints project, commissioned by the National Assembly for Wales (Posford Duvivier and ABP, 2000). Further detail is given in section 4.1.2.1.

3.2.3 Structure and Function

The subtidal area of the Severn Estuary is subject to strong tidal currents resulting in the high mobility of sediments which range from gravely to muddy sands. The high mobility of the sediments and high turbidity means that these habitats only support animals that can tolerate the shifting seabed and scouring action of suspended sand.

As described above the subtidal sandbanks habitat includes some long established and relatively permanent sandbank features and associated sediments which form more ephemeral sandbanks. The sediments of both the more permanent sandbank features and the associated sediments (ephemeral banks) together comprise the subtidal sandbanks feature of the SAC (see map in Appendix 3).

These subtidal areas play an important role in holding and supplying sediment for other habitats notably the intertidal mud and sandflats, saltmarshes and reef features and it is likely that subtidal invertebrate communities play a role as a food resource for some species of the fish assemblage feature of the SAC and Ramsar Site.

3.2.4 Typical species

The subtidal sandbanks feature has two distinct sub-features composed of communities which are determined principally by the degree of sediment mobility, grade of sediments, mix of sediments (in terms of proportions of sand and mud) and salinity.

The first sub-feature is composed of sand and muddy sand communities dominated by worms, and burrowing shrimps which can tolerate the high sediment mobility. The second sub feature is composed of mud and sandy mud dominated communities which are slightly more stable and support a greater abundance of burrowing worms.

The typical species of these communities include a range of worms, shrimps, snails and bivalves. The species diversity of these habitats is often low but overall biomass can be high.

3.2.5 Natural Processes

Subtidal sandbanks are dynamic features with their size, shape, aspect and orientation, as well as the macro- and micro-topography and sediment characteristics largely determined by the sediment supply and the influence of the hydrodynamic processes affecting each bank. They change shape over time and while some are ephemeral others may be relatively stable and long established. Mobile sediments that form temporary

sandbanks are considered to be associated sediments that should be retained in the system but their location may change.

3.3 Intertidal mudflats and sandflats

3.3.1 Range

Intertidal mudflats and sandflats are submerged at high tide and exposed at low tide. They form a major component of Estuaries and Large shallow inlets and bays in the UK but also occur extensively along the open coast and in lagoonal inlets. The physical structure of the intertidal flats ranges from mobile, coarse-sand beaches on wave-exposed coasts to stable, fine-sediment mudflats in estuaries and other marine inlets. This habitat type can be divided into three broad categories (clean sands, muddy sands and muds), although in practice there is a continuous gradation between them. Within this range the plant and animal communities present vary according to the type of sediment, its stability and the salinity of the water.

Mudflats and sandflats not covered by sea water at low tide are a widespread habitat type on coasts of Atlantic Europe, particularly around the North Sea, and occur widely throughout the UK.

Sites have been selected to encompass the range of geographical, physical and ecological variation shown by this habitat type in the UK. Examples of clean sands, muddy sands, and mudflats have all been included. Sites with large areas of intertidal flats, as well as a range of environmental conditions and an associated diversity of communities, were favoured.

The intertidal part of the Severn Estuary supports extensive mudflats and sandflats. These cover an area of approximately 20,300 ha - the fourth largest area in a UK estuary and representing approximately 7 % of the total UK resource of this habitat type (approximately 10% of the UK Natura 2000 resource for Intertidal mudflats and sandflats, by area.²⁴)

The intertidal mudflats and sandflats of the Severn Estuary are representative of estuarine mudflats and sandflats influenced by strong tidal streams and extreme silt loading.

3.3.2 Extent and Distribution

The Intertidal mudflats and sandflats feature in the Severn Estuary covers an area of approximately 20,300ha.

The Intertidal mudflats and sandflats feature is distributed throughout the Severn Estuary with extensive mudflats fronting the Welsh shore and Bridgwater Bay, and large banks of clean sands in the more central parts of the estuary at Middle and Welsh Grounds.

3.3.3 Structure and Function

This habitat type can be divided into three broad categories (which form the three main sub-features identified for this feature in the Severn Estuary), clean sands and gravels, muddy sands, and muds, although in practice there is a continuous gradation between them (Countryside Council for Wales, 2006; English Nature, 2006). The composition of the sediments and level of consolidation are the most important factors in determining the fauna of these communities and individual species distribution is largely dependant on the salinity which limits the penetration of marine species upstream where freshwater influences are strongest.

²⁴ Based on Natura 2000 Standard data forms for all UK Natura 2000 sites which have estuaries as a feature- source: JNCC website <http://www.jncc.gov.uk/ProtectedSites/SACselection/habitat.asp?FeatureIntCode=H1130>

The gravel and clean sand communities occur predominantly in the mid and upper parts of the estuary forming large banks in the centre the estuary (Frampton Sands, Lydney Sands, Oldbury Sands, Bedwyn Sands and the Welsh Grounds) through which the main tidal channel flows keeping sediments mobile.

The sandy mud communities occur in restricted locations forming the transition between the clean sand and mud communities particularly in the mid estuary and at the lowest extremes of the tide and at the flanks of the main channel.

The mud communities form in the sheltered edges of the estuary particularly where the coastline forms natural embayments and are predominantly found in the mid to outer estuary at Bridgewater Bay and on the Cardiff and Newport frontages although a narrow fringe of these communities is present throughout the estuary. These communities take the form of firm mud banks adjacent to the saltmarshes often with a liquid mud surface kept fluid by the high tidal currents.

3.3.4 Typical Species

Muddy areas in the Estuary such as those between Cardiff to Newport are generally soft and mobile, colonised by high densities of relatively few species characterised by *Hediste diversicolor* and *Macoma balthica*. Other typical species include *Nephtys hombergii*, *Hydrobia ulvae*, *Tubificoides benedii*, *Streblospio shrubsolii*, *Pygospio elegans*, and Enchytraeidae. *Corophium volutator* is also widespread in these muddy areas especially near the mudflat saltmarsh boundary. In some mid shore areas with sandier sediments *Arenicola marina*, and *Macoma balthica* are present.

Lower shore coarse sand banks such as Bedwyn and Oldbury, are dominated by mobile species such as *Bathyporeia pelagica*, *Eurydice pulchra*, and *Nephtys cirrosa*. The south side of the lower estuary has pockets of littoral muddy sand on the upper shore characterised by *Macoma balthica*, *Hydrobia ulvae*, *Bathyporeia pelagica*, and *Nephtys hombergii*. Lower down the shore the sediments become muddier and support species such as *Scoloplos armiger*, *Aphelocheata marioni* and *Hediste diversicolor*.

Upstream of Sudbrook the infauna becomes less diverse as the salinity decreases. Mud flats here support ragworm *Hediste diversicolor*, patchy Baltic tellin *Macoma balthica* and laver spire shell *Hydrobia ulvae*, with occasional peppery furrow shell *Scrobicularia plana* near the back of the shore. Within the pills along the site and in the upper reaches towards the road crossing the soft mud often supports few species including *Hediste diversicolor* and *Oligochaeta* spp.

The high biomass of invertebrates in the mudflats of the Severn provide an important food source for a diverse range and large number of fish and benthic predators. These intertidal areas are therefore important in supporting the fish assemblage subfeature of the SAC and Ramsar Site.

Mudflats also provide a valuable feeding, roosting and resting area for a wide range of species of wading birds and waterfowl and are therefore important supporting habitats for the wintering and passage bird features of the SPA and Ramsar Site.

3.3.5 Natural Processes

Intertidal mudflats and sandflats are dynamic features. Their distribution, extent, shape, topography, aspect and orientation is the product of complex interaction between hydrodynamic and sediment transport processes, sediment supply and coastal morphology. Hydrographic functions that structure intertidal mudflats and sandflats encompass highly dynamic hydrodynamic and other properties that vary with short and long-term natural cycles, climate influences and stochastic events.

The structure of intertidal mudflats and sandflats varies depending on the physical conditions and forces acting on them (in particular the degree of exposure to wave action and tidal currents) as well as the nature of the sediments occurring in any one location. The sediments vary from mobile coarse sand in more wave exposed areas to stable, fine sediment expanses of mudflat in estuaries and other marine inlets.

Intertidal mudflats and sandflats support a variety of different wildlife communities. These are predominantly infaunal communities of a variety of different animal species such as worms, molluscs and crustaceans living within the sediment habitat. The type of sediment, its stability and the salinity of the water have a large influence on the wildlife species present.

3.4 Atlantic salt meadow

3.4.1 Range

Atlantic salt meadows develop when halophytic vegetation colonises soft intertidal sediments of mud and sand in areas protected from strong wave action. This vegetation forms the middle and upper reaches of saltmarshes, where tidal inundation still occurs but with decreasing frequency and duration. A wide range of community types is represented and the saltmarshes can cover large areas, especially where there has been little or no enclosure on the landward side. The vegetation varies with climate and the frequency and duration of tidal inundation. Grazing by domestic livestock is particularly significant in determining the structure and species composition of the habitat type and in determining its relative value for plants, for invertebrates and for wintering or breeding waterfowl.

This Annex I type is predominantly found on Atlantic coasts in western Europe. Atlantic salt meadows occur on North Sea, English Channel and Atlantic shores. There are more than 29,000 ha of the habitat type in the UK, mostly in the large, sheltered estuaries of south-east, south-west and north-west England and in south Wales. Smaller areas of saltmarsh are found in Scotland.

Sites have been selected to cover the geographical range and ecological variation of Atlantic salt meadows in the UK. The sites selected are for the most part the largest examples of this habitat type, with good structure and function, and which support a well-developed zonation of plant communities within the saltmarsh. There are transitions to other high-quality habitat assemblages at many of the sites that have been selected. Sites with complete sequences of vegetation and transitions to other habitats, such as sand dunes, represent the range of variation of the habitat type, and this has been an important consideration in site selection.

The Severn Estuary holds the largest aggregation of saltmarsh in the south and south-west of the UK. It covers approximately 1,400 ha, representing about 4% of the total area of saltmarsh in the UK (Dargie, 2000).

3.4.2 Extent and Distribution

The Severn Estuary is fringed by saltmarsh. The huge tidal range in the Severn Estuary has led to extensive saltmarsh community development with an expanded zonation.

3.4.3 Structure and Function

The saltmarshes of the Severn Estuary have four principal zones corresponding to the four main sub-features that have been identified for this feature. Two of these zones (the lower to mid marsh communities and the mid to upper marsh communities) contain the principle saltmarsh types which are defined as Atlantic salt meadow as per the Annex 1 habitat description. However these occur in an intimate mosaic and in transition with the communities of the other two zones (in the pioneer saltmarsh and transitional high marsh communities) which are therefore considered in this advice as part of the feature. Section 4.1.4.1 and Table 11 provide further details of these zones and their typical species.

The pioneer saltmarsh communities play an important role in saltmarsh development as colonising plants (*eg Spartina sp. and Salicornia sp.*) stabilise and trap sediments. The upper marsh transitions to terrestrial and freshwater habitats support a range of nationally scarce and uncommon plant species and support tidal debris strandlines of value for invertebrates which are important components of the estuary feature.

Some of the saltmarshes show a sequence of saltmarsh cliffs or steps related to past cycles of accretion and erosion and in places the saltmarshes are also cut transversely by “pills” where freshwater streams enter the estuary. These features add diversity to the saltmarsh by initiating new patterns of species zonation. Recent monitoring has identified that there is a complicated present day pattern of erosion and accretion of the saltmarshes throughout the estuary and some parts appear to be exhibiting the effects of coastal squeeze – the constriction of saltmarsh habitats between rising sea levels and hard defences at the back of the saltmarsh .

Saltmarshes and mudflats have an important role to play in estuarine processes, both through the recycling of nutrients within the estuary and through their role as soft sea defences, dissipating wave energy. They are highly productive biologically, providing organic material that support other features within the marine ecosystem and they also have an important physical role, acting as a sediment store to the estuary as a whole.

Saltmarshes also provide a valuable feeding and roosting and resting areas (particularly at high tide) for a wide range of species of waterfowl and are therefore very important supporting habitats for the wintering and passage bird features of the SPA and Ramsar Site. The habitats within the “pills” provide important shelter and feeding habitats for both fish and bird species.

The Severn Estuary saltmarshes are generally grazed by sheep and/or cattle. Grazing is a significant factor in determining the plant communities found within them and their value for dependant species such as birds and rare plants.

3.4.4 Typical Species

The saltmarsh communities present relate to the four principal zones referred to above.

The low to mid marsh communities include transitional low saltmarsh with *Puccinellia maritima*, annual *Salicornia* sp. and *Suaeda maritima*; *Aster tripolium* (rayed) saltmarsh; *Puccinellia maritima* saltmarsh; *Atriplex portulacoides* saltmarsh; and *Juncus maritimus* - *Triglochin maritima* saltmarsh.

The mid to upper marsh communities include *Festuca rubra* saltmarsh; *Artemisia maritima* saltmarsh; and *Juncus maritimus* salt-marsh.

The transitional high marsh communities include *Spergularia marina* - *Puccinellia distans* saltmarsh; *Elytrigia atherica* saltmarsh; *Elytrigia repens* saltmarsh; *Festuca rubra* - *Agrostis stolonifera* - *Potentilla anserina* inundation grassland; *Festuca arundinacea* coarse grassland; *Agrostis stolonifera* - *Alopecurus geniculatus* inundation grassland; *Phragmites australis* reedbed; *Bolboschoenus maritimus* swamp; and *Agrostis stolonifera* sub-community.

The pioneer saltmarsh communities include *Spartina anglica* saltmarsh; Annual *Salicornia* saltmarsh; and *Suaeda maritima* saltmarsh.

Several notable species are also present *Alopecurus bulbosus*, *Althaea officinalis*, *Bupleurum tenuissimum*, *Hordeum marinum*, *Puccinellia rupestris*, *Trifolium squamosum*, *Lepidium latifolium*, *Allium oleraceum*, and *Petroselinum segetum* (Dargie 1998).

3.4.5 Natural Processes

The location, character, and dynamic behaviour of saltmeadows are governed by four physical factors: sediment supply, tidal regime, wind-wave climate and the movement of relative sea level. There are four elements necessary for the development and growth of a salt marsh: (1) a relatively stable area of sediment that is covered by the tide for a shorter period than the time it is exposed; (2) a supply of suitable sediment available within the period of tidal cover; (3) water velocities that are sufficiently low for some of the sediment to settle out; and (4) a supply of seeds or other propagules for the establishment of vegetation cover.

The topography and microtopography of areas of Atlantic salt meadow are the product of complex interaction between hydrodynamic and sediment transport processes, sediment supply and coastal

morphology. These can be highly dynamic and vary with short and long-term natural cycles, climate influences and stochastic events, including: tidal range and excursion, salinity, water temperature and suspended particulate concentrations.

The marsh-edge morphology provides information on the short to medium term trends of marsh morphodynamics. Accreting and stable seaward marsh edges have an accretional ramp upon which pioneer and low-marsh vegetation can become established. Erosional margins are characterised either by the presence of mud-mound topography or by marsh-edge cliffs fronted by toppled cliff blocks with live or dying vegetation, rotational slide or overhanging (cantilever) blocks. Terraced marsh margins indicate episodic erosion and accretion on timescales over decades to centuries.

The Severn Estuary saltmarshes do not generally contain a pattern of creeks and pans more typical of extensive saltmarshes in estuaries with less extreme tidal ranges. Instead the saltmarshes are dissected by “pills” (steep sided natural drainage channels cutting through the saltmarsh) where freshwater streams flow into the estuary. These are often deep and steep sided funnel shaped features, often with pioneer vegetation established along their banks although in many cases the natural structure of the pill is truncated by tidal flaps or flow valves. In a few locations natural salt pans occur within the saltmarshes.

Major erosion of saltmarsh is indicated by internal dissection and enlargement of the drainage network, ultimately leading to the creation of mud basins.

Nutrient levels are a strong influence on the growth of estuarine saltmarsh plants. Nutrient cycling within saltmarshes can also have a significant effect on coastal and estuarine water quality. In this respect, healthy, functional saltmarsh habitat may have an important role to play in the control of nutrients, which are important in determining water quality.

Given favourable conditions, depending on sediment supply and hydrodynamic regime, mudflats evolve into saltmarshes by way of substrate stabilisation by algae, diatoms and early pioneer plants, giving rise to enhanced sediment accretion rates.

3.5 Reef

3.5.1 Range

Reefs are rocky marine habitats or biological concretions that rise from the seabed. They are generally subtidal but may extend as an unbroken transition into the intertidal zone, where they are exposed to the air at low tide. Intertidal areas are only included within this Annex I type where they are connected to subtidal reefs. Reefs are very variable in form and in the communities that they support. Two main types of reef can be recognised: those where animal and plant communities develop on rock or stable boulders and cobbles, and those where structure is created by the animals themselves (biogenic reefs).

Rocky reefs are extremely variable, both in structure and in the communities they support. A wide range of topographical reef forms meet the EU definition of this habitat type. These range from vertical rock walls to horizontal ledges, sloping or flat bed rock, broken rock, boulder fields, and aggregations of cobbles. In contrast to the variety of rocky reefs, there is somewhat less variation in biogenic reefs, but the associated communities can vary according to local conditions of water movement, salinity, depth and turbidity. The main species which form biogenic reefs in the UK are blue mussels *Mytilus edulis*, horse mussels *Modiolus modiolus*, ross worms *Sabellaria* spp., the serpulid worm *Serpula vermicularis*, and cold-water corals such as *Lophelia pertusa*.

Reefs occur widely around the UK coast, and are found in both inshore and offshore waters. There is a far greater range and extent of rocky reefs than biogenic concretions. Only a few invertebrate species are able to develop biogenic reefs, and these have a restricted distribution and extent in the UK.

The Severn Estuary has areas of biogenic reefs, formed by the tube-dwelling polychaete worm *Sabellaria alveolata*. *Sabellaria alveolata* reefs in the UK are predominantly an intertidal habitat but the Severn Estuary

is one of the few places where *Sabellaria alveolata* reefs occur extensively in the subtidal, as well as the intertidal.

3.5.2 Extent and Distribution

There are patches of intertidal *Sabellaria alveolata* reef throughout the Estuary, although it tends to be more common on the English side. The subtidal *Sabellaria alveolata* tends to be in the outer parts of the Estuary, southwest of a line between Clevedon and Newport. The exact distribution of subtidal *Sabellaria alveolata* reef in the Severn Estuary is unknown, partly due to the difficulties in sampling this habitat.

3.5.3 Structure and Function

Sabellaria alveolata is a species of small worm which constructs tubes using sand particles, to build honeycomb-like structures. *Sabellaria alveolata* reefs are often also known as honeycomb worm reefs.

These biogenic reefs tend to increase habitat diversity for other species (Holt et al 1998), sometimes leading to higher species diversity within *Sabellaria* reefs compared to the surrounding sediment or rock habitats (Dubois et al 2002). *Sabellaria alveolata* reefs cycle through different phases, from newly settled worms through vigorous fast growing reef to older, more biodiverse hummocks (Cunningham et al, 1984). At other sites each of these phases tends to have a different community of plants and animals associated with it, so all phases are considered important for biodiversity (Collins, 2001; Dubois et al, 2002).

In order to thrive, *Sabellaria alveolata* requires an abundance of suitable coarse sand to support tube building (and therefore reef growth), as well as the availability of suitable substrates (pebbles, cobbles, boulders, bedrock) to attach to. Larval supply is also important and *Sabellaria* larvae are thought to stay in the water column for one to six months (Jackson 2008). The worms are filter feeders and therefore food within the water column (suspended detritus material) is also needed. *Sabellaria* larvae are thought to settle preferentially in areas where *Sabellaria* reef has been present in the past (Holt et al, 1998).

3.5.4 Typical Species

The *Sabellaria alveolata* reef biotopes which have been recorded in the Severn Estuary are *Sabellaria alveolata* on variable salinity sublittoral mixed sediment and *Sabellaria alveolata* reefs on sand-abraded eulittoral rock.

In the Severn Estuary (both subtidal and intertidal) the presence of *Sabellaria alveolata* reefs generally increases species diversity, relative to the surrounding rock or sediment, although the diversity of *Sabellaria alveolata* reefs in the Severn is still thought to be comparatively low compared to other areas of the UK. Species commonly found associated with subtidal *Sabellaria alveolata* reef from infaunal samples include *Eulalia tripunctata*, *Mediomastus fragilis*, *Typosyllis armillaris*, *Melinna cristata*, *Harpinia pectinata*, *Ampharete grubei*, *Golfingia vulgaris*, *Pygospio elegans*, *Arenicola marina*, *Autolytus sp.*, *Sphenia binghami* and *Harmothoe impar* (Mettam et al. 1994 and Marine Recorder database).

Species found in intertidal *Sabellaria alveolata* reefs in the Severn Estuary at Goldcliff and Lavernock point include *Crangon crangon*, *Actinia equina*, *Cancer pagarus*, *Porcellana platycheles*, *Littorina spp.*, *Pholas dactylus*, *Elminius modestus*, *Fucus serratus*, *Corralina officinalis* and *Enteromorpha spp.* (O'Riordan, 2006).

3.5.5 Natural Processes

Little is known about the nature of the *Sabellaria alveolata* reef in the Severn Estuary, especially in the subtidal. However, at other sites *Sabellaria alveolata* is known to have a very variable recruitment and the cover in any one area may vary greatly over a number of years (Wilson, 1974). A typical life span of 4-5 years for worms in colonies forming reefs on bedrock and large boulders has been reported from other areas (Wilson, 1971), with a likely maximum of around 9 years (Gruet, 1982; Wilson, 1971). However, it is suspected that there are many colonies on intertidal cobble and small boulder scars on moderately exposed shores where shorter lifespans are likely due to the unstable nature of the substratum (Holt et al, 1998). As

mentioned above, *Sabellaria alveolata* reefs cycle through several different phases, all of which are considered important for biodiversity.

3.6 Other estuarine habitats : Hard substrate habitats (rocky shores) and eel grass beds

3.6.1 Extent and Distribution

There is approximately 1,500 ha of hard substrate habitat within the Severn Estuary, consisting of boulders, rock, mussel/cobble scars, rocky pools and shingle (Countryside Council for Wales, 2006; English Nature, 2006). The largest areas of hard substrate are located towards the outer estuary at Brean Down, Anchor Head and Sand Point together with rocky platforms and cliffs at Clevedon and Portishead. There are also extensive rock platforms at English stones, Aust and Beachley.

Beds of eelgrass (*Zostera* spp.), the largest in Wales, occur on some of the more sheltered mixed hard substrate areas around the Welsh side of the Second Severn Crossing.

3.6.2 Structure and Function

Hard substrate habitats in the Severn Estuary display different characteristics to other areas in Wales. Where there is bedrock, fucoid algae cover is dense but with little associated flora and fauna. Areas of soft clay rock around Penarth also support the boring bivalves *Barnea candida* and *Pholas datylus*. Pebble and cobble shores tend to be dominated by barnacles mostly *Elminius modestus*, and sparse rough periwinkles and winkles. In the sublittoral fringe on bedrock, cobbles and pebbles, hydroids, bryozoans, sponges and barnacles dominate. These species form communities that are usually associated with subtidal habitats (adapted from Brazier et al 2007).

These habitats provide a wide range of services for estuarine species. They are important components of the SAC Estuary feature, important supporting habitats for the wintering and passage bird features of the SPA and Ramsar Site and also important supporting habitats for the fish assemblage of the SAC and Ramsar designations.

Seagrass beds are one of the most productive habitats of shallow water coastal ecosystems supporting large numbers of algae, invertebrates and fish and are an important food source for several species of ducks and geese including wigeon and European white-fronted geese. The *Zostera* beds in the Severn are unusual in that they occur in an area of mixed cobbles, sand and mud with large boulders, in other parts of Wales they are associated with mudflats. Both species of *Zostera* occur within the bed. On more dry elevated areas of sediment *Zostera noltii* can be found, whereas wet depressions and channels are dominated by *Zostera marina*. *Zostera* coverage can be patchy but locally abundant. Hard substrata within the *Zostera* bed is dominated by fucoid algae, ephemeral green algae and barnacles.

3.6.3 Typical Species

Typical fauna and flora of rocky and mixed shore areas of the Severn include spiral wrack, bladder wrack, eggwrack and serrated wrack, periwinkles, limpets, barnacles and whelks. On lower shore rock, cobbles and pebbles barnacles dominate including the barnacle *Balanus crenatus* and hydroids *Tubularia indivisa* and *Sertularia cupressina* the bryozoan *Alcyonidium diaphanum* and mermaids glove sponge *Haliclona oculata*.

Both species of eelgrass, *Zostera marina*, and *Z. noltii* have been recorded in the estuary. These are of restricted distribution in British estuaries. It is unusual to have both species in one location.

3.6.4 Natural Processes

The extent and distribution of the rocky shore habitat is largely determined by the underlying geology and sedimentology, along with orientation and aspect and the influence of the prevailing physical conditions such as the degree of exposure to wave action and tidal currents. These factors, combined with the influence of others, such as water quality (including turbidity) and sediment chemistry, influence the assemblages of marine species associated with the different rocky habitats throughout the estuary.

Seagrass beds typically occur in sheltered environments such as shallow inlets and are usually found on soft sediments. The *Zostera* beds in the Severn are unusual in that they occur in an area of mixed cobbles gravel sand and mud.

3.7 Fish

3.7.1 Introduction

The fish fauna of the Severn Estuary is very diverse (Potts & Swaby 1994, Bird 2008). More than 110 species of fish have been identified including a wide range of migratory species and estuarine specialists and some more typically marine and freshwater species reflecting the influence of the wider Bristol Channel and major rivers entering the estuary (Severn, Wye, Usk, Avon Parrett).

3.7.2 Fish features of the Severn Estuary European Marine Site

The Severn Estuary is of particular importance for migratory fish. The estuary is one of the most important British estuaries for three rare species - river lamprey *Lampetra fluviatilis*, sea lamprey *Petromyzon marinus* and twaite shad *Alosa fallax* which are designated features of the SAC. These species together with salmon *Salmo salar*, sea trout *Salmo trutta*, eel *Anguilla anguilla* and allis shad *Alosa alosa* are also a designated feature of the Ramsar Site.

The wider assemblage of fish species, which includes the migratory species, estuarine specialists and the more typically marine and freshwater species, is a designated feature of the Ramsar Site and a component of the estuary feature of the SAC.

3.7.3 Supporting habitats

The estuary habitats, tidal stretches of the feeding rivers and saltmarsh morphological features such as drainage channels, known locally as “pills” and “rhines” (“reens” in Wales) provide important feeding, breeding and sheltered nursery areas for a wide range of fish.

3.7.4 Migratory fish

The river and sea lamprey are a primitive type of fish having a distinctive suckered mouth but no jaws. Although numbers of lamprey have declined over the last 100 years, the UK is still one of their strongholds. Sea and river lampreys spend their adult life in the sea or estuaries but spawn and spend the juvenile phase in rivers. They use the Severn Estuary as a migratory passage to and from their spawning and nursery grounds in the rivers.

Allis and twaite shad are the only two members of the herring family found in fresh water in the UK. Both look like large herring and were formerly eaten in this country before numbers declined and the fisheries collapsed. In the middle of the 19th Century, the value of shad rivalled that of salmon, and in the River Severn, shad made up about one-third of all catches. Three of the four confirmed UK spawning populations of twaite shad are in the rivers Severn, Usk and Wye respectively. The major part of the spawning population of Twaite shad consists of fish that have spawned and passed up and down through the estuary more than once. The shad enter estuaries in spring and move up into the rivers to spawn. The estuary serves as a nursery area for juvenile shad where they feed on plankton.

The Severn Estuary supports an important run of migratory salmon and sea trout which pass through the estuary on their way to and from their spawning grounds in the upper reaches of the rivers and the open sea. The Severn Estuary has the largest eel run in Great Britain.

3.7.5 Assemblage of fish species

The assemblage of fish species includes the migratory species (referred to in section 3.8.4 above), as well as the following:

- Estuarine species
 - Species typically occurring and breeding in estuaries (Bird, 2008)
 - Marine species occurring in large numbers in estuaries (Bird, 2008)
- Marine species
 - Predominantly marine species occurring infrequently in the Severn (Bird, 2008)
- Freshwater species
 - Species typically occurring and breeding in freshwater and recorded within the Severn cSAC (Bird, 2008)

Estuarine species

These species of fish rely on the estuary for some aspect of their life-cycle. As a result of this dependence, these species are often the most vulnerable to anthropogenic and environmental factors that could affect the habitat and ecology of the estuary. Marine species occurring in large numbers in estuaries are all marine species who spend the first few years of life in the sheltered waters of the estuary where suitable food is abundant and there are fewer predators. The Severn Estuary ranks as one of the top ten estuaries in the UK for the number of marine estuarine-opportunistic species it supports (Potts & Swaby 1993). Marine estuarine-opportunists can be present in the estuary in very large numbers at particular times of year. These include sprat, herring, whiting, bib, poor cod, bass and common goby (Bird, 2008).

There are a few species that spend their entire life-cycle within the estuary. These include common goby, black goby, sand smolt and 3- spined stickleback (Bird, 2008).

Marine species

These fish normally spend their entire life-cycle in the sea and only occasionally enter estuaries. Therefore, they have only a minor role to play in the estuarine ecosystem. Thus, only four species, the conger eel, Norway pout, red mullet and plaice; are ever caught in numbers exceeding about 10 per year in power station samples. They probably have little impact, either as prey or as predators on other estuarine species. While they add to the biodiversity of the fish assemblage, their main populations occur in the sea. (Bird, 2008)

Freshwater species

These species typically occur and breed in freshwater, but have occasionally been recorded within the Severn Estuary. The specimens recovered at Oldbury and/or Berkeley power stations are presumably fish that have inadvertently been swept downstream and entered brackish water. They include perch, three-spined stickleback, tench, roach and chub. The numbers of freshwater species recovered at Oldbury is always low, and usually related to increases in fresh water discharge in the spring and autumn months after heavy rain. The only exception to this generalisation concerns the three-spined stickleback which occurs in considerable numbers at Oldbury and can be regarded as both a freshwater and an estuarine species (Bird, 2008)

3.8 Birds

3.8.1 Introduction

Many estuaries in the UK are of great importance to migratory and wintering wildfowl and waders. The Severn Estuary forms part of the complex chain of estuary sites along the western coast of the UK that provide habitats for migratory waterfowl. The relatively mild winter weather conditions found here compared to continental Europe at similar latitudes can be of additional importance to the survival of wintering waterfowl during periods of severe weather. It is especially important when there is severe weather affecting other sites further north and on the east coast of Britain.

The Severn Estuary ranks amongst the top ten British estuaries for the size of visiting waterfowl populations that it supports over winter (Musgrove *et. al.*, 2001). Outside of this period, it is of particular importance as a staging area in autumn and spring for migratory waterfowl species as it lies on the East Atlantic Flyway route. Bird communities are highly mobile and exhibit patterns of activity related to tidal water movements and many other factors. Different bird species exploit different parts of a marine area and different prey species.

3.8.2 Bird features of the Severn Estuary European Marine Site

The migratory wintering and passage populations of birds in the Severn Estuary are designated features of the SPA (see section 2.2) and Ramsar Site (see section 2.3) which supports in excess of 70,000 birds in winter. These include internationally and nationally important populations of key bird species in winter for which the UK has particular importance in both Europe and the world. The bird assemblage is also part of the Estuaries feature of the SAC.

3.8.3 Low-tide distribution of waterbirds on the Severn Estuary SPA and Ramsar Site

Natural England and the CCW commissioned the British Trust for Ornithology (BTO) to organise, as part of the series of WeBS Low Tide Counts, a complete low tide survey of the Severn Estuary during the winter of 2002/03 (Burton *et al.*, 2003). The mean numbers and distribution of total waterbird species recorded on each count section on the Severn Estuary in the winters 1987/88 to 1991/92 and in 2002/03 from this BTO low-tide count data for various individual species and the bird assemblage are illustrated in Appendix 9. The Figures generally indicate that the waterfowl are distributed extensively across virtually the entire intertidal area with some obviously high concentrations in specific areas.

These maps are indicative only and several constraints on their use should be noted when attempting to interpret them. Firstly, it should be noted that in each winter only a maximum of four counts were made of each count section, one a month from November to February. Observation of the central areas of the estuary is also very difficult with all observations being made from land and it is possible that the numbers of birds using these areas were underestimated. Gulls were only recorded in the 2002/03 survey. However, even in that survey, coverage of these species was patchy. The Severn is a highly dynamic estuary and thus the location and extent of many of the intertidal areas may have changed since the Ordnance Survey maps used for this project were created. The movements of sediments may potentially also cause marked differences in the distributions of invertebrates and thus waterbirds between years. It should also be noted that the numbers of birds recorded on the Severn Estuary may vary annually due to weather conditions. In cold winters, the west coast of Britain may act as a refuge for many waterbirds that in milder winters would occur on the east coast or on the Continent. In cold winters, therefore, waterbirds may be more widely distributed across the estuary than they would in milder winters. Lastly, in assessing the importance of different intertidal mudflats, it is also essential to note that some species may use different areas during the night to those where they are recorded in the day.

3.8.4 Relationship between bird populations and supporting habitats

In recognition of the fact that bird populations on a site may change in response to wider national or international trends or events, this Regulation 33 advice addresses the habitat conditions on the site necessary to support the bird populations, as well as the bird populations themselves. "Supporting habitats" are

identified which describe the key habitats within the European Marine Site necessary to support the interest features i.e. the qualifying bird species (see Table 3 for the SPA and Tables 5 and 7 for the Ramsar Site. The Favourable Condition Tables (section 4.2; Table 15 for the SPA and Section 4.3 Table 20 for the Ramsar Site) contain further details on habitat conditions.

The key supporting habitats are the intertidal mudflats and sandflats, saltmarshes and hard substrate habitats (rocky shores). Reference should also be made to sections of this document that relate to the Severn Estuary SAC interest features which provides advice in respect of these habitats (section 4.1 and Tables 8, 10 and 11).

Bird communities are highly mobile and exhibit patterns of activity related to tidal water movements and many other factors. Different bird species exploit different parts of a marine area and different prey species. Changes in the habitat may therefore affect them differently. The most important factors related to this are:

- current extent and distribution of suitable feeding and roosting habitat (eg saltmarsh, mudflats, shingle and rocky shores);
- sufficient prey availability (eg crustaceans, small fish, molluscs, worms and seeds);
- levels of disturbance maintained at or below levels necessary to provide favourable conditions for birds' feeding and roosting areas;
- water quality necessary to maintain intertidal plant and animal communities; and
- fresh water quantity, tidal flows, salinity gradients and grazing necessary to maintain saltmarsh conditions suitable for bird feeding and roosting.

There are also a number of habitats, such as the wet coastal grazing marsh, improved grassland and open standing waters that support the qualifying bird species and occur within the SPA and Ramsar Site boundary. However, these habitats lie above highest astronomical tide and therefore are not within the European Marine Site. Objectives to maintain these aspects of bird interest in favourable condition are found within Natural England and CCW's conservation objectives for the relevant SSSI within the SPA and Ramsar site boundary and will be dealt with through relevant procedures outlined in the Conservation (Natural Habitats &c.) Regulations 1994.

Some species will also use areas of land and coastal waters outside the boundaries of both the European Marine Site, SPA and Ramsar Site. Relevant authorities need to have regard to such adjacent interests, as they might be affected by activities taking place within, or adjacent to the European Marine Site.

3.8.5 Bird count data and assessing condition of bird features and their habitats

Natural England and CCW's conservation objectives at the site level focus on maintaining both the populations of the qualifying species and the habitats used by them. Site management should therefore aim to avoid both damage to the supporting habitats and disturbance to the birds. In reporting on the conservation status, account will need to be taken of both habitat conditions and the status of the bird populations.

Accordingly, Natural England and CCW will use annual counts, in the context of five year peak means for qualifying species, together with available information on population and distribution trends, to assess whether an SPA is continuing to make an appropriate contribution to the Favourable Conservation Status of the species. Count information will be assessed in combination with information on habitat condition, at the appropriate time within the reporting cycle, in order to report to the European Union.

In addition to focusing on avoiding deterioration to the habitats of the qualifying species, the Habitats Directive also requires that actions be taken to avoid significant disturbance to the species for which the site was designated. Such disturbance may result in alterations in population trends and/or distribution patterns. Avoiding disturbance to species requirements is mentioned in the favourable condition table accompanying the conservation objectives for the SPA and Ramsar Site (Tables 16 and 21). In this context, five-year peak mean information on populations will be used as the basis for assessing whether disturbance is damaging.

Attention is also directed to the inclusion of disturbance in the advice on operations provided in Section 5. Where disturbance is highlighted in such advice, relevant authorities need to avoid damaging disturbance to qualifying species when exercising their functions under the Directive.

3.8.6 Description of the Severn Estuary bird features and their supporting habitats

3.8.6.1 Internationally important populations of waterfowl

This comprises:

- A. Internationally important populations of regularly occurring Annex 1 species : Bewick's Swan
- B. Internationally important populations of regularly occurring migratory species of the SPA
- C. Internationally important populations of waterfowl of the Ramsar Site

A. Annex 1 species of the SPA

Description of the Feature

The species listed in Annex 1 of the Birds Directive are the subject of special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area of distribution. Species listed on Annex 1 are in danger of extinction, rare or vulnerable. Annex 1 species that regularly occur at levels over 1% of the national population meet the SPA qualifying criteria. The Severn Estuary SPA supports internationally important populations of one Annex I species

- **Bewick's swan** *Cygnus columbianus bewickii*
(Note : this species is also part of C. internationally important populations of waterfowl of the Ramsar Site)

Key supporting habitats for Bewick's swan

Intertidal mudflats and sandflats - The focal area for the Bewick's swans is the upper Severn Estuary in the vicinity of the New Grounds, Slimbridge area. The mudflats and sandflats exposed as the tide falls where the estuary widens in the upper reaches of the site at Waveridge Sands, Frampton Sands and The Noose are used as a safe refuge areas when the birds are disturbed.

Saltmarsh communities - The birds feed on the saltmarsh and the transition from saltmarsh to coastal grazing marsh in front of the sea defences in the upper estuary at The Dumbles, where areas of the high marsh are mainly affected only by brackish water during tidal inundation. They favour areas that have unrestricted views for the early detection of predators.

Bewick's swan graze on a range of 'soft' meadow grasses such as *Agrostis stolonifera* and *Alopecurus geniculatus* found in wet meadows which are outwith the European Marine Site boundary.

B. Internationally important populations of regularly occurring migratory species of the SPA and
C. Internationally important populations of waterfowl of the Ramsar Site

Description of the features

Migratory species that regularly occur at levels of 1% or more of the total biogeographic population meet the SPA criteria and qualify for designation in their own right.

Wintering species that regularly occur at levels of 1% or more of the total biogeographic population meet the Ramsar criteria (3c) and qualify for designation in their own right.

The following qualifying species of both the SPA and Ramsar are:

- **European white-fronted goose** *Anser albifrons*
- **Dunlin** *Calidris alpina alpina*
- **Redshank** *Tringa totanus totanus*
- **Shelduck** *Tadorna tadorna*
- **Gadwall** *Anas strepera*

Note : previous Regulation 33 advice issued in respect of the Severn Estuary SPA in February 2005 excluded gadwall as they were considered not to make use of the European Marine Site to any significant degree but further recent evidence (2000/01 Low Tide Bird Counts) has demonstrated that this species does make use of the EMS and has consequently now been included.

Key supporting habitats

Intertidal mudflats and sandflats - The extensive mudflats and sandflats of the Severn Estuary provide undisturbed refuge and a rich resource of intertidal invertebrates as food for many species of migratory birds. The Severn supports massive populations of birds, many of which are highly mobile, feeding and roosting in different areas, depending on food availability and the state of the tide.

The European white-fronted geese roost at night on estuarine sandbanks and usually fly less than 10km to the daytime feeding grounds. Therefore conservation of traditional roosting sites is necessary to enable the population to exploit potential feeding habitats. The sandbanks adjacent to the New Grounds at Slimbridge are a long established, traditional wintering area for the European white-fronted geese (Owen *et al.*, 1986) where they use Waveridge Sand, Frampton Sand and the Noose. Only occasionally will small numbers occur at other localities within the Severn Estuary. Shelduck exploit the rich resources of invertebrates found in the intertidal mudflats where they forage for molluscs and other invertebrates such as the mudsnail *Hydrobia* spp, mussels *Mytilus edulis* and small crustaceans such as the common shore crab *Carcinus maenas*. They feed in groups, and are distributed widely throughout the estuary where there are extensive areas of intertidal flats, but there are major concentrations on Bridgwater Bay, around the mouth of the Rhymney river and, prior to construction of the Cardiff Barrage, in Cardiff Bay (Ferns, 1980a; Fox & Salmon, 1988a; Clarke, 1989; WWT Wetlands Advisory Service, April 2003). Bridgwater Bay is a long established traditional moulting area for shelduck during late summer and autumn (Eltringham & Boyd, 1960, 1963; Morley, 1966; Fox & Salmon, 1988a). It is the largest single moulting area in Europe away from Waddensea.

Redshank and dunlin are distributed widely and feed throughout the estuary on marine polychaete worms, crustaceans and molluscs such as the Baltic tellin *Macoma balthica*. They frequently feed along undisturbed strandlines throughout the estuary. They favour areas that have abundant invertebrate prey species and unrestricted views for the early detection of predators. The location of

feeding birds on the intertidal flats is a reflection of the invertebrate species found there which, in turn, are dependent on the sediment type. Dunlin and redshank mainly feed on invertebrates in the muddier finer sediments. Dunlin are found mostly on the mid shore whereas redshank are more thinly distributed and are often found in smaller groups in the creeks and sub-estuaries. The Severn has the third largest wintering population of Dunlin in Britain. Feeding flocks are widely distributed around the estuary particularly downstream of the first Severn Bridge, with particular concentrations at Rhymney/Peterstone, Uskmouth, Welsh Grounds, Undy, Clevedon and Bridgwater Bay (Ferns, 1977; Mudge, 1979; Ferns, 1980a; Clark, 1989). There are notable concentrations of redshank at the mouths of the Rhymney, Wye, Avon and Parrett rivers (Ferns, 1977, 1980a; Clark, 1989; WWT Wetlands Advisory Service, April 2003).

Gadwall are predominantly a freshwater species preferring the wetland habitats that occur within the SPA behind the flood defences and therefore outside the European Marine Site- most notably the freshwater wetlands at Slimbridge and Bridgwater bay. However, they do make use of the estuary but this is largely restricted to areas where freshwater flows come into the estuary, particularly larger rivers and ponds- most notably at Avonmouth, between the two Severn Bridges and at Woodspring and Weston Bays.

Saltmarsh - Upper and lower saltmarsh provide important feeding and roosting areas for the internationally important migratory birds throughout the estuary. The saltmarshes provide a rich feeding habitat for redshank and shelduck, which feed on invertebrate species in the sediments, such as the mudsnail *Hydrobia*. The European white-fronted geese graze on a range of saltmarsh grasses and herbs such as common saltmarsh grass *Puccinellia maritima* and sea barley *Hordeum marinum*. The birds feed on the saltmarsh and the transition to coastal grazing marsh in front of the sea defences in the upper estuary and particularly at the The Dumbles.

The saltmarshes also have an important function providing a safe haven from the tides that flood the mudflats twice a day. The low-growing dense vegetation provides a suitable roosting habitat for redshank and dunlin, which prefer to roost on areas of short vegetation ensuring good visibility. The saltmarshes throughout the estuary provide an important communal roosting site for redshank, dunlin and shelduck. Upper saltmarsh in particular makes ideal highwater roost sites and there are main high tide roosts in some areas with little human disturbance where waders congregate from their feeding areas.

Hard substrate habitats (rocky shores) - the shingle and rocks in the estuary provide feeding areas for dunlin and redshank and some limited foraging at high tide. It also provides important roost sites at high tide particularly for the dunlin and redshank. Many of the rocks are off shore and are therefore generally free from human disturbance. These include Guscar Rocks in the upper reaches, Blackstone Rocks at Clevedon and Stert Island in Bridgwater Bay.

Freshwater coastal grazing marsh, improved grassland and open standing waters – these supporting habitats lie outside the European Marine Site boundary but within the SPA. They provide key areas for feeding and roosting for all the migratory species particularly at high tide, and mainly on the English side of the Estuary.

3.8.6.2 Internationally important assemblage of waterfowl

Description of the feature

In addition to supporting internationally important populations of individual birds, the Severn Estuary also qualifies under Article 4.2 as a wetland of international importance by regularly supporting over 20,000 waterfowl (Cranswick *et al.*, 1999, JNCC website). A peak count of over 100,000 waterfowl was recorded in the winter season of 1992-93 (Waters *et al.*, 1993). The wintering waterfowl assemblage (consisting of over 68,000 birds) includes all regularly occurring waterfowl.

Species that qualify as a listed component of the assemblage include all the birds covered by section 3.8.6.1 and species present in nationally important numbers.

These species are:

- **Dunlin** (migratory passage populations)
- **Redshank** (migratory passage populations)
- **Wigeon**
- **Teal**
- **Pintail**
- **Pochard**
- **Tufted duck**
- **Ringed plover**
- **Grey plover**
- **Curlew**
- **Whimbrel**
- **Spotted redshank**

The JNCC website also lists lapwing, mallard and shoveler as qualifying for future inclusion as part of this assemblage (Stroud, DA, et al., 2001. *The UK SPA network: its scope and content*. JNCC, Peterborough)

Key supporting habitats for the waterfowl assemblage

Since a number of species comprising the waterfowl assemblage are qualifying species in their own right, their habitat requirements are described in sections 3.4 and 3.5 above. This section therefore mainly deals with the habitat requirements of the other assemblage species which form part of the waterfowl assemblage.

Intertidal mudflats and sandflats - Many of the bird species found within the Severn Estuary are highly mobile, feeding and roosting in different areas, depending on food availability, weather and tides. They favour areas that have abundant prey species and unrestricted views for the early detection of predators. Some species of wader such as ringed plover and turnstone will feed on the rich invertebrate fauna associated with rotting seaweed occurring along undisturbed strandlines.

Pintail and Teal are widely distributed around the estuary with a notable concentration at the New Grounds. Pintail are also found at Peterstone/Rhymney. Pochard and tufted duck have a highly clumped daytime distribution mainly at New Grounds with most others at Peterstone and the mouth of the Rhymney. Large numbers of pochard move onto the estuary in periods of sustained cold weather. There is a large number of wintering ringed plover on the estuary and these numbers swell during the spring and autumn when there is a considerable passage of migrants through the Severn Estuary. There are major concentrations of curlew on the flats above the first Severn Bridge as well as Bridgwater Bay and the Welsh Grounds. The Severn Estuary is a particularly important staging post for whimbrel during autumn and spring passage periods where some birds feed on the mudflats. Spotted redshank are occasionally found on the Axe and Yeo estuaries.

Saltmarsh - Upper and lower saltmarsh provide important feeding and roosting areas for the internationally important assemblage of waterfowl throughout the estuary. The European white-fronted geese graze on a range of saltmarsh grasses and herbs. The birds feed on the saltmarsh and the transition to coastal grazing marsh in front of the sea defences in the upper estuary.

There are areas of well grazed saltmarsh with saltpans at the River Axe and in the upper reaches of the estuary, which are used by wigeon and other wildfowl. Pools in the higher marsh at Bridgwater Bay and in the saltmarsh above the Severn bridges are also attractive to waders and wildfowl, providing invertebrates and shelter. In the winter, ducks such as teal and pintail feed on seeds of saltmarsh plants such as *Salicornia* sp. and *Atriplex* sp. Probing waders such as curlew also feed on the saltmarsh.

The saltmarsh provides a safe haven for the feeding waders and wildfowl from the tides that flood the mudflats twice a day. Upper saltmarsh in particular makes ideal high water roost sites and there are main high tide roosts in some areas with little human disturbance where waders congregate from their feeding areas. Waders in particular, require very short vegetation to afford unrestricted views for the early detection of predators.

Hard substrate habitats (rocky shores) - The shingle and rocks in the estuary provide feeding areas for many wildfowl and waders and important roost sites at high tide. Many of the rocks are off shore and are therefore generally free from human disturbance. These include Guscar Rocks in the upper reaches, Blackstone Rocks at Clevedon and Stert Island in Bridgwater Bay. Whimbrel have major night roosts at Collister Pill and Stert Island and the Stert Island roost is the largest of its kind in Britain. Spotted redshank are also found around Stert Island. Some areas of hard substrate support eelgrass beds which provide a food source for grazing wildfowl species particularly European white-fronted goose and wigeon.

Freshwater coastal grazing marsh, improved grassland and open standing waters – these supporting habitats lie outside the European Marine Site boundary but within the SPA. They provide key areas for breeding, feeding and roosting for all the assemblage species particularly at high tide.

4. Conservation Objectives and Favourable Condition Tables For the European Marine Site

4.1 Conservation objectives for the Severn Estuary / Môr Hafren SAC

The protection and management of the SAC in accordance with Article 6 of the Habitats Directive, including in particular the consideration of plans and projects under Article 6(3) and 6(4), should be carried out in view of the conservation objectives in this section.

4.1.1 SAC interest feature 1: Estuaries

The conservation objective for the “estuaries” feature of the Severn Estuary SAC is to maintain the feature in favourable condition, as defined below:

The feature will be considered to be in favourable condition when, subject to natural processes¹, each of the following conditions are met

- i. the total extent of the estuary² is maintained;
- ii. the characteristic physical form (tidal prism/cross sectional area) and flow (tidal regime) of the estuary is maintained;
- iii. the characteristic range and relative proportions of sediment sizes and sediment budget³ within the site is maintained;
- iv. the extent, variety and spatial distribution⁴ of estuarine habitat communities⁵ within the site is maintained⁶;
- v. the extent, variety, spatial distribution⁴ and community composition of hard substrate habitats and their notable communities^{5(v)} is maintained;
- vi. the abundance of the notable estuarine species assemblages⁷ is maintained or increased;
- vii. the physico-chemical characteristics⁸ of the water column⁹ support the ecological objectives described above;
- viii. Toxic contaminants in water column⁹ and sediment are below levels which would pose a risk to the ecological objectives described above.
- ix. Airborne nutrient and contaminant loads are below levels which would pose a risk to the ecological objectives described above

The meaning of terms ¹⁻⁹ above is explained in **section 4.1.1.1**

Appendix 2 shows the extent of the “estuaries” feature within the Severn Estuary SAC European Marine Site.

4.1.1.1 Explanatory information for the “estuaries” conservation objective

¹ Natural processes in respect of the SAC

Each feature may be subject to both natural processes and human influence. Human influence on the interest features is acceptable provided that it is proved to be / can be established to be compatible with the achievement of the conditions set out under the definition of favourable condition for each interest feature. A failure to meet these conditions, which is entirely a result of natural process will not constitute unfavourable condition, but may trigger a review of the definition of favourable condition.

Dynamic physical process within estuaries can stem from variable weather conditions including one off storm events, and result in changes in wave exposure, riverine floods or tidal surges. These events can move large quantities of sediments and alter channel morphology, which affect current patterns and sediment transport within the estuary.

Where these processes occur without significant anthropogenic influence they fall under the umbrella of ‘natural change’. Because estuaries are dynamic systems we can expect the amount and gross distribution of habitats to change in the future. In general estuarine communities and their supporting habitats are intrinsically more dynamic over short timescales when compared to other marine and terrestrial habitats. Some estuarine communities occur in cycles dependent upon the prevailing physical conditions. Features should not necessarily be considered in unfavourable condition caused by the short term disappearance of a particular community due to natural processes.

An important example of natural processes occurring over a longer timescale is that estuaries have a natural tendency to accumulate sediment, thereby changing their form from their original glacial morphology to a state where tidal energy is dissipated by sediment banks and other features such as saltmarsh. This, with other forces of natural change, will therefore cause the width and depth of the estuary to change over time, moving towards a state of dynamic equilibrium or ‘most probable state’. As part of this process, the location and extent of saltmarshes and mudflats may change, provided there is capacity to accommodate readjustment. Future developments should aim to avoid impact on the future evolution of the system as where this process is constrained by human influence, the capacity of habitats to accommodate readjustment may be affected.

² Extent of the estuary

The landward limit of the estuary feature is the limit of highest astronomical tide or the site boundary where it is below highest astronomical tide, except where the landward limit is defined as straight lines across the mouths of rivers entering the estuary. The seaward limit is as shown in the map in Appendix 2. Where other Habitats Directive Annex I habitat types occur within the estuary, they also form part of the estuary feature. In addition, there are areas of the estuary which do not form part of other Annex I habitat types.

³ Sediment budget

The sediment budget refers to the total amount of sediment within the Severn Estuary taking into account the balance of sediment inputs and outputs.

⁴ Spatial distribution

Spatial distribution of estuarine communities refers to the macro spatial pattern in which communities are distributed around the estuary. This statement does not require micro-distribution of communities e.g. the exact mapped positions of specific communities to be maintained.

⁵ Estuarine habitat communities

Note: sections i – iv below list the habitat types which are also features of the Severn Estuary SAC in their own right as well as being ‘sub-features’ of the estuary feature. The detailed definitions of favourable conservation status for these features are provided under their respective conservation objectives.

- i. Subtidal sandbanks (*see section 4.1.2 for the conservation objective for this feature*)
 - Sublittoral Sands and Muddy Sands
 - Sublittoral cohesive mud and sandy mud communities
- ii. Intertidal mudflats and sandflats (*see section 4.1.3 for the conservation objective for this feature*)
 - Intertidal gravel and clean sands
 - Intertidal muddy sands
 - Intertidal muds

- iii. Atlantic saltmeadows (*see section 4.1.4 for the conservation objective for this feature*)
 - Low – mid marsh communities
 - Mid – upper marsh communities
 - Transitional high marsh communities
 - Pioneer marsh communities
- iv. Reefs of *Sabellaria alveolata* (*see section 4.1.5 for the conservation objective for this feature*)
 - *Sabellaria alveolata* on variable salinity sublittoral mixed sediment (subtidal)
 - *Sabellaria alveolata* reefs on sand-abraded eulittoral rock (contiguous subtidal and intertidal)
- v. Hard substrate habitat notable communities
 - *Sabellaria alveolata* reefs on sand-abraded eulittoral rock (MLR.Sab.Salv)
 - *Hydroids, ephemeral seaweeds and Littorina littorea* in shallow eulittoral mixed substrata pools. (LR.RkpH)
 - *Balanus crenatus* and *Tubularia indivisa* on extremely tide-swept circalittoral rock. (ECR.BS.BalTub)
 - *Fucus serratus* and piddocks on lower eulittoral soft rock (MLR.Fser.Pid)
 - *Mytilus edulis* and piddocks on eulittoral firm clay (MLR.MytPid)
 - *Balanus crenatus*, *Halichondria panacea* and *Alcyonidium diaphanum* on extremely tide-swept sheltered circalittoral rock (ECR.BalHpan)
 - *Sertularia cupressina* and *Hydrallmania falcate* on tide-swept sublittoral cobbles or pebbles in coarse sand (IGS.ScupHyd).
 - *Corrallina officinalis* and coralline crusts in shallow eulittoral rockpools (LR.Rkp.Cor)
 - Eel grass (*Zostera*) beds
 - Peat and clay exposures
 - Any other notable hard substrata communities that may be identified.

⁶Maintained

Since the late 1990s Natural England's condition assessment has identified that parts of the saltmarsh within the Severn Estuary appear to be exhibiting the effects of coastal squeeze. For this reason NE and CCW do not consider it sufficient simply to seek to maintain the existing saltmarsh resource, rather it is our advice that measures will be required which seek to recreate the approximate extent of saltmarsh habitat present within the estuary in 1995 (the year the Severn Estuary was first identified as a proposed SAC); whilst at all times working within the framework of seeking a sustainable estuary form. N.B. This is based upon a site specific consideration of the state of habitats within the Severn Estuary, and should not be extended to other sites on the basis of this advice.

⁷Notable estuarine species assemblages

- i. Assemblage of fish species:
 - Migratory species
 - River and Sea Lamprey and Twait shad (Annex 1 species) and Allis shad
 - Sea trout, salmon, eel,
 - Estuarine species
 - Species typically occurring and breeding in estuaries (Bird, 2008)
 - Marine species occurring in large numbers in estuaries (Bird, 2008)
 - Marine species
 - Predominantly marine species occurring infrequently in the Severn (Bird, 2008)
 - Freshwater species
 - Species typically occurring and breeding in freshwater and recorded within the Severn cSAC (Bird, 2008)

- ii Assemblage of waterfowl species (refer also sections 4.2 and 4.3 on the SPA and Ramsar Site):
 - Regularly occurring Annex 1 species - Bewicks' swan
 - Regularly occurring migratory species - European white-fronted goose, dunlin, redshank, shelduck, gadwall
 - Nationally important bird populations - wigeon, teal, pintail, pochard, tufted duck, ringed plover, grey plover, curlew, whimbrel and spotted redshank
- iii. Assemblage of vascular plant species:
 - Salt marsh species (refer to notes 5 and 6 in section 4.1.4.1 - explanatory information on the conservation objective for the Atlantic salt meadows feature)
 - Eel grass (*Zostera*) species.

⁸ Physico-chemical characteristics

These include nutrients, oxygen, turbidity, pH, temperature and salinity.

⁹ Water column

Water column should be read to include contributory water flows into the estuary including surface flows over mudflats and saltmarsh.

4.1.2 SAC interest feature 2: Subtidal sandbanks which are covered by sea water all the time (subtidal sandbanks)

The conservation objective for the “subtidal sandbanks” feature of the Severn Estuary SAC is to maintain the feature in favourable condition, as defined below:

The feature will be considered to be in favourable condition when, subject to natural processes¹, each of the following conditions are met:

- i. the total extent of the subtidal sandbanks² within the site is maintained;
- ii. the extent and distribution³ of the individual subtidal sandbank communities⁴ within the site is maintained;
- iii. the community composition⁵ of the subtidal sandbank feature within the site is maintained;
- iv. the variety and distribution³ of sediment types across the subtidal sandbank feature is maintained;
- v. the gross morphology (depth, distribution and profile) of the subtidal sandbank feature within the site is maintained.

The meaning of terms ¹⁻⁵ above is explained in **section 4.1.2.1**

Appendix 3 shows the extent of the “subtidal sandbanks” feature within the Severn Estuary SAC European Marine Site.

4.1.2.1 Explanatory information for the “subtidal sandbanks” conservation objective

¹ Natural processes in respect of the SAC

The meaning of ‘natural processes’ is explained in **section 4.1.1.1**

² Extent of subtidal sandbanks

The subtidal sandbanks in the Severn Estuary change their shape over time and many are ephemeral in nature, although some are relatively stable and long established. The extent of the Annex 1 habitat is considered to include both the actual sandbanks and their associated sediments. Areas of associated sediments have been defined by using the sediment environments of the Bristol Channel Marine Aggregates Resources and Constraints project, commissioned by the National Assembly for Wales (Posford Duvivier and ABP, 2000) Associated sediments have been defined as any area of of subtidal sand-sized sediment within the same sediment environment as a subtidal sandbank. Mobile sediments that form temporary sandbanks are considered to be associated sediments that should be retained in the system, but their location may change. Areas of holocene valley infill (relict sediment) are not mobile under present day estuarine conditions. Therefore, where Holocene infill is exposed, it is not considered to form part of the associated sediments. However, any mobile sand deposited over the infill does contribute to the associated sediments.

³ Distribution

Distribution of sandbank communities and sediments refers to the macro spatial pattern in which these are distributed around the estuary. This statement does not require micro-distribution of communities or sediments e.g. the exact mapped positions of specific communities or sediments to be maintained.

The sand banks of the Middle and Welsh Grounds are relatively permanent sandbank features in the Severn Estuary, along with other long established sandbank features at Cardiff Grounds and in Bridgwater Bay. The tops of these banks are intertidal, and the permanently submerged parts of the banks are considered to contribute to the subtidal sandbanks habitat.

There are other areas of subtidal sandbank habitat within the Estuary, again sometimes the top of the bank may be exposed at low tide, with the submerged sections contributing to the subtidal sandbanks habitat. These banks are more ephemeral in nature, but are still considered part of the feature, and reflect the dynamic nature of the Severn Estuary. The areas where ephemeral subtidal sandbanks are known to occur include areas offshore from Avonmouth and at English Grounds (near Clevedon).

The macro-scale distribution of the subtidal sandbanks should be maintained, and there should be continued presence of ephemeral subtidal sandbanks in the Estuary.

⁴ Subtidal sandbank communities

There are two groups of communities comprising the ‘sub-features’ of the subtidal sandbanks feature:

- Sublittoral Sands and Muddy Sands:
 - i. Infralittoral mobile sand in variable salinity (estuaries)
 - ii. Infralittoral mobile clean sand with sparse fauna
 - iii. *Nephtys cirrosa* and *Macoma balthica* in variable salinity infralittoral mobile sand
 - iv. *Neomysis integer* and *Gammarus* spp. in fluctuating low salinity infralittoral mobile sand
- Sublittoral cohesive mud and sandy mud communities:
 - i. *Capitella capitata* in enriched sublittoral muddy sediments
 - ii. *Nephtys hombergii* and *Tubificoides* spp. in variable salinity infralittoral soft mud
 - iii. *Capitella capitata* and *Tubificoides* spp. in reduced salinity infralittoral muddy sediment*
 - iv. *Nephtys hombergii* and *Macoma balthica* in infralittoral sandy mud*

(* these records have a lower degree of confidence than the other communities listed, i.e. the biotope assessor was uncertain regarding precisely which biotope should be recorded).

⁵ Community composition

Species typical of the subtidal sandbank communities:

Aricidea minuta
Capitella capitata
Diastylis rathkei typica
Eurydice pulchra
Gammarus salinus
Harpinia pectinata
Mediomastus fragilis
Nephtys cirrosa
Nephtys hombergii
Oligochaeta
Pygospio elegans
Pontocrates arenarius
Pseudocuma longicornis
Retusa obtusa
Tubificoides amplivasatus

4.1.3 SAC interest feature 3 : Mudflats and sandflats not covered by seawater at low tide (mudflats and sandflats)

The conservation objective for “mudflats and sandflats” feature of the Severn Estuary SAC is to maintain the feature in favourable condition, as defined below:

The feature will be considered to be in favourable condition when, subject to natural processes¹, each of the following conditions are met:

- i. The total extent of the mudflats and sandflats feature² is maintained;
- ii. the variety and extent of individual mudflats and sandflats communities³ within the site is maintained;
- iii. the distribution⁴ of individual mudflats and sandflats communities³ within the site is maintained;
- iv. the community composition⁵ of the mudflats and sandflats feature within the site is maintained;
- v. the topography of the intertidal flats and the morphology (dynamic processes of sediment movement and channel migration across the flats) are maintained.

The meaning of terms ¹⁻⁵ above is explained in **section 4.1.3.1**.

Appendix 4 shows the extent of the “mudflats and sandflats” feature within the Severn Estuary SAC European Marine Site.

4.1.3.1 Explanatory information for the “mudflats and sandflats” conservation objective

¹ Natural processes in respect of the SAC

The meaning of ‘natural processes’ is explained in **section 4.1.1.1**.

²Extent of the intertidal mudflats and sandflats

The extent of the feature is defined using intertidal Phase 1 survey information, which gives the seaward limit of the feature as the low water mark of spring tides (MLWS) because that is in practice the lower limit to which Phase 1 survey is possible. The feature does not include other intertidal habitats which are not mudflats and sandflats, such as intertidal reefs and rocky shores. This is the basis on which the feature is shown in the map in Figure 4, the total extent being 20,271 ha. However in addition there will be some areas of intertidal mudflat and sandflat seaward of MLWS and down to Lowest Astronomical Tide, which is the absolute seaward limit of this habitat type.

³Mudflat and sandflat communities

There are three groups of communities comprising the “sub-features” of the “Mudflats and sandflats not covered by seawater at low tide” feature:

- Intertidal gravel and clean sand communities

- i. Barren coarse sand shores; **LGS.S.BarSnd**
- ii. Burrowing amphipods and *Eurydice pulchra* in well drained clean sand shores; **LGS.S.AEur**
- iii. Burrowing amphipods and polychaetes in clean sand shores. **LGS.S.AP**
- iv. Talitrid amphipods in decomposing seaweed on the strandline **LGS.S.Tal**
- v. Dense *Lanice conchilega* in tide-swept lower shore sand **LGS.S.Lan**
- vi. Barren shingle or gravel shores **LGS.Sh.BarSh**

- Intertidal muddy sand communities :

- Polychaetes and *Cerastoderma edule* in fine sand or muddy sand shores **LMS.MS.PCer**
- Bathyporeia pilosa* and *Corophium spp.* in upper shore slightly muddy fine sand shores **LMS.MS.BatCor**
- Macoma balthica* and *Arenicola marina* in muddy sand shores. **LMS.MS.MacAre**

- Intertidal mud communities:

- Hediste diversicolor* and *Macoma balthica* in sandy mud shores: **LMU.SMu.HedMac**
- Hediste diversicolor*, *Macoma balthica* and *Arenicola marina* in muddy sand or sandy mud shores **LMU.SMu.HedMacAre**
- Hediste diversicolor* and *Scrobicularia plana* in reduced salinity mud shores **LMU.Mu.HedScr**
- Hediste diversicolor* and oligochaetes in low salinity mud shores **LMU.Mu.HedOl**
- Hediste diversicolor* and *Streblospio shrubsolii* in sandy mud or soft mud shores **LMU.Mu Hed Str**

Appendix 4a shows the extent of the “mudflats and sandflats” subfeatures within the Severn Estuary SAC European Marine Site.

⁴ Distribution

The distribution of mudflats and sandflats communities refers to the macro spatial pattern in which these communities are distributed around the estuary. This statement does not require micro-distribution of communities e.g. the exact mapped positions of specific communities to be maintained.

⁵ Community composition

Species typical of the mudflat and sandflat communities:

Aphelocheata marioni
Arenicola marina
Bathyporeia pelagica
Corophium volutator
Enchytraeidae
Eurydice pulchra
Hediste diversicolor
Hydrobia ulvae
Macoma balthica
Nephtys cirrosa
Nephtys hombergii
Oligochaeta indet.
Pygospio elegans
Scoloplos armiger
Scrobicularia plana
Streblospio shrubsolii
Tubificoides benedii

4.1.4 SAC interest feature 4: Atlantic salt meadow

The conservation objective for the “Atlantic salt meadow” feature of the Severn Estuary SAC is to maintain the feature in favourable condition, as defined below:

The feature will be considered to be in favourable condition when, subject to natural processes¹, each of the following conditions are met:

- i. the total extent of Atlantic salt meadow and associated transitional vegetation communities² within the site is maintained³;
- ii. the extent and distribution⁴ of the individual Atlantic salt meadow and associated transitional vegetation communities² within the site is maintained;
- iii. the zonation of Atlantic salt meadow vegetation communities and their associated transitions² to other estuary habitats is maintained;
- iv. the relative abundance of the typical species⁵ of the Atlantic salt meadow and associated transitional vegetation communities² is maintained;
- v. the abundance of the notable species⁶ of the Atlantic salt meadow and associated transitional vegetation communities² is maintained.
- vi. the structural variation of the salt marsh sward (resulting from grazing) is maintained within limits sufficient to satisfy the requirements of conditions iv and v above and the requirements of the Ramsar and SPA features⁷
- vii. the characteristic stepped morphology of the salt marshes and associated creeks, pills, drainage ditches and pans, and the estuarine processes that enable their development, is maintained.
- viii. Any areas of *Spartina anglica* salt marsh (SM6) are capable of developing naturally into other saltmarsh communities.⁸

The meaning of terms ¹⁻⁸ above is explained in **section 4.1.4.1**.

Appendix 5 shows the extent of Atlantic salt meadow and its associated transitional vegetation communities within the Severn Estuary SAC European Marine Site.

4.1.4.1 Explanatory information for the “Atlantic salt meadow” conservation objective

¹ Natural processes in respect of the SAC

The meaning of ‘natural processes’ is explained in **section 4.1.1.1**.

² Atlantic salt meadow and associated transitional vegetation communities

The vegetation communities comprising the Atlantic Salt Meadow feature can be grouped into four ‘sub-features’, namely:

- (a) low to mid marsh communities
- (b) mid to upper marsh communities
- (c) transitional high marsh communities
- (d) pioneer saltmarsh communities

The communities in each of these sub-features are listed below.

Sub-features (a) and (b) contain the National Vegetation Classification (NVC) communities which fall within the definition of Atlantic Salt Meadow in the EU Interpretation Manual. The extent of these two sub-features within the SAC is currently estimated at 656 ha. The communities in (c) and (d) do not fall within the Atlantic Salt Meadow definition, but are considered to be important components of this feature as they represent its landward and seaward transitions to other habitat types, namely non-saline vegetation and pioneer salt marsh respectively. Atlantic salt meadow is a naturally dynamic habitat and these transitional communities are considered to be an integral part of the Atlantic Salt Meadow feature and essential elements of its structure and function. The total extent of all four of the above sub-features in the SAC is estimated to be 1400 ha, distributed in the SAC as shown in Appendix 5a.

(a) Low to mid marsh communities:

- i. Transitional low saltmarsh with *Puccinellia maritima*, annual *Salicornia* sp. and *Suaeda maritima* SM10
- ii. *Aster tripolium* (rayed) saltmarsh SM12
- iii. *Puccinellia maritima* saltmarsh SM13
 - o *Puccinellia maritima* sub-community SM13a
 - o *Glaux maritima* sub-community SM13b
 - o *Limonium vulgare* - *Armeria maritima* sub-community SM13c
 - o *Plantago maritima* - *Armeria maritima* sub-community SM13d
 - o *Plantago maritima*-*Triglochin maritima* sub-community SM13x (provisional)
 - o *Spartina anglica* sub-community SM13y (provisional)
- iv. *Atriplex portulacoides* saltmarsh SM14
 - o *Atriplex portulacoides* sub-community SM14a
- v. *Juncus maritimus* - *Triglochin maritima* saltmarsh SM15

(b) Mid to upper marsh communities:

- i. *Festuca rubra* salt-marsh SM16
 - o *Puccinellia maritima* sub-community SM16a
 - o *Juncus gerardii* sub-community SM16b
 - o *Glaux maritima* sub-community SM16c
 - o *Festuca rubra* sub-community SM16d
 - o *Leontodon autumnalis* sub-community SM16e
 - o *Aster tripolium* sub-community SM16x (provisional)
- ii. *Artemisia maritima* saltmarsh SM17
- iii. *Juncus maritimus* salt-marsh SM18
 - o *Festuca arundinacea* sub-community SM18c

(c) Transitional high marsh communities:

- i. *Spergularia marina* - *Puccinellia distans* saltmarsh SM23
 - ii. *Elytrigia atherica* saltmarsh SM24
 - iii. *Elytrigia repens* saltmarsh SM28
 - iv. *Festuca rubra* - *Agrostis stolonifera* - *Potentilla anserina* inundation grassland MG11
 - v. *Festuca arundinacea* coarse grassland MG12
 - vi. *Agrostis stolonifera* - *Alopecurus geniculatus* inundation grassland MG13
 - vii. *Phragmites australis* reedbed S4
 - o *Phragmites australis* sub-community S4a
 - xiii. *Bolboschoenus maritimus* swamp S21
 - o *B. maritimus* sub-community S21a
- Agrostis stolonifera* sub-community S21c

(d) Pioneer saltmarsh communities:

- i. *Spartina anglica* saltmarsh SM6
- ii. Annual *Salicornia* saltmarsh SM8
- iii. *Suaeda maritima* saltmarsh SM9

³ Maintained

Since the late 1990s Natural England's condition assessment has identified that parts of the saltmarsh within the Severn Estuary appear to be exhibiting the effects of coastal squeeze. For this reason NE and CCW do not consider it sufficient simply to seek to maintain the existing saltmarsh resource, rather it is our advice that measures will be required which seek to recreate the approximate extent of saltmarsh habitat present within the estuary in 1995 (the year the Severn Estuary was first identified as a proposed SAC); whilst at all times working within the framework of seeking a sustainable estuary form. N.B. This is based upon a site specific consideration of the state of habitats within the Severn Estuary, and should not be extended to other sites on the basis of this advice.

⁴ Distribution

The distribution Atlantic salt meadow communities refers to the macro spatial pattern in which these are distributed around the estuary. This statement does not require micro-distribution of communities e.g. the exact mapped positions of specific communities to be maintained.

⁵ Typical species of the Atlantic salt meadow

Festuca arundinacea
Festuca rubra
Juncus gerardii
Triglochin maritimum
Carex extensa
Agrostis stolonifera
Juncus maritimus
Oenanthe lachenalii
Puccinellia maritima,
Salicornia spp.
Suaeda maritima
Aster tripolium
Glaux maritima
Plantago maritima
Armeria maritima
Elytrigia atherica
Atriplex prostrata
Phragmites australis
Spartina anglica
Spergularia media
Puccinellia distans
Cochlearia anglica
Cochlearia officinalis
Limonium vulgare
Atriplex portulacoides
Seriphidium maritimum
Plantago coronopus
Beta vulgaris maritima

⁶ Notable Atlantic salt meadow vegetation species

Alopecurus bulbosus
Althaea officinalis
Bupleurum tenuissimum
Hordeum marinum
Puccinellia rupestris
Trifolium squamosum
Lepidium latifolium

Allium oleraceum

Petroselinum segetum

⁷ **Severn Estuary SPA and Severn Estuary Ramsar Site Conservation Objectives**

Refer to sections 4.2 and 4.3 of this document

⁸ ***Spartina anglica* SM6**

Spartina in the Severn is considered to be an invasive species and these conservation objectives do not seek the maintenance of the extent or condition of this habitat type. However, SM6 is considered to be a transitional salt marsh community and the conservation objectives seek to protect the ability of areas of *Spartina* to develop into other Atlantic Salt Meadow or transitional communities.

4.1.5 SAC interest feature 5 : Reefs

The conservation objective for the “reefs” feature of the Severn Estuary SAC is to maintain the feature in a favourable condition, as defined below:

The feature will be considered to be in favourable condition when, subject to natural processes¹, each of the following conditions are met:

- i. the total extent and distribution² of *Sabellaria* reef³ is maintained;
- ii. the community composition⁴ of the *Sabellaria* reef is maintained;
- iii. the full range of different age structures of *Sabellaria* reef are present;
- iv. the physical⁵ and ecological processes⁶ necessary to support *Sabellaria* reef are maintained.

The meaning of terms ¹⁻⁶ above is explained in section 4.1.5.1 below.

Appendix 6 shows the extent of the “reef” feature within the Severn Estuary SAC European Marine Site.

4.1.5.1 Explanatory information for the “reefs” conservation objective

¹ Natural processes in respect of the SAC

The meaning of ‘natural processes’ is explained in section 4.1.1.1

² Distribution

The distribution of reefs refers to the macro spatial pattern in which the reefs are distributed around the estuary. This statement does not require micro-distribution of the reefs e.g. the exact mapped positions of specific reefs to be maintained.

³ *Sabellaria* reef

Little is known about the nature of the *Sabellaria alveolata* reef in the Severn Estuary, especially in the subtidal. However, at other sites *S. alveolata* is known to have a very variable recruitment and the cover in any one area may vary greatly over a number of years. *S. alveolata* reefs also cycle through different phases, from newly settled worms through vigorous fast growing reef to older hummocks. It is likely that subtidal *S. alveolata* reef in the Severn Estuary will exhibit reduced growth forms (lower elevation) in comparison to the intertidal reef habitat. The easiest of these phases to identify is the fast growing reef and for the purposes of these conservation objectives this is defined as a dense aggregation of worms (over 1000 per m², as a rough guide), generally forming a thick (2 cm or more) crust of tubes. The area covered by the habitat would generally exceed 25 m² although there could be patchiness within this area. The other phases of growth are also important and are encompassed in point iii of the objective.

The *S. alveolata* reef biotopes recorded in the Severn Estuary are SS.SBR.PoR.SalvMx *Sabellaria alveolata* on variable salinity sublittoral mixed sediment and LS.LBR.Sab.Salv *Sabellaria alveolata* reefs on sand-abraded eulittoral rock.

⁴ Community composition

Species associated with dense aggregations of *Sabellaria alveolata* in the Severn estuary:

Subtidal

Sabellaria alveolata
Eulalia tripunctata

Mediomastus fragilis
Typosyllis armillaris
Ampharete grubei
Harpinia pectinata
Melinna cristata
Pygospio elegans
Scoloplos armiger
Nemertea
Nucula nitidosa
Nucula nucleus
Tubificoides amplivasatus
Golfingia vulgaris vulgaris
Gammarus salinus
Tubificoides
Arenicola marina
Sphenia binghami
Eumida sanguinea
Nephtys hombergii
Autolytus prolifera
Harmothoe impar
Nematoda
Polycirrus
Dodecaceria concharum
Harmothoe
Syllidae
Enchytraeidae

Intertidal

Sabellaria alveolata,
Actinia equina
Cancer pagurus
Elminius modestus
Littorina saxatilis
L. littorea
L. obtusata
Pholas dactylus
Pomatocerus lamarcki
Porcellana platycheles
Semibalanus balanoides
Halichondrea sp
Corallina officinalis
Enteromorpha sp.
Fucus serratus
Fucus vesiculosus
Pelvetia canaliculata
Porphyra sp
Ulva sp

⁵Physical processes

- abundance of suitable coarse sediments to support reef growth (tube building)
- the availability of suitable substrates where *Sabellaria* has been known to occur in the past

⁶Ecological Processes

- supply of *Sabellaria* larvae (within the water column)
- abundance of food (suspended detritus material) within the water column to support feeding

4.1.6 SAC interest feature 6 : River lamprey *Lampetra fluviatilis*

The conservation objective for the river lamprey *Lampetra fluviatilis* feature of the Severn Estuary SAC is to maintain the feature in a favourable condition, as defined below:

The feature will be considered to be in favourable condition when, subject to natural processes¹, each of the following conditions are met:

- i. the migratory passage of both adult and juvenile river lamprey through the Severn Estuary between the Bristol Channel and any of their spawning rivers is not obstructed or impeded by physical barriers, changes in flows, or poor water quality;
- ii. the size of the river lamprey population in the Severn Estuary and the rivers which drain into it, is at least maintained and is at a level that is sustainable in the long term;
- iii. the abundance of prey species² forming the river lamprey's food resource within the estuary, is maintained.
- iv. Toxic contaminants in the water column³ and sediment are below levels which would pose a risk to the ecological objectives described above.

The meaning of terms ¹⁻³ above is explained in **section 4.1.6.1**.

Note : The river lamprey population of the Severn depends on habitat in the adjacent River Usk SAC, River Wye SAC and River Severn. The habitats in these rivers, including spawning and nursery areas, are essential for the fulfilment of the species' lifecycle and therefore the Severn Estuary river lamprey feature can only be in favourable condition if the conservation objectives pertaining to the River Usk SAC and River Wye SAC river lamprey feature are also met in full and there is a continued recorded presence of this species in the River Severn.

4.1.6.1 Explanatory information for the river lamprey *Lampetra fluviatilis* conservation objective

¹ Natural processes in respect of the SAC fish features

River lamprey population:

The size of the population is subject to non anthropogenic factors relating to natural fluctuations of external factors such as food / host availability in the Bristol Channel and more widely and breeding success in the River Severn and other rivers draining into the Severn Estuary.

Supporting habitats

The general meaning of 'natural processes' with respect to the supporting habitats of river lamprey within the estuary is explained in **section 4.1.1.1**

² Prey species

Sea trout *Salmo trutta*, shad *Alosa fallax/Alosa alosa*, herring *Clupea harengus*, sprat *Sprattus sprattus*, flounder *Platichthys flesus* and small gadoids such as whiting *Merlangius merlangus* and pout *Trisopterus luscus* are all potential prey species for the river lamprey found within the Severn Estuary (Bird 2008).

³Water column

Water column should be read to include contributory water flows into the estuary including surface flows over mudflats and saltmarsh.

4.1.7 SAC interest feature 7: The conservation objective for sea lamprey *Petromyzon marinus*

The conservation objective for the sea lamprey *Petromyzon marinus* feature of the Severn Estuary SAC is to maintain the feature in a favourable condition, as defined below:

The feature will be considered to be in favourable condition when, subject to natural processes¹, each of the following conditions are met:

- i. the migratory passage of both adult and juvenile sea lamprey through the Severn Estuary between the Bristol Channel and any of their spawning rivers is not obstructed or impeded by physical barriers, changes in flows, or poor water quality;
- ii. the size of the sea lamprey population in the Severn Estuary and the rivers which drain into it, is at least maintained as is at a level that is sustainable in the long term;
- iii. the abundance of prey species² forming the sea lamprey's food resource within the estuary, is maintained.
- vi. Toxic contaminants in the water column³ and sediment are below levels which would pose a risk to the ecological objectives described above.

The meaning of terms ¹⁻³ above is explained in **section 4.1.7.1**.

Note : The sea lamprey population of the Severn depends on habitat in the adjacent River Usk SAC, River Wye SAC and River Severn. The habitats in these rivers, including spawning and nursery areas, are essential for the fulfilment of the species' lifecycle and therefore the Severn Estuary sea lamprey feature can only be in favourable condition if the conservation objectives pertaining to the River Usk SAC and River Wye SAC sea lamprey shad feature are also met in full and there is a continued recorded presence of this species in the River Severn.

4.1.7.1 Explanatory information for the sea lamprey *Petromyzon marinus* conservation objective

¹ Natural processes in respect of the SAC fish features

Sea lamprey population:

The size of the population is subject to non anthropogenic factors relating to natural fluctuations of external factors such as food / host availability in the Bristol Channel and more widely and breeding success in the River Severn and other rivers draining into the Severn Estuary.

Supporting habitats:

The general meaning of 'natural processes' with respect to the supporting habitats of sea lamprey within the estuary is explained in **section 4.1.1.1**.

²Prey species

Eel *Anguilla anguilla*, cod *Gadus morhua*, and haddock *Melanogrammus aeglefinus* are all potential prey species for the sea lamprey found within the Severn Estuary (Bird 2008)

³Water column

Water column should be read to include contributory water flows into the estuary including surface flows over mudflats and saltmarsh.

4.1.8 SAC interest feature 8: The conservation objective for twaite shad *Alosa fallax*

The conservation objective for the twaite Shad *Alosa fallax* feature of the Severn Estuary SAC is to maintain the feature in a favourable condition, as defined below:

The feature will be considered to be in favourable condition when, subject to natural processes¹, each of the following conditions are met:

- i. the migratory passage of both adult and juvenile twaite shad through the Severn Estuary between the Bristol Channel and their spawning rivers is not obstructed or impeded by physical barriers, changes in flows or poor water quality;
- ii. the size of the twaite shad population within the Severn Estuary and the rivers draining into it is at least maintained and is at a level that is sustainable in the long term.
- iii. the abundance of prey species² forming the twaite shad's food resource within the estuary, in particular at the salt wedge³, is maintained.
- iv. Toxic contaminants in the water column⁴ and sediment are below levels which would pose a risk to the ecological objectives described above.

The meaning of terms¹⁻⁴ above is explained in **section 4.1.8.1**.

Note : The twaite shad population of the Severn depends on habitat in the adjacent River Usk SAC, River Wye SAC and River Severn. The habitats in these rivers, including spawning and nursery areas, are essential for the fulfilment of the species' lifecycle and therefore the Severn Estuary twaite shad feature can only be in favourable condition if the conservation objectives pertaining to the River Usk SAC and River Wye SAC twaite shad feature are also met in full and there is a continued recorded presence of this species in the River Severn.

4.1.8.1 Explanatory information for the Twaite shad *Alosa fallax* conservation objective

¹ Natural processes in respect of the SAC fish features

Twaite shad population:

The size of the population is subject to non anthropogenic factors relating to natural fluctuations of external factors such as food availability in the Bristol Channel and more widely and breeding success in the River Severn and other rivers draining into the Severn Estuary.

Supporting habitats:

The general meaning of 'natural processes' with respect to the supporting habitats of twaite shad within the estuary is explained in **section 4.1.1.1**.

² Prey species

Small crustaceans, especially mysids and copepods, small fish, especially sprats and anchovies, and fish eggs (Maitland, P.S. & Hatton-Ellis 2003).

³ Salt wedge

This the area within the estuary where fresh and saline water meet and where the abundance of prey species is particularly important to the twaite shad population. The actual position varies according to the state of the tide and volume of freshwater input to the estuary.

⁴Water column

Water column should be read to include contributory water flows into the estuary including surface flows over mudflats and saltmarsh.

4.1.9 Favourable Condition Tables for the SAC interest features of the Severn Estuary European Marine Site

Background information on the role of favourable condition tables and the information provided in each column is provided in Section 1.8 of this document, and a concise glossary of terms used is provided in Section 7.

The favourable condition table is intended to supplement the conservation objectives, including with respect to the management of established and ongoing activities, future requirements of monitoring and reporting on the condition of the features of the site and, together with the conservation objectives, informs the scope and nature of any appropriate assessment that may be needed. The table **does not by itself** provide a comprehensive basis on which to assess plans and projects as required under the Habitats Regulations. It should be noted that appropriate assessments are a separate activity to condition monitoring, requiring consideration of issues specific to individual plans or projects.

These tables set out all the attributes that **may** be used to monitor the condition of the features of the SAC. Where possible we will seek available information from others which can inform our assessment process.

It will be possible to monitor many of the attributes at the same time or during the same survey. The frequency of sampling for many attributes may need to be greater during the first reporting cycle in order to characterise the site and establish the baseline. Where relevant, abbreviations of National Vegetation Classification (NVC) codes are used for simplicity (Rodwell, 2000).

Comprising :

Table 8 – Favourable condition table for the “estuaries” feature of the Severn Estuary SAC and (in part) for the Ramsar Site (refer to section 4.3.1)

Table 9 – Favourable condition table for the “subtidal sandbanks” feature of the Severn Estuary SAC

Table 10 – Favourable condition table for the “intertidal mudflats and sandflats” feature of the Severn Estuary SAC

Table 11 – Favourable condition table for the “Atlantic salt meadows” feature of the Severn Estuary SAC

Table 12 – Favourable condition table for the “reefs” feature of the Severn Estuary SAC

Table 13 – Favourable condition table for the “river lamprey” and “sea lamprey” features of the Severn Estuary SAC

Table 14 – Favourable condition table for the “twait shad” feature of the Severn Estuary SAC

Table 8 – Favourable condition table for the “estuaries” feature of the Severn Estuary SAC and (in part) for the Ramsar Site (refer to section 4.3.1)

Ref	SAC Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
A1	SAC interest feature 1: Estuaries		Extent <i>(Total extent of the estuaries feature - section 4.1.1.i of the conservation objectives)</i>	Total area (ha) of estuary feature	No decrease in extent due to man induced changes from the established baseline <i>The baseline is the extent of all areas subject to tidal influence within the boundary of the designation of the pSAC in 2000 - see also map in Appendix 2</i>	Extent is an attribute on which reporting is required by the Habitats Directive.
A2		All sub-features	Morphology <i>(Characteristic physical form and flow - section 4.1.1.ii of the conservation objectives)</i>	Intra and inter-estuarine Tidal Prism/Cross Section ratio (TP/CS ratio) measured during the reporting cycle using remote sensing (frequency to be determined).	The intra- and inter- estuarine TP/CS relationship should not deviate significantly from an established baseline subject to natural processes (* includes recognition of fixed hard geology formations) <i>Baseline to be established :- Data to be used is Hydrological Office bathymetry data (intertidal and subtidal) and Environment Agency LIDAR survey</i>	TP = Tidal Prism = total volume of water crossing a given cross section during the flood tide (m ³). CS = Area of a given cross section at high water springs (m ²). The relationship between TP & CS provides a measure of the way the estuary has adjusted to tidal energy. Substantial departures from this characteristic relationship (determined on a regional basis) may indicate the influence of anthropogenic factors and this would trigger more detailed evaluation of potential problems. The identification of a suitable baseline for TP/CS relationship will need to take account of the highly dynamic nature of the Severn and potential impacts of natural processes (including sea level rise) in altering the profile of the estuary – with a view to maintaining or promoting the movement of the estuary towards “dynamic equilibrium”. *The hard geology formations (headlands, cliffs and rock platforms) have a major role in influencing the characteristic physical form and flow of the estuary (many are protected in their own right as geological SSSI).

Ref	SAC Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
A3	SAC interest feature 1: Estuaries		Tidal regime and flows (saline water and freshwater contributions) <i>(characteristic physical form and flow - section 4.1.1.ii of the conservation objectives)</i>	Tidal range, measured from tide gauges at specified locations, and flows measured from current estuary and river meters . Locations and frequency to be determined	No decrease in tidal range subject to natural processes. Tidal currents should not deviate significantly from an established baseline subject to natural processes Riverine flows (Rivers Wye, Usk and Severn) and estuarine flows must be sufficient to ensure Water Framework Directive target of Good Ecological Status (GES) is met. <i>Baseline to be established :- Data to be used is existing tide gauge and current meter data from EA ca 2000, and agreed WFD monitoring measures.</i>	

Ref	SAC Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
A4			Sediment budget <i>(characteristic range and relative proportions of sediment sizes and sediment budget - section 4.1.1.iii of the conservation objectives)</i>	Evaluation of the sediment fluxes, sources and sinks, using a variety of measures including bathymetry, suspended sediment concentrations, fluvial and marine influx/efflux, man-made changes (e.g. navigational dredging/marine minerals extraction), cliff erosion etc)	No decrease in sediment budget from the established baseline <i>Baseline to be established :- Data to be used is Severn Estuary Coastal Habitat Management Plan (CHaMP) Part F- Sediment Budget Analysis</i>	<p>A sediment budget is a balance of the sediment volume entering and exiting a particular section of the coast or an estuary. Sediment budget analysis consists of the evaluation of sediment fluxes, sources and sinks from different processes that give rise to additions and subtractions within a control volume (e.g. a section of coast or an estuary) in order to gain a better understanding of the estuary system.</p> <p>An estuary provides a readily defined control volume, where point sources and sinks exist in the form of rivers, other terrestrial outfalls and the open sea. Line sources and sinks may be defined in terms of erosion from cliffs and transfers to or from saltmarshes, wetlands or other intertidal areas. The subtidal beds also needs consideration as an important source/sink as does material stored in suspension within the volume of water that moves back and forth under tidal action within the estuary.</p> <p>Identification and quantification of all the mechanisms giving rise to sediment transfers can be difficult, and for the most part are approximate estimates of sediment exchange between sources and sinks.</p> <p>Reference ; ABPmer and HR Wallingford (2007).</p>
A5	SAC interest feature 1: Estuaries		Sediment size, range and distribution <i>(characteristic range and proportions of sediment sizes and sediment budget - section 4.1.1.iii of the conservation objectives)</i>	Sediment size distribution characterised and measured by particle size analysis (PSA) at a series of locations across the estuary during the reporting cycle (locations and frequency to be determined)	Sediment size distribution should not deviate from an established baseline. <i>Baseline to be established :- Data to be used is BGS seabed sediment data and other relevant datasets ?</i>	PSA measures parameters including percentage sand/silt/gravel, mean and median grain size and sorting co-efficient, used to characterise sediment type. Sediment character is key to the structure of the features and reflects the physical processes acting on it – it may vary across the estuary and can be used to indicate the spatial distribution of sediment types reflecting the stability of the features and the processes supporting it..
A6		Subtidal sandbanks	Extent, variety and spatial distribution of estuarine habitat communities <i>(section 4.1.1.iv of the conservation objectives)</i>	<i>For information on the attributes of the subtidal sandbank communities sub-feature see the sections of this table which relate to the subtidal sandbanks which are covered by seawater all the time feature, see Table 9</i>		

Ref	SAC Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
A7		Intertidal mudflat and sandflat communities	Extent, variety and spatial distribution of estuarine habitat communities (section 4.1.1.iv of the conservation objectives)			<i>For information on the attributes of the intertidal mudflat & sandflat communities sub-feature see the sections of this table which relate to the intertidal mudflats and sandflats not covered by seawater at low tide feature, see Table 10</i>
A8		Atlantic salt meadow (and associated transition habitats)	Extent, variety and spatial distribution of estuarine habitat communities (section 4.1.1.iv of the conservation objectives)			<i>For information on the attributes of the Atlantic salt meadow communities sub-feature see the sections of this table which relate to Atlantic salt meadow feature, see Table 11</i>
A9		Reefs of <i>Sabellaria alveolata</i>	Extent, variety and spatial distribution of estuarine habitat communities (section 4.1.1.iv of the conservation objectives)			<i>For information on the attributes of the Reef sub-feature see the sections of this table which relate to the Reef feature, see Table 12</i>

Ref	SAC Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
A10	SAC interest feature 1: Estuaries	Hard substrate habitats and their notable communities	Extent & variety <i>(extent, variety, spatial distribution and community composition of hard substrate habitats and their notable communities - section 4.1.1.v of the conservation objectives)</i>	Area (ha) and range of types of hard substrate habitats and their notable communities, measured periodically during the reporting cycle along sampling transects or grids (frequency to be determined).	No decrease in extent or range of types of hard substrate habitats and their notable communities from the established baseline subject to natural processes. <i>Baseline is the CCW and English Nature Intertidal Biotope Surveys 2006.</i>	Loss of hard substrate habitats and their notable communities is likely to be detrimental to the structure of the interest feature, e.g. associated with a change in estuary processes and may indicate long term changes in the physical conditions of the estuaries interest feature. Notable communities of the Severn Estuary comprise the following <ul style="list-style-type: none"> • <i>Sabellaria alveolata</i> reefs on sand-abraded eulittoral rock (MLR.Sab.Salv) • <i>Hydroids, ephemeral seaweeds and Littorina littorea</i> in shallow eulittoral mixed substrata pools. (LR.RkpH) • <i>Balanus crenatus</i> and <i>Tubularia indivisa</i> on extremely tide-swept circalittoral rock.(ECR.BS.BalTub) • <i>Fucus serratus</i> and piddocks on lower eulittoral soft rock (MLR.Fser.Pid) • <i>Mytilus edulis</i> and piddocks on eulittoral firm clay (MLR.MytPid) • <i>Balanus crenatus</i>, <i>Halichondrea panicea</i> and <i>Alcyonidium diaphanum</i> on extremely tide-swept sheltered circalittoral rock (ECR.BalHpan) • <i>Sertularia cupressina</i> and <i>Hydrallmania falcate</i> on tide-swept sublittoral cobbles or pebbles in coarse sand (IGS.ScupHyd). • <i>Corralina officinalis</i> and coralline crusts in shallow eulittoral rockpools (LR.rkp.Cor) • Eel grass (<i>Zostera</i>) beds • Any other notable hard substrata communities that may be identified.
A11			Spatial distribution <i>(extent, variety, spatial distribution and community composition of notable communities - section 4.1.1.v of the conservation objectives)</i>	Spatial distribution of notable communities measured periodically during the reporting cycle using a combination of remote sensing and ground truthing using GPS (frequency to be determined).	Macroscale distribution of notable communities should not deviate significantly from the established baselines, subject to natural processes. <i>Baseline is the CCW and English Nature Intertidal Biotope Surveys 2006.</i>	Changes in the variety or distribution of notable estuarine communities may indicate long term changes in the physical conditions of the estuary interest feature or individual subfeatures.

Ref	SAC Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
A12	SAC interest feature 1: Estuaries	Hard substrate habitats and their notable communities	Community composition <i>(extent, variety, spatial distribution and community composition of notable communities - section 4.1.1.v of the conservation objectives)</i>	Assessment of community quality through survey of species composition (presence of typical species) within the notable communities measured periodically	No decline in community quality due to changes in species composition or loss of typical species from an established baseline <i>Baseline to be established : Data to be used : CCW and English Nature Intertidal Biotope Surveys 2006 and future surveys</i>	Different associations of plants, animals and their habitat are an important structural and functional aspect of the feature. Changes in the communities present within an area of a particular type may indicate long-term changes in physical conditions at the site. Typical species of the notable communities to be determined.
A13		Notable estuarine species assemblages : Assemblage of fish species	Abundance <i>(abundance of notable estuarine species assemblages - section 4.1.1.vi of the conservation objectives)</i>	Numbers of species and population estimates	No significant reduction in overall diversity of species or in individual populations against an established baseline <i>Baseline to be established : Data to be used : Environment Agency and relevant Sea Fisheries Committee data</i>	Loss of notable communities may indicate long term changes in the physical conditions of the estuaries interest feature or individual subfeatures. Assemblage of fish species: (Refer to section 4.1.1 note 7) • Migratory species (see also section of this table which relates to the river lamprey, sea lamprey and twaite shad features) • Estuarine species • Marine species • Freshwater species Refer also to section 4.3.2 in relation to the assemblage of migratory fish species of the Ramsar Site.
A14		Notable estuarine species assemblages : Assemblage of waterfowl species	Abundance <i>(abundance of notable estuarine species assemblages - section 4.1.1.vi of the conservation objectives)</i>	Numbers of species and individual population sizes	No significant reduction in overall diversity of species or in individual populations against an established baseline <i>Baselines are identified in the SPA section of this advice – see section 4.2</i>	Loss of notable communities may indicate long term changes in the physical conditions of the estuaries interest feature or individual subfeatures. Refer also to section 4.2.7 in relation to the Internationally important assemblage of waterfowl of the Severn Estuary SPA and section 4.3.9 in relation to the Internationally important assemblage of waterfowl of the Severn Estuary Ramsar Site
A15		Notable estuarine species assemblages : Assemblage of vascular plant species	Abundance of saltmarsh species <i>(abundance of notable estuarine species assemblages - section 4.1.1.vi of the conservation objectives)</i>	Number of species and population sizes	No significant reduction in overall diversity of species or in individual populations against an established baseline <i>Baselines to be established: Data to be used is 1998 NVC Scarce plant survey, county botanical records and CCW/NE site records</i>	Loss of notable communities may indicate long term changes in the physical conditions of the estuaries interest feature or individual subfeatures. Assemblage of vascular plant species includes: • Salt marsh species Note : maintaining the conditions necessary for these species are covered by the Atlantic salt meadows table attributes Table 11

Ref	SAC Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
A16	SAC interest feature 1: Estuaries	Notable estuarine species assemblages : Assemblage of vascular plant species	Abundance of Eel grass	Extent and density of Eel grass species	No significant reduction in overall extent and density against as established baseline <i>Baseline is CCW and English Nature Intertidal Biotope Surveys 2006 plus Severn Second Crossing monitoring data 1989-95/6</i>	Assemblage of vascular plant species includes: • Eel grass (<i>Zostera</i>) species.
A17		All sub-features	Water quality – physico-chemical parameters (Including temperature, salinity, oxygen, nutrients, pH and turbidity etc) <i>(physico chemical characteristics of the water column - section 4.1.1.vii of the conservation objectives)</i>	Physico-chemical parameters measured periodically throughout the reporting cycle (frequency to be determined).	Physico-chemical parameters should not pose a risk to the ecology* of the habitats and species of the SAC, SPA or Ramsar Site. Levels should comply with targets established under the EA Review of Consents and the Water Framework Directive.	Changes in any of the physico-chemical parameters in the water column can impact on the quality of the estuary habitat and hence could lead to changes in the presence and distribution of species (along with recruitment processes and spawning behaviour) and those at the edge of their geographic ranges and non-natives. *ie does not compromise the quality, extent, distribution or species composition of habitats or their ability to support species features (eg feeding, breeding, resting) – the outcome sought is the healthy functioning of the estuary.
A18			Phytoplankton <i>(physico chemical characteristics of the water column - section 4.1.1.vii of the conservation objectives)</i>	Average phytoplankton biomass and characteristic species in summer, measured periodically during the reporting cycle.	Growth of phytoplankton does not cause an undesirable disturbance to the estuary habitats and species Levels should comply with targets established under the EA Review of Consents and the Water Framework Directive.	
A19			Macroalgae	Average macroalgal cover and density in summer, measured periodically during the reporting cycle.	Average macroalgal cover and density should not compromise the ecology * of the estuary habitats and species Levels should comply with targets established under the EA Review of Consents and the Water Framework Directive.	*ie does not compromise the quality, extent, distribution or species composition of habitats or their ability to support species features (eg feeding, breeding, resting) – the outcome sought is the healthy functioning of the estuary.

Ref	SAC Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
A20	SAC interest feature 1: Estuaries		Toxic contaminants <i>(toxic contaminants in water column and sediment - section 4.1.1.viii of the conservation objectives)</i>	Toxic contaminants measured periodically throughout the reporting cycle (frequency to be determined).	Toxic contaminants in water column and sediment should be below levels which would pose a risk to the ecology* of the estuary habitats and species Levels should comply with targets established under the EA Review of Consents and the Water Framework Directive	Elevated concentrations of toxic contaminants in the water column and sediment have the potential to cause lethal or sub-lethal harm to any features and sub-features. *ie does not compromise the quality, extent, distribution or species composition of habitats or their ability to support species features (eg feeding, breeding, resting) – the outcome sought is the healthy functioning of the estuary.
A21			Airborne nutrient and contaminants <i>(airborne contaminants - section 4.1.1.ix of the conservation objectives)</i>	Airborne contaminants measured periodically throughout the reporting cycle (frequency to be determined)	No exceedence of critical loads for: Sulphur dioxide - 20µg/m ³ Nitrous Oxides - 30µg/m ³ Ozone - 3000 ppb Ammonia - 3µg/m ³ Nutrient Nitrogen - 30-40 kg/ha/yr.	Critical loads have been defined where possible (www.apis.ac.uk) for the conservation features of the European site. Where the critical load is exceeded features are at risk. As more in depth studies are undertaken critical loads will be altered to reflect best available scientific knowledge. The impacts of air pollution on the vegetation need further investigation. If particularly damaging, point sources (or groups of point sources) can be identified, then emissions should be regulated to reduce the impacts. It will also be very important for wider measures to be taken, at Government and international levels, to reduce air pollution. There is currently insufficient knowledge to make a judgment of the impacts on specific species. Decisions should be made at a site specific level."

Table 9 – Favourable condition table for the “subtidal sandbanks” feature of the Severn Estuary SAC

Ref	SAC Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
B1	SAC interest feature 2: Subtidal Sandbanks	All sub-features	Extent of feature <i>(total extent of subtidal sandbanks - section 4.1.2.i of the conservation objectives)</i>	Total extent assessed periodically against baseline map (using bathymetry data, and other geophysical techniques (e.g. sidescan sonar), and sediment grain-size data)	No decrease in extent of subtidal sandbanks features from an established baseline, subject to natural processes. <i>Baseline is taken from 1994 admiralty charts, BGS seabed sediment data and sediment environments defined in the Bristol Channel Marine Aggregates Study (Posford Duvivier and ABP Research Consultancy, 2000).</i> <i>Refer also to Map in Appendix 3</i>	Extent is an attribute on which reporting is required by the Habitats Directive. Within the Severn the subtidal sandbanks feature includes both relatively permanent and stable banks (shown in Appendix XX as subtidal sandbanks) and more ephemeral banks which contribute sediment to the sandbanks (shown in Appendix XX as associated sediments) and which are therefore considered to be an integral part of the feature In the long term loss of subtidal sandbank feature communities is likely to be detrimental to the structure of this interest feature and the intertidal mudflats and sandflats features, e.g. associated with a change in sediment budget or geomorphological regime, and may indicate long term changes in the physical conditions of the estuaries interest feature.
B2		All sub-features	Extent of the subtidal sandbank communities <i>(extent of subtidal sandbank communities -section 4.1.2.ii of the conservation objectives)</i>	Extent of subtidal sandbank communities within the site assessed periodically (method and frequency to be determined).	No decrease in extent of the communities from an established baseline subject to natural processes. <i>Baseline is data held on Marine Recorder</i>	The subtidal sandbanks feature comprises two sub-features Sublittoral sands and muddy sand : This sub-feature comprises the following four communities: <ul style="list-style-type: none">• Infralittoral mobile sand in variable salinity• Infralittoral mobile clean sands with sparse fauna• Nephtys cirrosa and Macoma balthica in variable salinity infralittoral mobile sand• Neomysis integer and Gammarus spp in fluctuating low salinity infralittoral mobile sand Sublittoral cohesive mud and sandy mud communities This sub-feature comprises the following four communities: <ul style="list-style-type: none">• Capitella capitata in enriched sublittoral muddy sediments• Nephtys hombergii and Tubificiodes spp. In variable salinity infralittoral soft mud• Capitella capitata and Tubificiodes spp. In reduced salinity infralittoral muddy sediment• Nephtys hombergii and Macoma balthica in infralittoral sandy mud

Ref	SAC Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
B3	SAC interest feature 2: Subtidal Sandbanks		Distribution of subtidal sandbank communities <i>(extent of subtidal sandbank communities -section 4.1.2.ii of the conservation objectives)</i>	Spatial distribution of subtidal sandbank communities measured periodically (frequency to be determined).	No significant change in the macro scale distribution of the communities from an established baseline subject to natural processes <i>Baseline is data held on Marine Recorder</i>	Some biotopes occur in a natural cycle linked to the dynamism of the prevailing conditions, and these may naturally appear and disappear over time. The feature should not be considered in unfavourable condition due to the short-term disappearance of such ephemeral biotopes
B4			Community composition <i>(community composition of the subtidal sandbank communities -section 4.1.2.iii of the conservation objectives)</i>	Assessment of community quality through survey of species composition within the subtidal sandbank feature measured periodically	No decline in community quality due to changes in species composition or loss of typical species from an established baseline subject to natural processes <i>Baseline is data held on Marine Recorder and EA WFD benthic sampling data</i>	Different associations of plants, animals and their habitat are an important structural and functional aspect of the feature. Changes in the communities present within an area of a particular type of sediment may indicate long-term changes in physical conditions at the site. Typical species of the subtidal sandbanks communities include: <i>Aricidea minuta</i> , <i>Capitella capitata</i> , <i>Diastylis rathkei</i> typical, <i>Eurydice pulchra</i> , <i>Gammarus salinus</i> , <i>Harpinia pectinata</i> , <i>Mediomastus fragilis</i> , <i>Nephtys cirrosa</i> , <i>Nephtys hombergii</i> , <i>Oligochaeta</i> , <i>Pygospio elegans</i> , <i>Pontocrates arenarius</i> , <i>Pseudocuma longicornis</i> , <i>Retusa obtusa</i> , <i>Tubificoides amplivasatus</i>
B5		All sub-features	Sediment character <i>(variety & distribution of sediment types - section 4.1.2.iv of the conservation objectives)</i>	Distribution of sediment types/grain sizes assessed across the site	No major change in composition of sediment type across the feature against an established baseline subject to natural processes <i>Baseline to be established Data to be used is BGS seabed sediment data and other relevant datasets</i>	

Ref	SAC Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
B6	SAC interest feature 2: Subtidal Sandbanks	All sub-features	Topography <i>(gross morphology – depth distribution and profile of subtidal sandbank feature - section 4.1.2.v of the conservation objectives)</i>	Depth distribution/profile of the sandbank feature measured across the site	No major alteration of topography of the subtidal sandbank feature against an established baseline <i>Baseline to be established Data to be used is Hydrographic Office bathymetric data and other relevant bathymetric datasets</i>	

Table 10 – Favourable condition table for the “intertidal mudflats and sandflats” feature of the Severn Estuary SAC

Ref	SAC Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
C1	SAC interest feature 3: Mudflats and sandflats	All sub-features	Extent of the feature <i>(total extent of the mudflats and sandflats feature - section 4.1.3.i of the conservation objectives)</i>	Total area (ha) of the intertidal mudflat and sandflat feature measured periodically during the reporting cycle using a combination of remote sensing and ground truthing of boundaries between communities using GPS (frequency to be determined).	No decrease in extent of intertidal mudflats and sandflats from an established baseline, subject to natural processes. <i>Baseline is aerial photography dated 1999 and CCW/English Nature Intertidal Biotope Surveys 2006. (Note air photo coverage from 1988 gives data for assessing trends in change of this attribute.) Refer also to maps in Appendix 4</i>	Extent is an attribute on which reporting is required by the Habitats Directive. In the long term loss of intertidal mudflat / sandflat communities is likely to be detrimental to the structure of the interest feature, e.g. associated with a change in sediment budget or geomorphological regime, and may indicate long term changes in the physical conditions of the estuaries interest feature. Some fluctuations in extent may occur which are directly attributable to natural coastal processes. These include reduced extent following storms or due to a change to another feature habitat such as saltmarsh. Such types of change in extent would form under the umbrella of ‘natural change’
C2		All sub-features	Extent and variety of the mudflats and sandflats communities comprising each sub-feature <i>(variety and extent of the mudflat and sandflats communities – section 4.1.3.ii of the conservation objectives)</i>	Extent and range of types of intertidal mudflat and sandflat communities assessed along a sampling transect or grid and rapid phase 1 survey techniques using GPS (frequency to be determined).	No decrease in the extent or range of types of intertidal mudflat and sandflat communities from an established baseline, subject to natural processes <i>Baseline is CCW/English Nature Intertidal Biotope Surveys 2006.</i>	Intertidal mudflat and sand flat feature comprises three sub-features: Intertidal gravel and clean sand communities <ul style="list-style-type: none"> • Barren coarse sand shores; • Burrowing amphipods and <i>Eurydice pulchra</i> in well drained clean sand shores; • Burrowing amphipods and polychaetes in clean sand shores. • Talitrid amphipods in decomposing seaweed on the strandline • Dense <i>Janice conchilega</i> in tide-swept lower shore sand • Barren shingle or gravel shores Intertidal muddy sand communities <ul style="list-style-type: none"> • Polychaetes and <i>Cerastoderma edule</i> in fine sand or muddy sand shores • <i>Bathyporeia pilosa</i> and <i>Corophium</i> spp. in upper shore slightly muddy fine sand shores • <i>Macoma balthica</i> and <i>Arenicola marina</i> in muddy sand shores. • <i>Arenicola marina</i>, <i>Macoma balthica</i> and <i>Mya arenaria</i> in muddy sand shores. • <i>Echinocardium cordatum</i> and <i>Ensis</i> sp. in lower shore or shallow sublittoral muddy fine sand Intertidal mud communities <ul style="list-style-type: none"> • <i>Hediste diversicolor</i> and <i>Macoma balthica</i> in sandy mud shores • <i>Hediste diversicolor</i>, <i>Macoma balthica</i> and <i>Arenicola marina</i> in muddy sand or sandy mud shores • <i>Hediste diversicolor</i>, <i>Macoma balthica</i> and <i>Mya arenaria</i> in sandy mud shores • <i>Hediste diversicolor</i> and <i>Scrobicularia plana</i> in reduced salinity mud shores • <i>Hediste diversicolor</i> and oligochaetes in low salinity mud shores

Ref	SAC Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
C3	SAC interest feature 3: Mudflats and sandflats	All subfeatures	Distribution of mudflats and sandflats communities (distribution of communities - section 4.1.3.iii of the conservation objectives)	Spatial distribution of mudflat and sandflat communities assessed along a sampling transect or grid and rapid phase 1 survey techniques using GPS (frequency to be determined).	Macro scale distribution of communities should not deviate significantly from an established baseline, subject to natural processes. <i>Baseline is CCW/English Nature Intertidal Biotope Surveys 2006.</i>	Changes in the spatial distribution of biotopes within an area of a particular type of sediment may provide the first indications of long-term changes in physical conditions at the site. Some biotopes occur in a natural cycle linked to the dynamism of the prevailing conditions, and these may naturally appear and disappear over time. The feature should not be considered in unfavourable condition due to the short-term disappearance of such ephemeral biotopes.
C4		All subfeatures	Community composition (community composition of the feature - section 4.1.3.iv of the conservation objectives)	Assessment of community quality through survey of species composition (presence of typical species) within the intertidal mudflats and sandflats feature measured periodically	No decline in community quality due to changes in species composition or loss of typical species from an established baseline, subject to natural processes. <i>Baseline is CCW/English Nature Intertidal Biotope Surveys 2006.</i>	Different associations of plants, animals and their habitat are an important structural and functional aspect of the feature. Changes in the communities present within an area of a particular type of sediment may indicate long-term changes in physical conditions at the site. Typical species of the intertidal mudflats and sandflats communities include: <i>Aphelocheata marioni</i> , <i>Arenicola marina</i> , <i>Bathyporeia pelagica</i> , <i>Corophium volutator</i> , <i>Enchytraeidae</i> , <i>Eurydice pulchra</i> , <i>Hediste diversicolor</i> , <i>Hydrobia ulvae</i> , <i>Macoma balthica</i> , <i>Nephtys cirrosa</i> , <i>Nephtys hombergii</i> , <i>Oligochaeta indet</i> , <i>Pygospio elegans</i> , <i>Scoloplos armiger</i> , <i>Scrobicularia plana</i> , <i>Streblospio shrubsolii</i> , <i>Tubificoides benedii</i>
C5			Topography (Topography and morphology of the intertidal flats -section 4.1.3v of the conservation objectives)	Tidal elevation and intertidal slope, measured along a series of transects across the estuary periodically during the reporting cycle using remote sensing or traditional surveying techniques (transect locations and survey frequency to be determined).	Intertidal profile should not deviate significantly from an established baseline, subject to natural processes. <i>Baseline to be established: Data to be used is Environment Agency LIDAR survey</i>	In the intertidal zone topography reflects the energy conditions and stability of the sediment, which is key to the structure of the interest feature. Topography is a major influence on the distribution of communities throughout the intertidal flats. Assessing topography also provides information on the position of channels through the interest feature.
C6			Sediment character	Particle size analysis (PSA). measured at a series of locations across the estuary. Locations and frequency to be determined	Average PSA parameters should not deviate significantly from an established baseline. <i>Baseline to be established Data to be used CCW/English Nature Intertidal Biotope Surveys 2006, BGS seabed sediment data and other relevant data sources</i>	Parameters include percentage sand / silt / gravel, mean and median grain size, and sorting coefficient, used to characterise sediment type Sediment character defined by particle size analysis is key to the structure of the feature, and reflects all of the physical processes acting on it. Particle size composition varies across the feature and can be used to indicate spatial distribution of sediment types thus reflecting the stability of the feature and the processes supporting it.

Ref	SAC Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
C7	SAC interest feature 3: Mudflats and sandflats			Sediment penetrability (degree of sinking) measured at a series of locations across the estuary (methodology, locations and frequency to be determined).	Average measure should not deviate significantly from an established baseline. <i>Baseline to be established by future survey</i>	Penetrability is an indicator of sediment stability and degree of compaction; it indicates the shear strength of the sediment and thus the susceptibility of that sediment type to erosion. Compaction of the sediment influences the biological community within the sediment. Penetrability of the sediment is determined by a combination of grain size and water content, which may provide a surrogate index of the penetrability of the sediments.
C8				Sediment organic content (% carbon) measured at a series of locations across the estuary (sampling locations and frequency to be determined).	Average organic carbon content should not deviate significantly from an established baseline. <i>Baseline to be established by future survey</i>	Organic content critically influences the infaunal community and can cause deoxygenation of the feature, which can be detrimental to the biota. However, a balance needs to be struck as organic content provides a measure of the material available to detritivores. A reduction in organic content could lead to a reduction in detritivores, with subsequent knock on effects throughout the food chain.
C9				Oxidation - reduction potential (depth of black anoxic layer) measured at a series of locations across the estuary (sampling locations and frequency to be determined).	Average black layer depth should not deviate significantly from an established baseline. <i>Baseline to be established by future survey</i>	Degree of oxidation / reduction, reflecting oxygen availability within the sediment, critically influences the infaunal community and the mobility of chemical compounds. It is an indicator of the structure of the feature.

Table 11 – Favourable condition table for the “Atlantic salt meadows” feature of the Severn Estuary SAC

Ref	SAC Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
D1	SAC interest feature 4: Atlantic salt meadows	All sub-features	Extent of Atlantic salt meadow (and transitional habitats) feature <i>(extent of Atlantic salt meadow (and transitional habitats) feature - section 4.1.4.i of the conservation objectives)</i>	Total area (ha) of the Atlantic salt meadow feature (and associated transitional habitats) within the site measured periodically during the reporting cycle using a combination of remote sensing and ground truthing of boundaries between communities using GPS (frequency to be determined).	No decrease in total extent of Atlantic salt meadow and associated transitional habitats from the established baseline. <i>Baseline is the CCW/English Nature Saltmarsh NVC survey by Dargie 1998</i> <i>Refer also to maps in Appendix 5</i>	Extent is an attribute on which reporting is required by the Habitats Directive. Monitoring will need to take account of the dynamic nature of these habitats and seasonal and periodic random variations in vegetation types. Coastal squeeze may result in the replacement of Atlantic salt meadows with pioneer saltmarsh. A reduction in extent could be further evaluated by a ground survey to assess for signs of erosion such as toppled vegetation blocks, signs of roots in intertidal mud, signs of stress/damage to plants. Extent needs to be measured at low tide.
D2		All sub-features	Extent of the Atlantic salt meadow communities and associated transitional vegetation communities <i>(extent and distribution of atlantic salt meadow and associated transitional vegetation communities - section 4.1.4.ii of the conservation objectives)</i>	Area (ha) of Atlantic salt meadow and associated transitional vegetation communities within the site measured periodically during the reporting cycle using a combination of remote sensing and ground truthing of boundaries between communities using GPS (frequency to be determined).	No decrease in extent of Atlantic salt meadow and associated transitional vegetation communities from the established baseline subject to natural processes <i>Baseline is the CCW/English Nature Saltmarsh NVC survey by Dargie 1998</i>	Assessment against this target will take account of the effects of the natural process of cyclical development and breakdown of saltmarshes within the Severn which results in the natural succession of saltmarsh communities over time ie the continued presence of all types in proportions reflecting the natural processes operating. Some individual salt marsh communities occur in a natural cycle linked to the dynamism of the prevailing conditions, and these may naturally appear and disappear over time. The feature should not be considered in unfavourable condition due to the short-term disappearance of transient communities. The outcome sought is the maintenance of the general character of the saltmarshes of the Severn in terms of the continued presence, abundance and variation of communities with local differences reflected – it is not to seek the retention of saltmarsh types in situ but to allow them to shift and evolve in line with natural processes The Atlantic salt meadow feature comprises four sub-features: Low to mid marsh communities NVC communities: SM10, SM12, SM13a, SM13b, SM13c, SM13d, SM13x, SM13y, SM14a, SM15. Mid to upper marsh communities NVC communities: SM16a, SM16b, SM16c, SM16d, SM16e, SM16x, SM17, SM18c. Transitional high marsh communities NVC communities: SM23, SM24, SM28, MG11, MG12, MG13, S4a, S21a, S21c. Pioneer saltmarsh communities NVC communities: SM6, SM8, SM9

Ref	SAC Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
D3	SAC interest feature 4: Atlantic salt meadows	All sub-features	Distribution of the Atlantic salt meadow communities and associated transitional vegetation communities <i>(extent and distribution of atlantic salt meadow and associated transitional vegetation communities - section 4.1.4.ii of the conservation objectives)</i>	Spatial distribution of Atlantic saltmeadow and associated transitional vegetation communities measured along a series of fixed transects (or other suitable method to be agreed) periodically during the reporting cycle using GPS (transect locations and frequency of survey to be determined).	<p>The macro scale distribution of communities should not deviate significantly from an established baseline subject to natural processes.</p> <p><i>Baseline is the CCW/English Nature Saltmarsh NVC survey by Dargie 1998</i></p>	<p>The distribution of the Atlantic salt meadow communities refers to the macro spatial pattern in which these are distributed around the estuary. This statement does not require micro-distribution of communities (i.e. the exact mapped positions of specific communities to be maintained) but does require the distribution of some saltmarsh types which reflect the differences in estuary structure and function (eg in outer versus inner parts of the estuary, or the influence of freshwater inputs from the rivers) be taken into account.</p> <p>Consideration of this attribute needs to take account of the wider scale and long-term changes and development of saltmarshes in the Severn Estuary which shows a pattern of episodic erosion and accretion evident in a series of saltmarsh terraces. This attribute is also linked with attributes covering zonation and morphology below.</p>
D4		All sub-features	Extent of <i>Spartina anglica</i> <i>(areas of <i>Spartina anglica</i> - section 4.1.4.viii of the conservation objectives)</i>	Total extent of <i>Spartina anglica</i> measured along a series of transects (or other suitable method to be agreed) around the estuary, periodically during the reporting cycle, using a combination of remote sensing and ground survey (transect locations and frequency of survey to be determined).	<p>No increase in total extent of more than 10% over monitoring period;</p> <p><i>Baseline is the CCW/English Nature Saltmarsh NVC survey by Dargie 1998</i></p>	<p><i>Spartina anglica</i> acts as a pioneer species in the Severn and can undergo succession to other saltmarsh habitats over time. As a consequence, although it may be colonising new areas in one part of the estuary, in others it may be developing into more mixed saltmarsh communities. There will be differences in the density, height and cover of the vegetation depending on where it is in the succession. These changes will need to be monitored to establish a baseline and rates of any gross change. An increase in <i>Spartina</i> at the expense of other saltmarsh could indicate changes in the sediment regime and/or tidal levels both in response to natural or anthropogenic processes. Monitoring will only focus on areas of gross expansion of <i>Spartina</i> into intertidal mudflat and saltmarsh communities.</p>
D5		All sub-features	Zonation of vegetation <i>(zonation of Atlantic salt meadow communities - section 4.1.4.iii of the conservation objectives)</i>	Width of pioneer, low-mid marsh, mid-upper marsh, and transitional high marsh saltmarsh zones, measured along a series of transects (or other suitable method to be agreed) around the estuary, periodically during the reporting cycle, using a combination of remote sensing and ground survey (transect locations and frequency of survey to be determined).	<p>The range of variation of zonation of saltmarsh communities around the estuary should not deviate significantly from an established baseline, subject to natural processes.</p> <p><i>Baseline is CCW/English Nature Saltmarsh NVC survey by Dargie 1998 (and English Nature condition assessment data collected in 2002 for Gloucestershire section of the estuary).</i></p>	<p>Assessment against this target will take account of the effects of the natural process of cyclical development and breakdown of saltmarshes within the Severn which results in the natural succession of saltmarsh communities and changes to the zonation over time. ie the continued presence of all zones in proportions reflecting the natural processes operating.</p> <p>The outcome sought is the maintenance of the general character of the saltmarshes of the Severn in terms of the continued presence and variation of the saltmarsh zones with local differences reflected – it is not to seek the retention of zones in situ but to allow them to shift and evolve in line with natural processes</p>

Ref	SAC Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
D6	SAC interest feature 4: Atlantic salt meadows	Low to mid marsh communities	Species composition <i>(abundance of typical species - section 4.1.4.iv of the conservation objectives)</i>	Frequency of typical species to be measured using methodology to be agreed (e.g. transects, plots etc) once during reporting cycle	Frequency of typical species of characteristic low to mid marsh communities should not deviate significantly from an established baseline. <i>Baseline is CCW/English Nature Saltmarsh NVC survey by Dargie 1998</i>	The typical species for these communities include: <i>Puccinellia maritima, Salicornia spp., Suaeda maritima, Aster tripolium, Spergularia marginata, Glaux maritima, Plantago maritima, Atriplex glabriuscula, Atriplex prostrata, Triglochin maritima, Limonium vulgare, Armeria maritima and Juncus maritimus</i> *This target should not however prevent the enhancement of the diversity of swards where possible eg through the encouragement of a wider range of herbs through relaxation of grazing pressure in heavily grazed areas.
D7		Mid to upper marsh communities	Species composition <i>(abundance of typical species - section 4.1.4.iv of the conservation objectives)</i>	Frequency of typical species to be measured using methodology to be agreed (e.g. transects, plots etc) once during reporting cycle	Frequency of typical species of characteristic mid to upper marsh communities should not deviate significantly from an established baseline. <i>Baseline is CCW/English Nature Saltmarsh NVC survey by Dargie 1998</i>	The typical species for these communities include : <i>Puccinellia maritima, Aster tripolium, Glaux maritima, Plantago maritima, Festuca rubra, Juncus gerardii, Triglochin maritima, , Agrostis stolonifera, Juncus maritimus, , Spergularia marginata, Parapholis strigosa, Elymus pycnanthus,, Hordeum secalinum, Trifolium fragiferum and Atriplex glabriuscula,</i> *(see note above)
D8		Transitional high marsh communities	Species composition <i>(abundance of typical species - section 4.1.4.iv of the conservation objectives)</i>	Frequency of typical species to be measured using methodology to be agreed (e.g. transects, plots etc) once during reporting cycle	Frequency of typical species of characteristic high marsh communities should not deviate significantly from an established baseline. <i>Baseline is CCW/English Nature Saltmarsh NVC survey by Dargie 1998</i>	The typical species for these communities include: <i>Puccinellia distans, Puccinellia maritima, Puccinellia rupestris, Plantago coronopus, Parapholis strigosa, Atriplex glabriuscula, Spergularia marina, Festuca rubra, Agrostis stolonifera, Aster tripolium, Hordeum secalinum, Elymus pycnanthus, Elymus repens, Potentilla anserina, Lolium perenne, Alopecurus geniculatus, Phragmites australis, Bolboschoenus maritimus, Festuca arundinacea,</i> *(see note above)
D9		Pioneer saltmarsh communities	Species composition <i>(abundance of typical species - section 4.1.4.iv of the conservation objectives)</i>	Frequency of typical species to be measured using methodology to be agreed (e.g. transects, plots etc) once during reporting cycle	Frequency of typical species of characteristic pioneer marsh communities should not deviate significantly from an established baseline. <i>Baseline is CCW/English Nature Saltmarsh NVC survey by Dargie 1998</i>	The typical species for these communities include : <i>Spartina anglica, Salicornia sp, Suaeda maritima</i>

Ref	SAC Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
D10	SAC interest feature 4: Atlantic salt meadows		Abundance of locally occurring scarce and notable plant species <i>(abundance of notable species - section 4.1.4v of the conservation objectives)</i>	Number of discrete locations within the estuary where scarce and notable species are found and their abundance at each location.	No decrease in abundance of scarce and notable species from an established baseline. <i>Baseline : CCW/English Nature saltmarsh rare/scarce plant survey by Dargie 1998 Individual county based records from plant recorders/record centres</i>	Nationally scarce and notable species within the Atlantic salt meadow and associated transitional vegetation communities comprise: Nationally scarce species: <i>Alopecurus bulbosus, Althaea officinalis, Bupleurum tenuissimum, Hordeum marinum, Trifolium squamosum, Puccinellia rupestris, Polygonum raii.</i> Other notable species occurring: <i>Allium oleraceum, Lepidium latifolium, Petroselinum segetum</i> Note that some of the nationally scarce and notable plants require levels of ground disturbance (resulting in openings in the sward) to establish. Localised tight grazing and /or poaching may provide sward openings for such species as well as the wider range of herbs and unless widespread and persistent should not necessarily regarded as a problem.
D11		All sub-features	Sward structure <i>(structural variation of the salt marsh sward - section 4.1.4 vi of the conservation objectives)</i>	Sward height of Atlantic salt meadow communities measured periodically during the reporting cycle in late summer using a combination of remote sensing and field visits.	The extent and distribution of vegetation communities exhibiting different sward heights should not deviate significantly from an established set of limits. The limits will be defined to ensure that the requirements of the typical and notable plants species and birds species designated within the Severn Estuary SPA and Ramsar, can be met <i>Baselines are to be established from Nature Conservancy Council SSSI owner/occupier consent records dating from 1988 Severn Estuary SSSI notification (and subsequent consent reviews) CCW and EN/NE site monitoring records</i>	Vegetation structure is largely affected by the impact of grazing (of wild or domesticated herbivores) interacting with different vegetation communities and ground hydrological conditions. Not all Atlantic salt meadow within the Severn Estuary is grazed, but it is a widespread and long established practice and stocking levels need to be appropriate to the interest of the site. Over grazing can lead to a loss of structural diversity of rare plant species and affect bird use of these habitats while under grazing can lead to a loss of plant diversity by competitive exclusion. Introduction of grazing to previously ungrazed sites can result in deleterious changes to plant community composition and its value for wider conservation interests such as invertebrates. Note that some of the nationally scarce and notable plants require levels of ground disturbance (resulting in openings in the sward) to establish. Localised tight grazing and /or poaching may provide sward openings for such species as well as the wider range of herbs and unless widespread and persistent should not necessarily regarded as a problem. Disturbance is also provided in areas where natural tidal debris accumulates scattered across the salt marsh and in driftlines (often at the base and on the seaward slope of the floodbank). As well as providing seed establishment points for scarce plants the debris also plays a role in creating variation in sward structure particularly in the mid/upper and transition high marsh zones and in supporting important populations of invertebrates (notable deadwood beetles). The continued presence of tidal debris and driftlines in some locations is therefore a desirable aspect of the saltmarsh management which delivers this attribute. They may also be of value for the bird populations which roost and feed on saltmarshes of the SPA and Ramsar Site. (see sections 4.2 and 4.3)

Ref	SAC Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
D12	SAC interest feature 4: Atlantic salt meadows		Morphology <i>(characteristic stepped morphology and associated structural features - section 4.1.4.vii of the conservation objectives)</i>	Location and extent of established morphological features (saltmarsh terracing, creeks, pills, drainage ditches and pans) measured during the reporting cycle using remote sensing and field survey	No anthropogenic alteration of established morphological features from an established baseline. <i>Baselines is taken from 1999 air photos , CCW/English Nature Saltmarsh NVC survey by Dargie 1998 and English Nature condition assessment data collected in 2002 for Gloucestershire section of the estuary.</i>	This target relates to features which have developed naturally as a result of the evolution of the saltmarshes or the presence of freshwater drainage systems entering the estuary and which have established conservation value (eg pill sides of value botanically, pills used for shelter, feeding and roosting by birds). The baseline dataset will establish the location and extent of these features and identify man made features which do not need to meet this target.

Table 12 – Favourable condition table for the “reefs” feature of the Severn Estuary SAC

Ref	SAC Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
E1	SAC interest feature 4: Reefs		(Total) Extent and distribution <i>(total extent and distribution of reef - section 4.1.5.i of the conservation objectives)</i>	<p>Measurement of the extent and distribution of the purely subtidal part of this feature in the Severn Estuary is challenging. Remote sensing methods (such as side scan sonar) and drop down video are unreliable in these conditions. Therefore limited grab sampling may be required.</p> <p>Measurement of the subtidal component at the subtidal/intertidal interface may be possible by direct observation at very low tides.</p> <p>Extent and distribution of the intertidal <i>Sabellaria</i> reef measured using Phase 1 mapping survey techniques</p>	<p>No reduction in the extent and distribution of the reef from an established baseline</p> <p><i>Baseline is comprised of grab sampling surveys by Mettam 1988 supplemented by Environment Agency data 1999 and data from Warwick et al.2001 which provide subtidal reef records.</i></p> <p><i>CCW/English Nature Intertidal Biotope Surveys 2006 identify the distribution of intertidal Sabellaria alveolata and indication of locations for further survey for subtidal Sabellaria contiguous with these intertidal areas.</i></p>	<p>Known occurrences of subtidal and subtidal contiguous with intertidal reefs are largely limited to the outer parts of the estuary (area seaward of a line drawn between Portishead and Newport). See appendix 6. Samples show that reef formation is not continuous within this area and is in varying stages of growth. Further work is required to establish the distribution of this feature particularly with respect to the subtidal and the intertidal/subtidal interface.</p> <p>A further upstream zone of intertidal <i>Sabellaria</i> populations is recorded up to the old Severn Bridge (Beachley to Aust) . While not part of the reef feature the extent of solely intertidal <i>Sabellaria</i> is relevant as these areas will also contribute larvae to the estuary wide populations of this species.</p> <p>The populations of <i>Sabellaria</i> within the Severn (subtidal, and intertidal) should be regarded as a metapopulation.</p> <p>New technologies that may allow the measurement of <i>Sabellaria</i> reef in a non destructive way should be investigated if they present themselves.</p>
E2			Community composition <i>(community composition - section 4.1.5.ii of the conservation objectives)-</i>	<p>Measurement of the community composition of this feature in the Severn Estuary is challenging. Remote sensing methods (such as side scan sonar) and drop down video are difficult. Therefore limited grab sampling may be required.</p>	<p>New samples of reef show no significant decline in community composition from baseline records</p> <p><i>Baseline is survey by Mettam 1988 supplemented by Environment Agency data 1999 and data from Warwick et al.2001</i></p>	<p>The reefs feature comprise two communities :</p> <p><i>Sabellaria alveolata</i> on variable salinity sublittoral mixed sediment SS.SBR.PoR.SalvMx</p> <p><i>Sabellaria alveolata</i> reefs on sand-abraded eulittoral rock. LS.LBR.Sab.Salv</p> <p>The typical species associated with subtidal and intertidal reefs in the Severn Estuary, derived from known samples, are listed in section 4.15.1 note 4</p>

Ref	SAC Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
E3	SAC interest feature 4: Reefs		Age structure <i>(full range of age structures - section 4.1.5.iii of the conservation objectives)</i>	Measurement of the community composition of this feature in the Severn Estuary is challenging. Remote sensing methods (such as drop down video) are difficult. Therefore limited grab sampling may be required.	Different phases from newly settled worms through vigorous fast growing reef to older hummocks are present <i>Baseline yet to be established.</i>	<i>Sabellaria alveolata</i> reefs cycle through different phases from newly settled worms through vigorous fast-growing reef to older hummocks. In a stable or increasing population all age phases are likely to be present . The presence of areas of variable stages of growth is important in ensuring larval supply and also enhances the species diversity of the reef
E4			Physical & ecological processes <i>(physical and ecological processes - section 4.1.5.iv of the conservation objectives)</i>	Abundance of coarse sediments Presence of suitable sediment grades in subtidal and intertidal sediments within the defined reefs zone (see comment on extent and distribution above) measured periodically.	No change in the abundance of suitable sediment grades within the defined reefs zone against an established baseline <i>Baseline yet to be established.</i>	An abundance of suitable coarse sediments (0.5-1mm sand) are required to support reef growth (tube building)
E5				Availability of suitable substrates Extent of available suitable (hard or long-term consolidated) substrates within the defined reef zone measured periodically	No change in overall extent of available suitable substrates within the defined reefs zone against an established baseline <i>Baseline yet to be established – data from the BGS and the CCW/English Nature intertidal biotope survey 2006 may assist</i>	Within the Severn reefs have been recorded both on solid geology and on smaller rocks and cobbles.
E6				Supply of larvae Abundance of <i>Sabellaria</i> larvae within the water column measured through plankton sampling	No decrease in the abundance of <i>Sabellaria</i> larvae against an established baseline <i>Baseline yet to be established – data may be available from existing plankton sampling surveys</i>	Area of sampling for this attribute should include both the reef zone and areas where intertidal populations are known as all areas supporting <i>Sabellaria alveolata</i> formations will be supplying larvae to the water column and hence may seed the reef feature. Recruitment is likely to be variable between years.

Ref	SAC Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
E7				Abundance of food in water column Methods to be determined .	No decrease in the abundance of suspended detritus within the water column of the defined reef zone against an established baseline <i>Baseline yet to be established</i>	Area of sampling of the water column should include both the reef zone and intertidal populations (the estuary-wide metapopulation of <i>Sabellaria alveolata</i>)

Table 13 – Favourable condition table for the “river lamprey” and “sea lamprey” features of the Severn Estuary SAC

Ref	SAC Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
F1	SAC interest feature 5: River lamprey <i>Lampetra fluviatilis</i> and SAC interest feature 6: Sea lamprey <i>Petromyzon marinus</i>		Migratory access (Barriers to migration) (migratory passage not impeded - sections 4.1.6.i and 4.1.7.i of the conservation objectives)	Water quality measured regularly throughout the reporting cycle in the Bristol Channel, Severn Estuary, River Wye SAC, River Usk SAC and River Severn. (see also Table 8, lines A17-20 relating to general water quality requirements for the estuary feature (and dependant sub features))	Water quality is sufficient to support migratory passage. Levels (for temperature, salinity, turbidity, pH, and dissolved oxygen) should comply with targets established under the EA Review of Consents and the Water Framework Directive. Baseline is water quality sampling data collected by the Environment Agency	Significant variation in these physico-chemical parameters may act as barriers to migration. For example, the timing, duration and consistency of their upstream migration are believed to be closely related to temperature changes as well as pheromone triggers from the juveniles during periods of high water flow. Peak migration usually coincides with river temperatures that remain above 10°C and continues until temperatures reach 18°C. Dissolved oxygen can also be significantly reduced in stretches receiving significant BOD inputs, or through the re-suspension of organic rich sediments. Toxic contaminants may act as a barrier to migration. Environmental Quality Standards (EQSs) are set for dangerous substances as defined under the Dangerous Substances Directive or Government Policy for freshwater and marine environments
F2				Water flows measured regularly throughout the reporting cycle (frequency to be determined) in the River Wye SAC, River Usk SAC and River Severn (see also Table 8 line A3 relating to general tidal and water flow requirements for the estuary feature (and dependant sub features))	Flows from the river into the estuary must be sufficient to allow migration. Baseline is water flow sampling data collected by the Environment Agency provides a baseline. Severe low flow conditions that affect these species yet to be defined	
F3				Physical barriers Mapping and quantification of potential obstructions in relation to height, type and water depth below obstruction once during the reporting cycle.	No artificial barriers significantly impairing, adults from reaching existing and historical spawning grounds, or juveniles from moving downstream. Baseline is the Environment Agency data on structures and flood defences	Dams, navigation and other weirs may prevent lamprey from reaching their spawning grounds. In particular, sea lamprey is known to be poor at ascending obstacles.

Ref	SAC Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
F4	SAC interest feature 5: River lamprey <i>Lampetra fluviatilis</i> and SAC interest feature 6: Sea lamprey <i>Petromyzon marinus</i>		Population size (returning adults) (size of populations - sections 4.1.6.ii and 4.1.7.ii of the conservation objectives)	Number of returning adults measured using fish counters on the feeding rivers (Wye, Usk and Severn) during the migratory period.	No decline in number of returning adults from established baseline. <i>Baseline is yet to be established - fish counter data may be able to provide a baseline in future years.</i>	(Note that this attribute will not be able to be measured until the technological solutions are developed.) Fish counter technology is being developed to monitor adult lampreys but is not yet installed on the feeding rivers of the Severn Estuary. Fish counter technology should be further developed to monitor migrating adult river and sea lamprey.
F5			Ammocoete population in tributary rivers (size of populations - sections 4.1.6.ii and 4.1.7.ii of the conservation objectives)	Electrofishing surveys in 1m ² quadrats at a series of locations in the Rivers Usk, Wye (and Severn)	River population targets for the Usk and Wye must be met <i>Baseline is the survey of ammocoete abundance and distribution in the Rivers Usk and Wye commissioned by CCW in 2005 (Harvey et al. 2007).</i>	(Note that this attribute will not be able to be measured until the technological solutions are developed.) During the electrofishing survey all ammocoetes should be identified as <i>Lampetra</i> or <i>Petromyzon</i> and measured (mm). Surveys should be undertaken at the earliest in July but preferably between August and October. The rivers fauna CSM state three targets which must be met for the population attribute. These are; 1. Ammocoete population age structure For samples of 50 ammocoetes or less, at least 2 distinct size classes should normally be present. If more than 50 ammocoetes are collected, at least 3 size classes should be present. 2. Ammocoete distribution within catchment Lampreys should be present at not less than 2/3 of sites surveyed. 3. Ammocoete density; a. For <i>lampetra</i> ; Optimal habitat >10m ⁻² Overall catchment mean >5m ⁻² b. For sea lamprey - Ammocoetes should be present in at least sampling sites each not less than 5km apart

Ref	SAC Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
F6			Prey species <i>(abundance of prey species - sections 4.1.6.iii and 4.1.7.iii of the conservation objectives))</i>	The abundance of key prey species measured periodically	No significant reduction in abundance of key prey species against an established baseline <i>Baseline is yet to be established Data to be used is EA monitoring of river and fish populations and future surveys</i>	River and sea lamprey require a variety of other fish species to act as hosts throughout their lifecycle. Their principal host species are part of the estuarine fish assemblage which has measures and targets included within the “estuaries” feature – Table 8

Table 14 – Favourable condition table for the “twaite shad” feature of the Severn Estuary SAC

Ref	SAC Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
G1	SAC interest feature 7: Twait shad (<i>Alosa fallax</i>)		Migratory access (Barriers to migration) (migratory passage not impeded - section 4.1.8.i of the conservation objectives)	Water quality measured regularly throughout the reporting cycle in the Bristol Channel, Severn Estuary, River Wye SAC, River Usk SAC and River Severn. (see also Table 8 line A 17-20 relating to general water quality requirements for the estuary feature (and dependant sub features))	Water quality is sufficient to support migratory passage. Levels (for temperature, salinity, turbidity, pH, and dissolved oxygen) should comply with targets established under the EA Review of Consents and the Water Framework Directive. <i>Baseline is water quality sampling data collected by the Environment Agency</i>	Significant variation in these physico-chemical parameters may act as barriers to migration. For example, the timing, duration and consistency of their upstream migration are believed to be closely related to temperature changes . Peak migration usually coincides with river temperatures that remain above 10°C and continues until temperatures reach 18°C. Dissolved oxygen can also be significantly reduced in stretches receiving significant BOD inputs, or through the resuspension of organic rich sediments. Toxic contaminants may act as a barrier to migration. Environmental Quality Standards (EQSs) are set for dangerous substances as defined under the Dangerous Substances Directive or Government Policy for freshwater and marine environments.
G2				Water flows measured regularly throughout the reporting cycle (frequency to be determined) in the River Wye SAC, River Usk SAC and River Severn (see also Table 8 line A3 relating to general tidal and water flow requirements for the estuary feature (and dependant sub features))	Flows from the river into the estuary must be sufficient to allow migration <i>Baseline is water flow sampling data collected by the Environment Agency provides a baseline. Severe low flow conditions that affect these species yet to be defined</i>	
G3				Physical barriers Mapping and quantification of potential obstructions in relation to height, type and water depth below obstruction once during the reporting cycle.	No artificial barriers significantly impairing, adults from reaching existing and historical spawning grounds, or juveniles from moving downstream. <i>Baseline is Environment Agency data on structures and flood defences</i>	Dams, navigation and other weirs may prevent shad reaching their spawning grounds. In particular, shad are known to be poor at ascending obstacles.

Ref	SAC Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
G4	SAC interest feature 7: Twaite shad (<i>Alosa fallax</i>)		Population size (returning adults) <i>(size of populations - section 4.1.8.ii of the conservation objectives)</i>	Number of returning adults measured using fish counters on the Usk and Wye rivers during the migratory period.	No drop in the annual run size greater than would be expected from variations in natural mortality alone. <i>Baseline is yet to be established - fish counter data may be able to provide a baseline in future years. Noble et al. (2007) provides historical information on returning adults for the River Wye.</i>	(Note that this attribute will not be able to be measured until the technological solutions are developed.) Fish counter technology is being developed to monitor adult shad but is not yet installed on the feeding rivers of the Severn Estuary. Fish counter technology should be further developed to monitor migrating adult shad.
G5			River population <i>(size of populations - section 4.1.8.ii of the conservation objectives)</i>	Seine netting for juveniles in the lower rivers and upper estuaries and monitoring of shad eggs by kick sampling	River population targets for the Usk and Wye must be met <i>Baseline yet to be established. Noble et al. (2007) provides some information on juvenile densities.</i>	(Note that this attribute will not be able to be measured until the technological solutions are developed.) Seine netting should occur in lower rivers and upper estuaries. Netting should be carried out in late summer early autumn (July-October). For each river, juvenile densities should exceed a specified minimum target at least two years in six. The extent of spawning should be monitored by kick sampling for eggs at a proportion of known spawning sites. A reduction in the spawning distribution of more than 50 % compared with the baseline will indicate an adverse change. Kick sampling should occur during May and June.
G6			Prey species <i>(abundance of prey species – section 4.1.8.iii of the conservation objectives))</i>	The abundance of key prey species measured by EA in their routine monitoring of the rivers and estuary	No significant reduction in abundance of key prey species against an established baseline <i>Baseline is yet to be established through fish surveys in estuary and rivers</i>	Twaite shad require a variety of invertebrates including crustacean, mysids and copepods, small fish and fish eggs particularly in that section of the estuary where saline and freshwaters meet.

4.2 Conservation objectives for SPA European Marine Site interest features

The protection and management of the SPA in accordance with Article 6 of the Habitats Directive, including in particular the consideration of plans and projects under Article 6(3) and 6(4), should be carried out in view of the conservation objectives in this section.

Note : The conservation objectives for areas of the SPA which lie outside the European Marine Site boundary are provided in separate documents by CCW and Natural England which are currently in preparation and will soon be available on request.

4.2.1 SPA Interest feature 1: Internationally important population of regularly occurring Annex 1 species : Bewick's swan

The conservation objective is to maintain the Bewick's swan population and its supporting habitats¹ in **favourable condition**, as defined below

The interest feature Bewick's swan will be considered to be in favourable condition when, subject to natural processes², each of the following conditions are met:

- (i) the 5 year peak mean population size for the Bewick's swan population is no less than 289 individuals (ie the 5 year peak mean between 1988/9 - 1992/3);
- (ii) the extent of saltmarsh at the Dumbles (Appendix 8: Map 1) is maintained;
- (iii) the extent of intertidal mudflats and sandflats at Frampton Sands, Waveridge Sands and the Noose (Appendix 8: Map 1) is maintained;
- (iv) the extent of vegetation with an effective field size of >6 ha and with unrestricted bird sightlines > 500m at feeding, roosting and refuge sites (Appendix III) are maintained;
- (v) greater than 25% cover of suitable soft leaved herbs and grasses³ in winter season throughout the transitional saltmarsh at the Dumbles (Appendix 8: Map 1) is maintained;
- (vi) aggregations of Bewick's swan at feeding, roosting and refuge sites are not subject to significant disturbance.

4.2.1.1 Explanatory information for the Bewick's swan conservation objective

¹ Key supporting habitats for the Annex I species

- Intertidal mudflats and sandflats
- Saltmarsh

² Natural processes in respect of the SPA

Each interest feature is subject to both natural processes and human influences. Human influence on the interest features is acceptable provided that it is compatible with the achievement of the conditions set out under the definition of favourable condition for each interest feature. A failure to meet these conditions which is entirely a result of natural processes will not constitute unfavourable condition, but will trigger a review of the definition of favourable condition. This qualification is necessary because:

- (a) the bird populations themselves are subject to natural factors, many of which arise outside the SPA, such as breeding success and winter temperatures;

(b) the supporting habitats of the birds are influenced by the evolution of the estuary. Natural adjustments within estuaries can take many forms. One important example is the tendency of estuaries to accumulate sediment, thereby changing their form from their original Holocene morphology to a state where tidal energy is dissipated by subtidal and intertidal sediment banks or features. This, with other natural processes, will therefore cause the width and depth of the estuary to change over time, moving towards a state of dynamic equilibrium or 'most probable state'. As part of this process, the location and extent of saltmarshes and mudflats may change, provided there is capacity to accommodate readjustment. However, where this process is constrained, the capacity of habitats to accommodate readjustment may be affected.

³Key food plants of Bewick's swan

eg *Agrostis stolonifera*, *Alopecurus geniculatus*, *Glyceria geniculatus*. (This list contains examples and is not exhaustive)

4.2.2 SPA interest feature 2: Internationally important population of regularly occurring migratory species: wintering European white-fronted goose

The conservation objective is to maintain the European white-fronted goose population and its supporting habitats¹ in **favourable condition**, as defined below.

The interest feature European white-fronted goose will be considered to be in favourable condition² when, subject to natural processes², each of the following conditions are met:

- (i) the 5 year peak mean population size for the wintering European white fronted goose population is no less than 3,002 individuals (ie the 5 year peak mean between 1988/9-1992/3);
- (ii) the extent of saltmarsh at the Dumbles (Appendix 8: Map 1) is maintained;
- (iii) the extent of intertidal mudflats and sandflats at Frampton Sands, Waveridge Sands and the Noose (Appendix 8: Map 1) is maintained;
- (iv) greater than 25% cover of suitable soft-leaved herbs and grasses³ is maintained during the winter on saltmarsh areas (Appendix 8: Map 1);
- (v) unrestricted bird sightlines of >200m at feeding and roosting sites are maintained;
- (vi) aggregations of European white-fronted goose at feeding or roosting sites are not subject to significant disturbance.

4.2.2.1 Explanatory information for the wintering European white-fronted goose objective

¹Key supporting habitats for the migratory bird species

- Intertidal mudflats and sandflats
- Saltmarsh

²Natural processes in respect of the SPA

The meaning of 'natural processes' is explained in **section 4.2.1.1**.

³Key food plants of European white-fronted goose

eg *Alopecurus bulbosus*, *Festuca rubra*, *Hordeum marinum*, *Lolium perenne*; *Puccinellia maritima*.
(This list contains examples and is not exhaustive)

4.2.3 SPA interest feature 3: Internationally important population of regularly occurring migratory species: wintering dunlin

The conservation objective is to maintain the dunlin population and its supporting habitats¹ in **favourable condition**, as defined below:

The interest feature dunlin will be considered to be in favourable condition when, subject to natural processes², each of the following conditions are met:

- (i) the 5 year peak mean population size for the wintering dunlin population is no less than 41,683 individuals (ie the 5 year peak mean between 1988/9 - 1992/3);
- (ii) the extent of saltmarsh (Appendix 8) and associated strandlines is maintained;
- (iii) the extent of intertidal mudflats and sandflats (Appendix 8) is maintained;
- (iv) the extent of hard substrate habitats (Appendix 8) is maintained;
- (v) the extent of vegetation with a sward height of <10cm is maintained throughout the saltmarsh (Appendix 8);
- (vi) the abundance and macro-distribution of suitable invertebrates³ in intertidal mudflats and sandflats (Appendix 8) is maintained;
- (vii) the abundance and macro-distribution of suitable invertebrates³ in hard substrate habitats (Appendix 8) is maintained;
- (viii) unrestricted bird sightlines of >200m at feeding and roosting sites are maintained;
- (ix) aggregations of dunlin at feeding or roosting sites are not subject to significant disturbance.

4.2.3.1 Explanatory information for the wintering dunlin objective

¹Key supporting habitats for the migratory bird species

- Intertidal mudflats and sandflats
- Saltmarsh
- Hard substrate habitats (rocky shores)

²Natural processes in respect of the SPA

The meaning of 'natural processes' is explained in **section 4.2.1.1**.

³Key intertidal invertebrate prey species of dunlin

eg *Carcinus*, *Crangon*, *Hydrobia*, *Macoma*, *Hediste*, and *Talitrus* spp.
(This list contains examples and is not exhaustive)

4.2.4 SPA interest feature 4: Internationally important population of regularly occurring migratory species: wintering redshank

The conservation objective is to maintain the redshank population and its supporting habitats¹ in **favourable condition**, as defined below

The interest feature redshank will be considered to be in favourable condition when, subject to natural processes² each of the following conditions are met:

- (i) the 5 year peak mean population size for the wintering redshank population is no less than 2,013 individuals (ie the 5 year peak mean between 1988/9 - 1992/3);
- (ii) the extent of saltmarsh (Appendix 8) and associated strandlines is maintained;
- (iii) the extent of intertidal mudflats and sandflats (Appendix 8) is maintained;
- (iv) the extent of hard substrate habitats (Appendix IV) is maintained;
- (v) the extent of vegetation with a sward height of <10cm throughout the saltmarsh (Appendix 8) is maintained;
- (vi) the abundance and macro-distribution of suitable invertebrates³ in intertidal mudflats and sandflats (Appendix 8) is maintained;
- (vii) the abundance and macro-distribution of suitable invertebrates³ in hard substrate habitats (Appendix 8) is maintained;
- (viii) unrestricted bird sightlines of >200m at feeding and roosting sites are maintained;
- (ix) aggregations of redshank at feeding or roosting sites are not subject to significant disturbance.

4.2.4.1 Explanatory information for the wintering redshank objective

¹Key supporting habitats for the migratory bird species

- **Intertidal mudflats and sandflats**
- **Saltmarsh**
- **Hard substrate habitats (rocky shores)**

²Natural processes in respect of the SPA

The meaning of 'natural processes' is explained in **section 4.2.1.1**.

³Key intertidal invertebrate prey species of redshank

eg *Carcinus*, *Crangon*, *Hydrobia*, *Macoma*, *Hediste*, and *Talitrus* spp.
(This list contains examples and is not exhaustive)

4.2.5 SPA interest feature 5: Internationally important population of regularly occurring migratory species: wintering shelduck

The conservation objective is to maintain the shelduck population and its supporting habitats¹ in **favourable condition**, as defined below:

The interest feature shelduck will be considered to be in favourable condition when, subject to natural processes², each of the following conditions are met:

- (i) the 5 year peak mean population size for the wintering shelduck population is no less than 2,892 individuals (ie the 5 year peak mean between 1988/9 - 1992/3);
- (ii) the extent of saltmarsh (Appendix 8) is maintained;
- (iii) the extent of intertidal mudflats and sandflats (Appendix 8) is maintained;
- (iv) the extent of hard substrate habitats (Appendix 8) is maintained;
- (v) the abundance and macro-distribution of suitable invertebrates³ in intertidal mudflats and sandflats (Appendix 8) is maintained;
- (vi) unrestricted bird sightlines of >200m at feeding and roosting sites are maintained;
- (vii) aggregations of shelduck at feeding or roosting sites are not subject to significant disturbance.

4.2.5.1 Explanatory information for the wintering shelduck objective

¹Key supporting habitats for the migratory bird species

- Intertidal mudflats and sandflats
- Saltmarsh
- Hard substrate habitats (rocky shores)

²Natural processes in respect of the SPA

The meaning of 'natural processes' is explained in **section 4.2.1.1**.

³Key intertidal invertebrate prey species of shelduck

eg *Carcinus*, *Corophium*, *Hydrobia*, *Macoma*, *Mytilus*, and *Hediste* spp
(This list contains examples and is not exhaustive)

4.2.6 SPA interest feature 6: Internationally important population of regularly occurring migratory species: wintering gadwall

The conservation objective is to maintain the gadwall population and its supporting habitats¹ in **favourable condition**, as defined below:

The interest feature gadwall will be considered to be in favourable condition when, subject to natural processes², each of the following conditions are met:

- (i) the 5 year peak mean population size for the wintering gadwall population is no less than 330 (ie the 5 year peak mean between 1988/9 - 1992/3);
- (ii) the extent of intertidal mudflats and sandflats (Appendix 8) is maintained;
- (iii) unrestricted bird sightlines of >200m at feeding and roosting sites are maintained;
- (iv) aggregations of gadwall at feeding or roosting sites are not subject to significant disturbance.

4.2.6.1 Explanatory information for the wintering gadwall objective

¹Key supporting habitats for the migratory bird species

- **Intertidal mudflats and sandflats**

Note : It is currently unclear what use this species is making of the estuary – they are clearly present in intertidal areas particularly around areas freshwater streams and pills enter the estuary. Although primarily freshwater plant feeders they do also take animal material including insects, molluscs, annelids and even small fish and small amphibians – it is possible that they are feeding on such matter in the freshwater influenced mud and sands. Recent evidence indicates this species is changing its general habits as it extends its range westwards. As a result the conservation objective for this species does not include a condition in respect of the key food sources as for other species at this time.

²Natural processes in respect of the SPA

The meaning of ‘natural processes’ is explained in **section 4.2.1.1**.

4.2.7 SPA interest feature 7: Internationally important assemblage of waterfowl

The conservation objective is to maintain the waterfowl assemblage and its supporting habitats¹ in **favourable condition**, as defined below:

The interest feature waterfowl assemblage will be considered to be in favourable condition when, subject to natural processes², each of the following conditions are met:

- (i) the 5 year peak mean population size for the waterfowl assemblage is no less than 68,026 individuals (ie the 5 year peak mean between 1988/9 - 1992/3);
- (ii) the extent of saltmarsh (Appendix 8) and their associated strandlines is maintained;
- (iii) the extent of intertidal mudflats and sandflats (Appendix 8) is maintained;
- (iv) the extent of hard substrate habitats (Appendix 8) is maintained;
- (v) extent of vegetation of <10cm throughout the saltmarsh (Appendix 8) is maintained;
- (vi) the abundance and macroscale distribution of suitable invertebrates³ in intertidal mudflats and sandflats (Appendix 8) is maintained;
- (vii) the abundance and macroscale distribution of suitable invertebrates³ in hard substrate habitats (Appendix IV) is maintained;
- (viii) greater than 25% cover of suitable soft leaved herbs and grasses⁴ during the winter on saltmarsh areas (Appendix 8) is maintained;
- (ix) unrestricted bird sightlines of >500m at feeding and roosting sites are maintained;
- (x) waterfowl aggregations at feeding or roosting sites are not subject to significant disturbance.

4.2.7.1 Explanatory information for the internationally important assemblage of waterfowl

¹Key supporting habitats for the waterfowl assemblage¹

- **Intertidal mudflats and sandflats**
- **Saltmarsh**
- **Hard substrate habitats (rocky shores)**

²Natural processes in respect of the SPA

The meaning of 'natural processes' is explained in **section 4.1.1**.

³Key intertidal invertebrate prey species of the waterfowl assemblage

eg *Arenicola*, *Carcinus*, *Corophium*, *Crangon*, *Gammarus*, *Hydrobia*, *Macoma*, *Hediste*, *Notomastus* and *Talitrus* spp. - these lists are examples and are not exhaustive

⁴Key saltmarsh food plants

eg *Puccinellia maritima*, *Salicornia* spp., *Agrostis stolonifera*, *Atriplex* spp., *Hordeum marinum*, *Festuca rubra*, *Alopecurus bulbosus*, *Lolium perenne* - these lists are examples and are not exhaustive

4.2.8 Favourable Condition Tables for SPA interest features of the Severn Estuary European Marine Site

Background information on the role of favourable condition tables and the information provided in each column is provided in section 1.8 of this document, and a concise glossary of terms used is provided in Section 7.

The favourable condition table is intended to supplement the conservation objectives, including with respect to the management of established and ongoing activities, future requirements of monitoring and reporting on the condition of the features of the site and, together with the conservation objectives, informs the scope and nature of any appropriate assessment that may be needed. The table **does not by itself** provide a comprehensive basis on which to assess plans and projects as required under the Habitats Regulations. It should be noted that appropriate assessments are a separate activity to condition monitoring, requiring consideration of issues specific to individual plans or projects.

These tables set out all the attributes that **may** be used to monitor the condition of the features of the SPA. Where possible we will seek available information from others which can inform our assessment process.

It will be possible to monitor many of the attributes at the same time or during the same survey. The frequency of sampling for many attributes may need to be greater during the initial monitoring events in order to characterise the site and establish the baselines. Extreme events (such as storms reducing or increasing salinities, exceptionally cold winters or warm summers) also need to be recorded as they may be critical in influencing ecological issues in the Severn Estuary and may well be missed by routine monitoring.

Comprising :

Table 15 – Favourable condition table for the supporting habitats of the bird interest features in the Severn Estuary SPA

Table 16 – Favourable condition table for the qualifying bird features of the Severn Estuary SPA

Reference should also be made to Tables 8,10 and 11 - Favourable Condition Tables for the SAC habitat features relevant to the supporting habitats (intertidal mudflats and sandflats, saltmarsh and hard substrate habitats (rocky shores)) .

Table 15 Favourable Condition Table for the supporting habitats of the bird interest features in the Severn Estuary SPA European Marine Site (information on the populations of bird species using these habitats are given in Table 4)

SPA interest feature	Supporting Habitat	Attribute	Measure	Target	Comments
<i>SPA interest feature 1:</i> Internationally important Annex 1 species: Bewick's swan	Saltmarsh	Habitat extent	Area (ha) measured once per reporting cycle.	At The Dumbles, no decrease in extent from 76 ha.	Saltmarsh provides an important feeding and roosting habitat for Bewick's swans on The Dumbles - saltmarsh/transition wet grassland in front of sea defences.
		Vegetation characteristics	Abundance of suitable soft leaved herbs and grasses - % cover (frequency to be determined)	Greater than 25% cover during the winter season.	Bewick's swans graze on soft wet meadow grasses such as <i>Agrostis stolonifera</i> , <i>Glyceria fluitans</i> and <i>Alopecurus geniculatus</i> which are found in the transition of saltmarsh to grassland.
		Unimpeded sightlines at feeding and roosting sites	Openness of terrain unrestricted by obstructions	No increase in obstructions to existing bird sightlines. Areas of vegetation with an effective field size of >6ha	Bewick's swan require unrestricted views >500m to allow early detection of predators when feeding and roosting.
	Intertidal mudflats and sandflats	Habitat extent	Area (ha), measured once per reporting cycle.	At Frampton Sands, Waveridge Sands and the Noose, no decrease in extent from 980 ha.	The intertidal mudflats and sandflats at The Noose, Frampton Sand and Waveridge Sand are used as disturbance refuge for Bewick's swan. The extent and distribution of this sub-feature are important to maintain the population in favourable condition.
		Unimpeded sightlines at feeding and roosting sites	Openness of terrain unrestricted by obstructions	No increase in obstructions to existing bird sightlines.	Bewick's swan require unrestricted views >500m to allow early detection of predators when feeding and roosting.

Table 15 - continued

SPA interest feature	Supporting Habitat	Attribute	Measure	Target	Comments
<p><i>SPA interest features 2 - 6:</i> Internationally important populations of regularly occurring migratory species</p> <p>and</p> <p><i>SPA interest feature 7:</i> Internationally important assemblage of waterfowl</p>	Saltmarsh	Habitat extent	Area (ha), measured once per reporting cycle.	<p>No decrease in extent from 1,400 ha.</p> <p>At The Dumbles, no decrease in extent from 76 ha.</p>	Saltmarsh and their communities are important habitats as they provide both roosting and feeding areas.
		Food availability	Presence and abundance of suitable saltmarsh food plants measured periodically (frequency to be determined).	Presence and abundance of suitable saltmarsh food plants should not deviate significantly from an established baseline ¹	European white-fronted geese graze on a range of saltmarsh grasses and herbs. Wigeon feed on well-grazed saltmarsh with <i>Puccinella maritiae</i> , <i>Salicornia</i> and <i>Agrostis</i> . Teal and pintail feed on seeds from <i>Salicornia</i> and <i>Atriplex</i> .
		Vegetation characteristics	Range of vegetation heights measured periodically (frequency to be determined).	Sward height and density throughout areas used for roosting should not deviate significantly from an established baseline ¹ .	Vegetation of <10 cm is required throughout areas used by roosting waders. This is managed by grazing.
		Unimpeded sightlines at feeding and roosting sites	Openness of terrain unrestricted by obstructions	No increase in obstructions to existing bird sightlines.	Waterfowl require unrestricted views >500m to allow early detection of predators when feeding and roosting.

Table 15 - continued

SPA interest feature	Supporting Habitat	Attribute	Measure	Target	Comments
SPA interest features 2 - 6: Internationally important populations of regularly occurring migratory species and SPA interest feature 7: Internationally important assemblage of waterfowl	Intertidal mudflats and sandflats	Habitat extent	Area (ha), measured once per reporting cycle.	No decrease in extent from 15,000 ha. At Frampton Sands, Waveridge Sands and The Noose no decrease in extent from 980 ha.	Intertidal mudflats and sandflats and their communities are important habitats as they provide both roosting and feeding areas.
		Food availability	Presence and abundance of suitable prey species measured periodically (frequency to be determined).	Presence and abundance of suitable prey species should not deviate significantly from an established baseline. ¹	Most of the waders and waterfowl within the assemblage including the internationally important regularly occurring migratory birds feed on invertebrates within and on the sediments. Diet includes <i>Arenicola</i> , <i>Crangon</i> , <i>Hydrobia</i> , <i>Hediste</i> , <i>Corophium</i> , <i>Macoma</i> , <i>Gammarus</i> , small molluscs and strandline plankton and seeds.
		Unimpeded sightlines at feeding and roosting sites	Openness of terrain unrestricted by obstructions	No increase in obstructions to existing bird sightlines.	Waterfowl require unrestricted views >500m to allow early detection of predators when feeding and roosting.
	Shingle and rocky shores	Habitat extent	Area (ha), measured once per reporting cycle.	No decrease in extent from 1,500 ha.	This habitat is used for feeding and roosting, particularly by waders.
		Food availability	Presence and abundance of suitable intertidal invertebrates, measured periodically (frequency to be determined).	Presence and abundance of suitable food species should not deviate significantly from an established baseline ¹	Waders feed on worms, crustaceans and molluscs.
		Unimpeded sightlines at feeding and roosting sites	Openness of terrain unrestricted by obstructions	No increase in obstructions to existing bird sightlines.	Waterfowl require unrestricted views >500m to allow early detection of predators when feeding and roosting.

¹ Baselines to be established

Table 16 Favourable Condition Table for the qualifying bird features in the Severn Estuary European Marine Site

SPA interest feature	Supporting Habitat	Attribute	Measure	Target	Comments
<i>SPA interest feature 1:</i> Internationally important Annex 1 species: Bewick's swan		Population size	5 year peak mean number of individuals	No less than 289 individuals [ie the 5 year peak mean between 1988/9 - 1992/3]	Mainly found in the Upper Severn Estuary at Slimbridge
		Proportion of biogeographic population	% of NW European population	1 % of NW European population	WeBS counts provide this information
		Distribution	Number and location of sectors occupied at low tide	No decrease in use of the number of sectors and their distribution established as baseline ¹	WeBS low tide counts display distribution information by sector (not annual counts) Birds use certain sectors to a greater or lesser degree from year to year
		Disturbance in feeding and roosting areas	Reduction or displacement of wintering birds	No significant reduction in numbers or displacement of wintering birds attributable to disturbance from an established baseline ¹	Significant disturbance attributable to human activities can result in reduced food intake and/or increased energy expenditure. Five year peak mean information on populations will be used as the basis for assessing whether disturbance is damaging.
<i>SPA interest features 2 - 6:</i> Internationally important populations of regularly occurring migratory species and <i>SPA interest feature 7:</i> Internationally important assemblage of waterfowl		Population size	5 year peak mean number of individuals	No less than 68,026 individuals in the assemblage [ie the 5 year peak mean between 1988/9 - 1992/3] For individual species - no less than the 5 year peak mean between 1988/9 - 1992/3 detailed in Table 4	Figures derived from WeBS counts. The 5 year peak means for this period for each of the internationally important populations and species with nationally important populations which make up the internationally important assemblage are detailed in Table 4
		Distribution	Number and location of sectors occupied at low tide	No decrease in use of the number of sectors and their distribution established as baseline ¹	In some years birds use certain sectors to a greater or lesser degree. WeBS low tide counts display distribution information by sector (not annual counts).

SPA interest feature	Supporting Habitat	Attribute	Measure	Target	Comments
		Disturbance in feeding and roosting areas.	Reduction or displacement of wintering birds	No significant reduction in numbers or displacement of wintering birds attributable to disturbance from an established baseline ¹ .	Significant disturbance attributable to human activities can result in reduced food intake and/or increased energy expenditure. Five year peak mean information on populations will be used as the basis for assessing whether disturbance is damaging.

¹ Baselines to be established

4.3 Conservation objectives for the Severn Estuary / Môr Hafren Ramsar Site

The protection and management of the Ramsar in accordance with Article 6 of the Habitats Directive, including in particular the consideration of plans and projects under Article 6(3) and 6(4), should be carried out in view of the conservation objectives in this section.

4.3.1 Ramsar interest feature 1: Estuaries

The conservation objective for the “estuaries” feature of the Severn Estuary Ramsar Site is to maintain the feature in favourable condition, as defined by the conservation objective for the SAC “estuaries” feature” (refer to section 4.1.1 and Table 8 of this document), in so far as these objectives are applicable to the area designated as Ramsar Site and as defined below.

4.3.1.1 Explanatory information for the Ramsar Site “estuaries” conservation objective

The area of the estuarine ecosystem designated as Ramsar Site is smaller than that of the SAC as it is restricted to the terrestrial and intertidal areas and excludes all subtidal areas. There are therefore aspects of the SAC “estuaries” conservation objective that are not applicable to the Ramsar Site “estuaries” feature. The following Table 17 identifies the limits and restrictions, if any, that apply in respect of the Ramsar Site. The table layout follows the numbering of the SAC “estuaries” objective conditions given in section 4.1.1.

Table 17 - Limits of the Ramsar “estuaries” feature

SAC “estuaries” objective conditions to be met	Limits, if any, of the Ramsar
i. the total extent of the estuary is maintained;	Limited to the lesser area of the Ramsar Site – excludes all subtidal areas - refer also to Appendix 2
ii. the characteristic physical form (tidal prism/cross sectional area) and flow (tidal regime) of the estuary is maintained;	These requirements are related to the estuary regime, structure and function at a whole ecosystem level
iii. the characteristic range and relative proportions of sediment sizes and sediment budget ³ within the site is maintained;	
iv. the extent, variety and spatial distribution of estuarine habitat communities within the site is maintained;	Within the Ramsar Site this is limited to the habitats listed as Ramsar “estuarine habitats communities” ¹ below
v. the extent, variety, spatial distribution and community composition of hard substrate habitats and their notable communities is maintained;	Within the Ramsar Site this is limited to the habitats listed as Ramsar “hard substrate communities” ² below
vi. the abundance of the notable estuarine species assemblages is maintained or increased;	Within the Ramsar Site this is limited to the species listed as Ramsar “notable estuarine species assemblages” ³ below
vii. the physico-chemical characteristics of the water column support the ecological objectives described above;	These requirements apply estuary wide at a whole ecosystem level
viii. Toxic contaminants in water column and sediment are below levels which would pose a risk to the ecological objectives described above.	

¹Ramsar “estuarine habitat communities”

- a. Intertidal mudflats and sandflats (refer also to maps in Appendices 4 and 4a)
 - Intertidal gravel and clean sands
 - Intertidal muddy sands
 - Intertidal muds

- b. Saltmarshes (equivalent to the Atlantic saltmeadows feature of the SAC) (refer also to maps in Appendices 5 and 5a)
- Low – mid marsh communities
 - Mid – upper marsh communities
 - Transitional high marsh communities
 - Pioneer marsh communities

²Ramsar “hard substrate communities”

These include all hard substrate (rocky shore) communities within the Ramsar Site boundary shown in the map in Appendix 7 which includes the following notable communities:

- *Sabellaria alveolata* reefs on sand-abraded eulittoral rock (MLR.Sab Salv) *
- *Hydroids, ephemeral seaweeds and Littorina littorea* in shallow eulittoral mixed substrata pools. (LR.RkpH)
- *Balanus crenatus* and *Tubularia indivisa* on extremely tide-swept circalittoral rock ECR.BS.BalTub)
- *Fucus serratus* and piddocks on lower eulittoral soft rock (MLR.Fser.Pid)
- *Mytilus edulis* and piddocks on eulittoral firm clay (MLR.MytPid)
- *Balanus crenatus*, *Halichondrea panicea* and *Alcyonidium diaphanum* on extremely tide-swept sheltered circalittoral rock (ECR.BalHpan) .
- *Sertularia cupressina* and *Hydrallmania falcate* on tide-swept sublittoral cobbles or pebbles in coarse sand (IGS.ScupHyd).
- *Corralina officinalis* and coralline crusts in shallow eulittoral rockpools (LR.Rkp.Cor)
- Eel grass (*Zostera*) beds
- Any other notable hard substrata communities that may be identified.

*Note : where this community is contiguous with the occurrence of subtidal *Sabellaria alveolata* reefs it forms part of the SAC reefs feature. Within the Ramsar it is regarded as a component of the hard substrates subfeature of the Ramsar estuaries feature .

³Ramsar “notable estuarine species assemblages”

- i. Assemblage of fish species:
- Migratory species
 - River and Sea Lamprey and Twaité shad and Allis shad
 - Sea trout, salmon, eel,
 - Estuarine species
 - Species typically occurring and breeding in estuaries (Bird, 2008)
 - Marine species occurring in large numbers in estuaries (Bird, 2008)
 - Marine species
 - Predominantly marine species occurring infrequently in the Severn (Bird, 2008)
 - Freshwater species
 - Species typically occurring and breeding in freshwater and recorded within the Severn (Bird, 2008)

- ii Assemblage of waterfowl species (refer also to section 4.3.9)

Internationally important populations of waterfowl comprising :

- Regularly occurring Annex 1 species - Bewick's swan
- Regularly occurring migratory species - European white-fronted goose, dunlin, redshank, shelduck, and gadwall

Internationally important assemblage of waterfowl comprising above species plus the following :

- Nationally important bird populations - wigeon, teal, pintail, pochard, tufted duck, ringed plover, grey plover, curlew, whimbrel and spotted redshank, lesser black-backed gull

- iii. Assemblage of vascular plant species:

- Salt marsh species (refer to notes 5 and 6 in section 4.1.4.1 - explanatory information on the conservation objective for the Atlantic salt meadows feature)
- Eel grass (*Zostera*) species.

4.3.2 Ramsar interest feature 2: Assemblage of migratory fish species¹

The conservation objective for the “assemblage of migratory fish species” feature of the Severn Estuary Ramsar Site is to maintain the feature in favourable condition, as defined below:

The feature will be considered to be in favourable condition when, subject to natural processes², each of the following conditions are met:

- i. the migratory passage of both adults and juveniles of the assemblage of migratory fish species through the Severn Estuary between the Bristol Channel and any of their spawning rivers is not obstructed or impeded by physical barriers, changes in flows, or poor water quality;
- ii. the size of the populations of the assemblage species in the Severn Estuary and the rivers which drain into it, is at least maintained and is at a level that is sustainable in the long term;
- iii. the abundance of prey species³ forming the principle food resources for the assemblage species within the estuary, is maintained.
- iv. Toxic contaminants in the water column⁴ and sediment are below levels which would pose a risk to the ecological objectives described above.

The meaning of terms ¹⁻⁴ above is explained in **section 4.3.2.1**

Note : The populations of three of the assemblage species (river lamprey, sea lamprey and twaite shad) are designated as features of the SAC for which separate specific objectives have been written (refer to sections 4.1.6 to 4.1.8 of this document). The populations of these species depend on habitat in the adjacent River Usk SAC, River Wye SAC and River Severn. The habitats in these rivers, including spawning and nursery areas, are essential for the fulfilment of the species’ lifecycle and therefore these features can only be in favourable condition if the conservation objectives pertaining to the River Usk SAC and River Wye SAC are also met in full and there is a continued recorded presence of these species in the River Severn.

4.3.2.1 Explanatory information for the assemblage of migratory fish species conservation objective

¹ Assemblage of migratory fish species

Species which are designated features of the SAC and for which individual conservation objectives have been written (refer to sections 4.1.6, 4.1.7 and 4.1.8)

Sea lamprey *Petromyzon marinus*
River lamprey *Lampetra fluviatilis*
Twaite shad *Alosa fallax*

Other migratory species in the assemblage

Allis shad *Alosa alosa*
Salmon *Salmo salar*
Sea trout *S. trutta*
Eel *Anguilla anguilla*.

²Natural processes in respect of the Ramsar fish features

Assemblage populations :

The size of the populations is subject to non anthropogenic factors relating to natural fluctuations of external factors such as food / host availability in the Bristol Channel and more widely and breeding success in the River Severn and other rivers draining into the Severn Estuary.

Supporting habitats

The general meaning of ‘natural processes’ with respect to the supporting habitats of the migratory fish assemblage within the estuary is explained in **section 4.1.1.1**.

³Prey species

Assemblage Species	Key prey species
Sea lamprey	Eel <i>Anguilla anguilla</i> , cod <i>Gadus morhua</i> , and haddock <i>Melanogrammus aeglefinus</i> are all potential prey species for the sea lamprey found within the Severn Estuary (Bird 2008)
River lamprey	Sea trout <i>Salmo trutta</i> , shad <i>Alosa fallax/Alosa alosa</i> , herring <i>Clupea harengus</i> , sprat <i>Sprattus sprattus</i> , flounder <i>Platichthys flesus</i> and small gadoids such as whiting <i>Merlangius merlangus</i> and pout <i>Trisopterus luscus</i> are all potential prey species for the river lamprey found within the Severn Estuary (Bird 2008).
Twaite shad	Small crustaceans, especially mysids and copepods, small fish, especially sprats and anchovies, and fish eggs (Maitland, P.S. & Hatton-Ellis 2003).
Allis shad	Small crustaceans, especially mysids and copepods, small fish, especially sprats and anchovies, and fish eggs (Maitland, P.S. & Hatton-Ellis 2003).
Salmon	While at sea, salmon feed on a variety of fish (e.g. herring, sprat, sand eel, mackerel, and various gadoids) and crustaceans (e.g. euphausiid shrimps, prawns, gammarid amphipods and various crabs). (Bird, 2008)
Sea trout	The diet of this species at sea has not been much studied but is believed to include a range of fish species including sprat, young herring and sand eels as well as crustaceans such as amphipods (e.g. Corophium), gammarids, decapods such as Crangon and mysid shrimps. Many of these prey items also occur in estuaries where sea trout are known to feed extensively. (Bird, 2008)
Eel	A range of benthic organisms that include crustaceans and small fish. (Bird, 2008)

⁴Water column

Water column should be read to include contributory water flows into the estuary including surface flows over mudflats and saltmarsh.

4.3.3 Ramsar interest feature 3: Internationally important populations of waterfowl : Bewick's swan

The conservation objective for the “Bewick's swan” feature of the Severn Estuary Ramsar Site is to maintain the feature in favourable condition, as defined by the conservation objective for the SPA “Bewick's swan ” feature (refer to section 4.2.1)

4.3.4 Ramsar interest feature 4 : Internationally important populations of waterfowl : European white-fronted goose

The conservation objective for the “European white-fronted goose” feature of the Severn Estuary Ramsar Site is to maintain the feature in favourable condition, as defined by the conservation objective for the SPA “wintering European white-fronted goose” feature (refer to section 4.2.2)

4.3.5 Ramsar interest feature 5: Internationally important populations of waterfowl : dunlin

The conservation objective for the “dunlin” feature of the Severn Estuary Ramsar Site is to maintain the feature in favourable condition, as defined by the conservation objective for the SPA “wintering dunlin ” feature (refer to section 4.2.3)

4.3.6 Ramsar interest feature 6: Internationally important populations of waterfowl : redshank

The conservation objective for the “redshank” feature of the Severn Estuary Ramsar Site is to maintain the feature in favourable condition, as defined by the conservation objective for the SPA “wintering redshank” feature (refer to section sections 4.2.4)

4.3.7 Ramsar interest feature 7: Internationally important populations of waterfowl :shelduck

The conservation objective for the “shelduck” feature of the Severn Estuary Ramsar Site is to maintain the feature in favourable condition, as defined by the conservation objective for the SPA “wintering shelduck” feature (refer to section 4.2.5)

4.3.8 Ramsar interest feature 8: Internationally important populations of waterfowl : gadwall

The conservation objective for the “gadwall” feature of the Severn Estuary Ramsar Site is to maintain the feature in favourable condition, as defined by the conservation objective for the SPA “wintering gadwall” feature (refer to section sections 4.2.6)

4.3.9 Ramsar interest feature 9: Internationally important assemblage of waterfowl

The conservation objective for the “internationally important assemblage of waterfowl” feature of the Severn Estuary Ramsar Site is to maintain the feature in favourable condition, as defined by the conservation objective for the SPA “internationally important assemblage of waterfowl” feature (refer to section sections 4.2.7) – with special reference to the individual species listed and their population figures given in Table 6

Note : This Ramsar Site feature incorporates both wintering and passage populations of some birds and hence some species are included more than once in lists given in Table 6

4.3.10 Favourable Condition Tables for the Ramsar Site interest features of the Severn Estuary European Marine Site

Background information on the role of favourable condition tables and the information provided in each column is provided in section 1.8 of this document, and a concise glossary of terms used is provided in Section 7.

The favourable condition table is intended to supplement the conservation objectives, including with respect to the management of established and ongoing activities, future requirements of monitoring and reporting on the condition of the features of the site and, together with the conservation objectives, informs the scope and nature of any appropriate assessment that may be needed. The table **does not by itself** provide a comprehensive basis on which to assess plans and projects as required under the Habitats Regulations. It should be noted that appropriate assessments are a separate activity to condition monitoring, requiring consideration of issues specific to individual plans or projects.

These tables set out all the attributes that **may** be used to monitor the condition of the features of the Ramsar Site. Where possible we will seek available information from others which can inform our assessment process.

It will be possible to monitor many of the attributes at the same time or during the same survey. The frequency of sampling for many attributes may need to be greater during the initial monitoring events in order to characterise the site and establish the baselines. Extreme events (such as storms reducing or increasing salinities, exceptionally cold winters or warm summers) also need to be recorded as they may be critical in influencing ecological issues in the Severn Estuary and may well be missed by routine monitoring.

Comprising :

Table 18 – Favourable condition table for the “estuaries” feature of the Severn Estuary Ramsar Site

Table 19 – Favourable condition table for the migratory fish assemblage of the Severn Estuary Ramsar Site

Table 20 – Favourable condition table for the supporting habitats of the bird interest features (Ramsar features 3 to 9) in the Severn Estuary Ramsar Site

Table 21 – Favourable condition table for the qualifying bird interest features in the Severn Estuary Ramsar Site

Favourable condition table for the “estuaries” feature of the Severn Estuary Ramsar Site

Reference should also be made to Tables 8,10 and 11 - Favourable Condition Tables for the SAC habitat features relevant to the supporting habitats (intertidal mudflats and sandflats, saltmarsh and hard substrate habitats (rocky shores)) .

Table 18 Favourable Condition Table for the “estuaries” feature of the Severn Estuary Ramsar Site

Ramsar interest feature	Comments
<p><i>Ramsar Interest feature 1: Estuaries</i></p>	<p>The Favourable Condition Table for the “estuaries” feature of the Severn Estuary Ramsar Site is largely the same as that for the Severn Estuary SAC “estuaries” feature (see section 4.1 : Table 8).</p> <p>However the area of the estuarine ecosystem designated as Ramsar Site is smaller than that of the SAC as it is restricted to the terrestrial and intertidal areas and excludes all subtidal areas. Table 17 identifies the limits and restrictions that apply in respect of the Ramsar Site Conservation Objective.</p> <p>There are therefore aspects of the SAC “estuaries” Favourable Condition Table that are not applicable to the Ramsar Site “estuaries” feature as follows :</p> <ul style="list-style-type: none"> • All attributes other than those referred to below - apply only in respect of the area within the Ramsar Boundary (as shown in Appendix 2) • Line A6 - which relates to the subtidal sandbanks subfeature of the estuaries feature - this does not apply as these habitats lie outside the boundary of the Ramsar Site • Line A9 - which relates to the reefs subfeature of the estuaries feature - this only applies in respect of areas where intertidal <i>Sabellaria alveolata</i> occurs contiguously with the subtidal reefs (yet to be fully defined).

Table 19 Favourable Condition Table for the Migratory fish assemblage feature of the Severn Estuary Ramsar Site

Ramsar interest feature	Sub-feature	Attribute	Measure	Target	Comments
Ramsar Interest feature 2 : Migratory fish assemblage		Migratory access (Barriers to migration) (migratory passage not impeded - sections 4.6.i and 4.7.i of the conservation objectives)	Water quality measured regularly throughout the reporting cycle in the Bristol Channel, Severn Estuary, River Wye SAC, River Usk SAC and River Severn. (see also lines A17- A20 of Table 8 relating to general water quality requirements for the estuary feature (and dependant sub features)	Water quality is sufficient to support migratory passage. Levels (for temperature, salinity, turbidity and pH, and dissolved oxygen) should comply with targets established under the EA Review of Consents and the Water Framework Directive. Baseline is water quality sampling data collected by the Environment Agency	Significant variation in these physio-chemical parameters may act as barriers to migration. For example, the timing, duration and consistency of their upstream migration are believed to be closely related to temperature changes as well as pheromone triggers from the juveniles during periods of high water flow. Peak migration usually coincides with river temperatures that remain above 10°C and continues until temperatures reach 18°C. Dissolved oxygen can also be significantly reduced in stretches receiving significant BOD inputs, or through the re-suspension of organic rich sediments. Toxic contaminants may act as a barrier to migration.
			Water flows measured regularly throughout the reporting cycle (frequency to be determined) in the River Wye SAC, River Usk SAC and River Severn (see also line A3 of Table 8 relating to general tidal and water flow requirements for the estuary feature (and dependant sub features)	Flows from the rivers into the estuary must be sufficient to allow migration Baseline is water flow sampling data collected by the Environment Agency provides a baseline. Severe low flow conditions that affect these species yet to be defined	
			Physical barriers Mapping and quantification of potential obstructions in relation to height, type and water depth below obstruction once during the reporting cycle.	No artificial barriers significantly impairing, adults from reaching existing and historical spawning grounds, or juveniles from moving downstream. Baseline is the Environment Agency data on structures and flood defences	Dams, navigation and other weirs may prevent fish from reaching their spawning grounds. In particular, sea lamprey is known to be poor at ascending obstacles.

Ramsar interest feature	Sub-feature	Attribute	Measure	Target	Comments
		Population sizes (returning adults) <i>(size of populations - sections 4.6.ii and 4.7.ii of the conservation objectives)</i>	Number of returning adults measured using fish counters on the feeding rivers (Wye, Usk and Severn) during the migratory period.	No decline in number of returning adults from established baseline. <i>Baseline is yet to be established - fish counter data may be able to provide a baseline in future years.</i>	(Note that this attribute will not be able to be measured until the technological solutions for monitoring some species (notably lampreys and shad) are developed.)
		River populations <i>(size of populations - sections 4.6.ii and 4.7.ii of the conservation objectives)</i>	Survey through various methods (Electrofishing, seine netting, line fishing records, licencing returns) at a series of locations in the Rivers Wye, Usk and Severn	No decline in populations of the Rivers Wye and Usk <i>Baseline is yet to be established - fish counter data may be able to provide a baseline in future years.</i>	Details of methods for river and sea lamprey are outlined in section 4.1.9, Table 13 and for Twaite shad in Table 14 - the individual FCT for these species within the SAC section of this document
		Prey species <i>(abundance of prey species - sections 4.6.iii and 4.7.iii of the conservation objectives)</i>	The abundance of key prey species measured by EA in their routine monitoring of the rivers and estuary	No significant reduction in abundance of key prey species against an established baseline <i>Baseline is yet to be established through fish surveys in estuary and rivers</i>	<p>River and sea lamprey require a variety of other fish species to act as hosts throughout their lifecycle. Their principal host species are part of the estuarine fish assemblage which has measures and targets included within Table 8.</p> <p>Twaite shad require a variety of invertebrates including crustacean, mysids and copepods, small fish and fish eggs particularly in that section of the estuary where saline and freshwaters meet.</p> <p>While at sea, salmon feed on a variety of fish (e.g. herring, sprat, sand eel, mackerel, and various gadoids) and crustaceans (e.g. euphausiid shrimps, prawns, gammarid amphipods and various crabs). (Bird, 2008)</p> <p>The diet of sea trout at sea is believed to include a range of fish species including sprat, young herring and sand eels as well as crustaceans such as amphipods (e.g. Corophium), gammarids, decapods such as Crangon and mysid shrimps.</p> <p>Eels feed on a range of benthic organisms that include crustaceans and small fish. (Bird, 2008)</p>

Table 20 Favourable Condition Table for the supporting habitats of the bird interest features (Ramsar interest features 3 to 9) in the Severn Estuary Ramsar Site (Numbers of bird species using these habitats are given in Table 6)

Ramsar interest features	Supporting Habitat	Attribute	Measure	Target	Comments
Ramsar Interest features 3-8 : Internationally important populations of waterfowl and Ramsar Interest feature 9 : Internationally important assemblage of waterfowl	Saltmarsh	Habitat extent	Area (ha) measured once per reporting cycle.	No decrease in extent from 1,400 ha. At The Dumbles, no decrease in extent from 76 ha.	Saltmarsh and their communities are important habitats as they provide both roosting and feeding areas.
		Food availability	Presence and abundance of suitable saltmarsh food plants measured periodically (frequency to be determined).	Presence and abundance of suitable saltmarsh food plants should not deviate significantly from an established baseline ¹ .	European white-fronted geese graze on a range of saltmarsh grasses and herbs. Wigeon feed on well-grazed saltmarsh with <i>Puccinella maritiae</i> , <i>Salicornia</i> and <i>Agrostis</i> . Teal and pintail feed on seeds from <i>Salicornia</i> and <i>Atriplex</i> .
		Vegetation characteristics	Abundance of suitable soft leaved herbs and grasses - % cover (frequency to be determined)	Greater than 25% cover during the winter season.	Bewick's swans graze on soft wet meadow grasses such as <i>Agrostis stolonifera</i> , <i>Glyceria fluitans</i> and <i>Alopecurus geniculatus</i> which are found in the transition of saltmarsh to grassland.
		Vegetation characteristics	Range of vegetation heights measured periodically (frequency to be determined).	Sward height and density throughout areas used for roosting should not deviate significantly from an established baseline ¹ .	Vegetation of <10 cm is required throughout areas used by roosting waders. This is managed by grazing.
		Unimpeded sightlines at feeding and roosting sites	Openness of terrain unrestricted by obstructions	No increase in obstructions to existing bird sightlines. Areas of vegetation with an effective field size of >6ha at the Dumbles (Bewicks swan)	Waterfowl require unrestricted views >500m to allow early detection of predators when feeding and roosting.

Table 20 continued

Ramsar interest features	Supporting Habitat	Attribute	Measure	Target	Comments
<p><i>Ramsar Interest features 3-8 : Internationally important populations of waterfowl</i></p> <p>and</p> <p><i>Ramsar Interest feature 9 : Internationally important assemblage of waterfowl</i></p>	Intertidal mudflats and sandflats	Habitat extent	Area (ha), measured once per reporting cycle.	<p>No decrease in extent from 15,000 ha.</p> <p>At Frampton Sands, Waveridge Sands and The Noose no decrease in extent from 980 ha.</p>	<p>Intertidal mudflats and sandflats and their communities are important habitats as they provide both roosting and feeding areas.</p> <p>The intertidal mudflats and sandflats at The Noose, Frampton Sand and Waveridge Sand are used as disturbance refuge for Bewick's swan. The extent and distribution of this sub-feature are important to maintain the population in favourable condition.</p>
		Food availability	Presence and abundance of suitable prey species measured periodically (frequency to be determined).	Presence and abundance of suitable prey species should not deviate significantly from an established baseline ¹ .	Most of the waders and waterfowl within the assemblage including the internationally important population of waterfowl feed on invertebrates within and on the sediments. Diet includes <i>Arenicola</i> , <i>Crangon</i> , <i>Hydrobia</i> , <i>Hediste</i> , <i>Corophium</i> , <i>Macoma</i> , <i>Gammarus</i> , small molluscs and strandline plankton and seeds.
		Unimpeded sightlines at feeding and roosting sites	Openness of terrain unrestricted by obstructions	No increase in obstructions to existing bird sightlines.	Waterfowl require unrestricted views >500m to allow early detection of predators when feeding and roosting.
	Shingle and rocky shores	Habitat extent	Area (ha), measured once per reporting cycle.	No decrease in extent from 1,500 ha.	This habitat is used for feeding and roosting, particularly by waders.
		Food availability	Presence and abundance of suitable intertidal invertebrates, measured periodically (frequency to be determined).	Presence and abundance of suitable food species should not deviate significantly from an established baseline ¹ .	Waders feed on worms, crustaceans and molluscs.
		Unimpeded sightlines at feeding and roosting sites	Openness of terrain unrestricted by obstructions	No increase in obstructions to existing bird sightlines.	Waterfowl require unrestricted views >500m to allow early detection of predators when feeding and roosting.

¹ Baselines to be established

Table 21 Favourable Condition Table for the qualifying bird features in the Severn Estuary Ramsar Site

Ramsar interest features	Supporting Habitat	Attribute	Measure	Target	Comments
<p><i>Ramsar Interest features 3-8 :</i> Internationally important populations of waterfowl</p> <p>and</p> <p><i>Ramsar Interest feature 9 :</i> Internationally important assemblage of waterfowl</p>		Population size	5 year peak mean number of individuals	<p>No less than 68,026 individuals in the assemblage [ie the 5 year peak mean between 1988/9 - 1992/3]</p> <p>For individual species - no less than the 5 year peak mean between 1988/9 - 1992/3 detailed in Table 6</p>	<p>Figures derived from WeBS counts.</p> <p>The 5 year peak means for this period for each of the internationally important populations and species with nationally important populations which make up the internationally important assemblage are detailed in Table 6</p>
		Distribution	Number and location of sectors occupied at low tide	No decrease in use of the number of sectors and their distribution established as baseline ¹ .	<p>WeBS low tide counts display distribution information by sector (not annual counts)</p> <p>Birds use certain sectors to a greater or lesser degree from year to year</p>
		Disturbance in feeding and roosting areas.	Reduction or displacement of wintering birds	No significant reduction in numbers or displacement of wintering birds attributable to disturbance from an established baseline ¹ .	<p>Significant disturbance attributable to human activities can result in reduced food intake and/or increased energy expenditure. Five year peak mean information on populations will be used as the basis for assessing whether disturbance is damaging.</p>

¹ Baselines to be established

5. Advice on Operations

CCW and Natural England have a duty under Regulation 33(2)(b) of The Conservation (Natural Habitats &c.) Regulations 1994 to advise other relevant authorities as to any operations which may cause deterioration of natural habitats or the habitats of species, or disturbance of species, for which the site has been designated. Information on how CCW and Natural England have developed this advice is given in section 5.2, and on how it may be reviewed and updated in the future in section 5.3.

The Advice on Operations concerning the SAC are provided in detail in Table 22 and section 5.6. The Advice on Operations concerning the SPA is provided in Table 23 and section 5.7. These include recommendations regarding specific interest features and their supporting habitats. The Advice on Operations concerning the Ramsar Site is provided by cross reference to the subsections of the advice for the SAC and SPA which are relevant to the Ramsar Site interest features.

5.1. Purpose of advice

The aim of this advice is to provide CCW and Natural England's Advice on Operations as required by Regulation 33 (2)(b) for the Severn Estuary European Marine Site and thereby enable all relevant authorities to direct and prioritise their work on the management of activities that pose the greatest potential threat to the favourable condition of interest features on the Severn Estuary European Marine Site. The advice should be read in conjunction with the Conservation Objectives for the SAC, SPA and Ramsar Sites interest features given in sections 4.1, 4.2 and 4.3 respectively and it is intended to provide the basis for detailed discussions to formulate and agree a management scheme for the European Marine Sites.

General advice on sensitivity, exposure (and therefore vulnerability) contained within this document is presented against broad categories of operation which may cause the deterioration of natural habitats or the habitats of species, or the disturbance of species (refer to section 5.2). It reflects activities and plans and projects. Generic examples of some of the types of operation that are covered under the broad category headings are given for illustration.

The advice is based on best available information at the time of preparation of the Regulation 33 advice for the Severn Estuary in 2008/09. For a current assessment of levels of disturbance of specific types of activity across the Severn Estuary (relevant solely to the SPA interest features), reference should be made to the SPA Scheme of Management, available at the ASERA website (<http://www.severnestuary.net/asera/>). It should be noted, however, that the frequency, intensity, effects and level of risk to the SPA features that certain activities may have are still being investigated under the existing Severn Estuary Scheme of Management.

5.2 Methods for assessment

The advice provided here is within six broad categories of operation which may cause the deterioration of natural habitats or the habitats of species, or the disturbance of species. These categories are:

- Physical loss
- Physical damage
- Non-physical disturbance
- Toxic contamination
- Non-toxic contamination
- Biological disturbance

Within these categories are environmental impacts that may result from operations. Example sources of activities are provided in the MarLIN *Maritime and coastal activities to environmental factors matrix* (see Appendix 10), although these are by no means inclusive of all potentially damaging activities.

Given current knowledge of the nature and extent of activities taking place within the Severn Estuary European Marine Site, this approach therefore:

- enables links to be made between human activities and the ecological requirements of the habitats or species, as required under Article 6 of the Habitats Directive;
- provides a consistent framework to enable relevant authorities in England and Wales to assess the effects of activities and identify priorities for management within their areas of responsibility; and
- is appropriately robust to take into account the development of novel activities or operations which may cause deterioration or disturbance to the interest features of the site and should have sufficient stability to need only infrequent review and updating by the CCW and Natural England.

These broad categories provide a clear framework against which relevant authorities can assess activities or operations under their responsibility. The more detailed information in Tables 22 and 23 (covering both the SAC and SPA) provides competent authorities with a context against which to consider an assessment of ‘significant effect’ of any plans or projects which may affect the site and a basis to inform on the scope and nature of appropriate assessments required in relation to plans and projects. It is important to note that this advice is only a starting point for assessing impacts. It does not remove the need for the relevant or competent authorities to consult CCW or Natural England formally over individual plans and projects where required to do so under the Regulations.

This Advice on Operations for the site is based on a three-step process involving:

- an assessment of the **sensitivity** of the interest features or their component supporting habitats to operations;
- an assessment of the **current exposure** of each interest feature or their component supporting habitats to operations; and
- a final assessment of **current vulnerability** of interest features or their component supporting habitats to operations.

Note that in respect of the SPA, sensitivity, exposure and vulnerability have been assessed largely in relation to the use of habitats by birds, but may also take into account direct effects on the bird species themselves (such as ‘shooting’ or ‘disturbance’).

This three-step process builds up a level of information necessary to manage activities in and around the European Marine Site in an effective manner and to identify to competent and relevant authorities those operations which pose the most immediate threats to the favourable condition of the interest features of the European Marine Site.

The assessment of relative sensitivity, exposure and vulnerability is derived using best available scientific information and informed scientific interpretation and judgement. The process uses sufficiently coarse categorisation to minimise uncertainty in information, reflecting the current state of knowledge and understanding of the marine environment. Where possible, the sensitivity, exposure and vulnerability are assessed on a three-point scale of ‘Low’, ‘Moderate’ or ‘High’. To assist with interpretation, these levels have been colour-coded in Tables 22 & 23.

5.2.1 Sensitivity assessment

The sensitivity assessment used is an assessment of the relative sensitivity of the interest features or the component supporting habitats of the Severn Estuary European Marine Site to the effects of six broad categories of human activities. In relation to this assessment, **sensitivity** has been defined as ‘**the intolerance of a habitat, community or individual (or individual colony) of a species to damage, or death, from an external factor and the time taken for its subsequent recovery**’ (MarLIN, 2003). For

example, a very sensitive species or habitat is one that is very adversely affected by an external factor arising from human activities or natural events (killed/destroyed, ‘high’ intolerance) and is expected to recover over a very long period of time, i.e. >10 or up to 25 years (‘low’ recoverability).

The sensitivity assessments are based on current information but may develop with improvements in scientific knowledge and understanding. The sensitivity of interest features (and scientific understanding of sensitivity) may change over time; hence an operation which is not currently considered to have a negative effect, may do so in the future.

English Nature (now Natural England) and Scottish Natural Heritage commissioned the Marine Biological Association of the UK, through its Marine Life Information Network (MarLIN) to provide detailed sensitivity information to underpin this advice. Detailed sensitivity information at a biotope or species level is available via MarLIN’s website (www.marlin.ac.uk). The sensitivity assessments are indicative qualitative judgements based on the best available scientific information. They represent the most likely (probable) result of a given change in a factor. The sensitivity assessments of the interest features or their component supporting habitats of the Severn Estuary SAC, SPA and Ramsar Site are based upon MarLIN sensitivity assessments for biotopes (components of the Annex I habitats) and species supplemented by local knowledge and professional judgement to provide a site specific assessment that reflect the unusual and extreme character of the Severn Estuary.

The sensitivities of each of the SAC Annex I habitat features have been assessed on the component biotopes represented within each of the habitats (where information is available). Where information has not been available, such as for subtidal *Sabellaria alveolata* reefs or for Atlantic saltmeadow communities, a number of scientific review documents have been consulted, including reports produced for the UK Marine SAC LIFE project (see Bibliography section for a full list of these).

Assessments for the Annex II migratory fish have been based on current knowledge (best available scientific knowledge), which is limited for the life phase that shad and lamprey spend in estuarine waters. Given the paucity of information, it has not been possible to assess the level of sensitivity on a three-point scale; they have been assessed to be either ‘sensitive’ or ‘not sensitive’.

For the SPA, the sensitivities have been assessed in relation to the use of habitats by birds and the sensitivities of the individual species themselves to certain activities. For example, wintering birds are highly sensitive to the loss of their roosting or feeding grounds; and they are highly sensitive to the noise of shooting. The sensitivity assessments of the interest features or their component supporting habitats of the Severn Estuary SPA are based on a number of scientific review documents. These include reports produced for the UK Marine SAC LIFE project (Davison & Hughes 1998; Elliott *et al.*, 1998), the Countryside Council for Wales Science Report (Holt *et al.*, 1995) and the Marine Habitats Review (Jones *et al.*, 2000.).

The magnitude or scale of the effect of an activity and the resultant change in environmental factors are site specific. For the purpose of this advice, the assessments of sensitivity have been adjusted for *changes in suspended sediments* and *turbidity* to reflect the particular conditions affecting the site. As a result of the high tidal energy of the site, the concentration of suspended sediment and turbidity are naturally very high. The marine fauna, including the migratory fish, are adapted to such high concentrations of suspended sediment and thus they are unlikely to have any significant effect. Consequently the sensitivities relating to *changes in suspended sediments* and *turbidity* have been downgraded.

Table 22 shows the sensitivity assessments for the SAC features and sensitivity assessments for the SPA can be seen in Table 23.

5.2.2 Exposure assessment

Exposure assessment has been undertaken for the Severn Estuary European Marine Site by assessing the relative exposure of the interest features or their component supporting habitats to the effects of broad categories of operations, resulting from human activities currently occurring on the site. Exposure has been assessed against a matrix which relates activities to operation pressures (see Appendix 10). The

matrix has been used as a guide and interpreted to assess the exposure to current activities known to be present within the site.

In assigning a three-point score (High, Moderate or Low) to the exposure, each activity is considered for:

- Spatial extent of the pressure
- Frequency of the pressure and
- Intensity of the pressure

For the SPA, the exposure has been assessed in relation to the use of habitats by birds and on the bird species themselves. As an example, the feeding and roosting grounds of wintering birds may be considered highly exposed to toxic contamination from synthetic compounds due to the locations and intensity of discharges into an area.

5.2.3 Vulnerability assessment

The third step in the process is to determine the vulnerability of interest features or their component supporting habitats to operations. This category results from an integration of sensitivity and exposure. Only if a feature is both sensitive and exposed to a human activity will it be considered vulnerable. In this context therefore, 'vulnerability' has been defined as **'the exposure of a habitat, community or individual (or individual colony) of a species to an external factor to which it is sensitive'** (Hiscock, 1996).

Tables 22 and 23 show the vulnerability assessments for the SAC features and the SPA features respectively.

5.3 Update and review of advice

Information as to the categories of operations which may cause the deterioration of natural habitats or the habitats or disturbance of species for which the site has been designated, is provided in light of what CCW and Natural England know about current activities and patterns of usage within the Severn Estuary European Marine Site. The general information on current activities and patterns of usage (which was used in part to derive Table 23) has been refined at the local level in producing the management scheme for the SPA and through further discussion with the relevant authorities. This management scheme is available at the ASERA website (<http://www.severnestuary.net/asera/>) although this will require review following this more detailed analysis of impacts on the estuarine habitats that are supporting habitats for the birds of the SPA.

The information provided in this advice on the sensitivity of interest features or their supporting habitats (Table 23) will change as a result of an improvement in our scientific knowledge, which will be a relatively long term process. It is suggested that advice for sites be kept under review and is periodically updated through discussion with relevant authorities and others to reflect significant changes in our understanding of sensitivity together with the potential effects of plans and projects on the marine environment.

5.4 Plans and Projects

Under Regulation 48(1), an appropriate assessment must be undertaken by competent authorities in respect of any plan or project which:

- a. either alone or in combination with other plans or projects is likely to have a *significant effect* on a European site; and
- b. is not directly connected with or necessary to the management of the site for nature conservation.

This legal requirement applies to all European sites (SACs and SPAs). Regulation 48 is also applied, as a matter of Government policy, to proposed SPAs and listed Ramsar sites.

Tables 22 and 23 provides competent authorities with a guide against which to initiate an assessment of the ‘significance’ of any plans or projects (and on-going operations or activities) proposed for the site, although this will only be a starting point for assessing impacts and does not remove the need for competent authorities to consult CCW or Natural England formally over individual plans and projects where required under the Regulations.

5.5 Review of consents

Regulation 50 of the Conservation (Natural Habitats, &c.) Regulations 1994 requires a competent authority to undertake a review of any existing consent or permission to which Regulation 48(1) would apply if it were to be reconsidered as of the date on which the site became a European site. Where a review is required under these provisions it must be carried out as soon as reasonably practicable after classification of the European Marine Site. Consents will need to be reviewed in the light of these objectives.

5.6 Specific Advice on Operations for the Severn Estuary SAC

This section provides information to help relate general advice to each of the specific interest features of the Severn Estuary SAC. Where specific examples are given they are provided to aid understanding of possible impacts and are not intended to be a comprehensive list of all relevant operations.

This advice relates to the vulnerability of the interest features and supporting habitats of the Severn Estuary SAC as set out in more detail in Table 22. A brief explanation of the sensitivity of the interest features or supporting habitats follows, with an explanation of their exposure and consequently their vulnerability to damage or disturbance from the listed categories of operations is also given. This enables links between the categories of operation and the ecological requirements of the European Marine Site and Ramsar Site interest features to be made.

The precise impact of any category of operation occurring on the site will be dependent upon the nature, scale, location and timing of events. In accordance with Government policy guidance, the Advice on Operations provided here, is feature and site specific, and provided in the light of current activities and patterns of usage at the site.

As such, it is important that future consideration of this advice by relevant authorities, and others, takes account of changes in usage patterns that have occurred at the site over the intervening period. Advice for sites should be kept under review: it is suggested that periodic discussions with relevant authorities and others be undertaken to reflect significant changes in the understanding of sensitivities, as well as the potential effects of future plans or projects on the marine environment.

5.6.1 Estuaries feature

(Note : this advice is also relevant to the “estuaries” feature of the Ramsar Site – refer also to section 5.8)

5.6.1.1 Sensitivity

The **estuary** and its associated biological communities are **moderately to highly sensitive** to:

- **physical loss**
- **physical damage**
- **toxic contamination**
- **non-toxic contamination** and
- **biological disturbance**

These result from a range of activities known to occur in the estuary. Further details are provided in points i) to xiv) below, with details of the level of sensitivity set out in Table 22.

5.6.1.2 Exposure

The **estuary** and its associated biological communities are **moderately to highly exposed** to:

- **substratum loss**
- **smothering**
- **changes in suspended sediment**
- **changes in water flow rate**
- **changes in wave exposure**
- **abrasion and physical disturbance**
- **noise and visual disturbance**
- **toxic contamination (introduction of synthetic & non synthetic compounds)**
- **changes in nutrient loading**
- **changes in thermal regime**
- **changes in turbidity**
- **changes in salinity**
- **changes in oxygenation**
- **introduction of microbial pathogens**
- **introduction of non-native species**
- **selective extraction of species**

5.6.1.3 Vulnerability

The **estuary** and its associated biological communities are **moderately to highly vulnerable** to:

i. Substratum loss

The estuary feature is considered to have **high sensitivity** and **high exposure** and therefore **high vulnerability** to substratum loss.

The physical loss of areas of intertidal habitats may be caused directly through a change in land use, or indirectly as a consequence of changes to sedimentation processes (e.g. resulting from the construction of groynes or of seawalls). Subtidal sedimentary habitats will be directly affected by the removal of material during maintenance dredging and aggregate extraction in particular. These activities, coupled with strong current flows, result in material being suspended in the water column and removed away from their point of origin. Removal of the substratum will lead to partial loss of faunal diversity, exposure of the underlying sediment and changes in the topography of the area. Intertidal seagrass beds will be adversely affected by substratum loss, with recoverability depending upon recruitment from other populations.

ii. Smothering

The estuary feature is considered to have **high sensitivity** and **moderate exposure** and therefore **high vulnerability** to smothering

Smothering of organisms is likely to occur as a result of the direct deposition of material on top of them and/or on their habitat. Examples of activities causing smothering in intertidal areas include beach replenishment, port developments, archaeological activities, coastal farming, industrial effluent discharge, oil spills, land runoff including highways discharge and sewage discharge. In subtidal areas, dumping of spoil from dredging operations is responsible for most smothering events. Both intertidal and subtidal seagrass beds are considered to be highly sensitive to smothering. A seagrass bed close to the second Severn crossing is known to have been adversely affected by smothering as a result of changes to sediment movements due to temporary works associated with the bridge construction in the early 1990's.

iii. Changes in suspended sediment

The estuary feature is considered to have **moderate sensitivity** and **moderate exposure** and therefore **moderate vulnerability** to changes in suspended sediment

As a result of the high tidal energy of the site, the concentration of suspended sediment and turbidity are naturally very high. This high tidal energy is one of the reasons for site selection as part of the Natura 2000 series. The marine fauna, including the migratory fish, are adapted to high concentrations of suspended sediment. Increase in sediment in suspension is unlikely to cause problems unless it leads to smothering (see smothering). Of greater concern in the Severn estuary would be the decrease in suspended sediments leading to increased light penetration and changes in the habitats and their plant and animal communities.

Activities likely to result in changes in suspended sediment would include those which would affect sediment availability or the water flow rate (coastal defences, development, construction and dredging).

iv. Changes in water flow rate

The estuary feature is currently considered to have **moderate sensitivity** and **high exposure** and therefore **high vulnerability** to changes in water flow rate.

The estuary is considered to have high exposure due to its highly constrained nature (by man made hard defences). Increases or decreases to the water flow rate are likely to lead to, respectively, increased sediment erosion or accretion in certain areas. Seagrass beds in particular are intolerant to any activity that changes the sediment regime. Activities/structures responsible for changing the water flow rate could include in-estuary construction; groynes, beach replenishment, sea walls/breakwaters, port developments and aggregate extraction.

v. Changes in wave exposure

The estuary feature is currently considered to have **high sensitivity** and **high exposure** and therefore **high vulnerability** to changes in wave exposure.

The estuary is considered to have high exposure due to its highly constrained nature (coastal defence structures; groynes, seawalls, breakwaters and beach replenishment) and presence of significant aggregate extraction which can cause changes in wave exposure. Storms and intense wave action may move or remove substrata from shallow subtidal sandbanks. Increased wave action will disrupt feeding and burrowing, and reduce species abundance, richness and biomass. Decreased wave exposure will result in increased food availability, but suspension feeders are intolerant of sediment increases in silt/clay content and therefore the proportion of suspension feeders may decrease in favour of deposit feeders. Both intertidal and subtidal seagrass beds are highly sensitive to changes in wave exposure, with an increase leading to loss of substrata and exposure of rhizomes, and a decrease causing deposition of fine particles on leaves which may result in smothering.

vi. Abrasion and physical disturbance

The estuary feature is currently considered to have **moderate sensitivity** and **high exposure** and therefore **high vulnerability** to physical disturbance and abrasion.

This factor includes mechanical interference, crushing, trampling, rubbing or erosion of the organism or habitat of interest. The activities most likely to cause abrasion include beach replenishment, development of port facilities, maintenance dredging, aggregate extraction, fixed netting, benthic trawls, sea-based recreation (including anchoring, power boat and jet ski wash), archaeology, coastal farming, educational visits, shipping, litter and debris. Habitats/communities that are moderately sensitive to abrasion include saltmarsh - see section 4.4 (at risk from overgrazing, erosion from moored boats or from trampling or vehicles), intertidal mudflats and sandflats (see section 4.3), and seagrass beds in particular.

vii. Toxic contamination

The estuary feature is currently considered to have **moderate sensitivity** and **high exposure** and therefore **high vulnerability** to toxic contamination. (Note that there is currently insufficient scientific information on the sensitivities of the estuarine habitats to radionuclides to determine any vulnerability).

This category includes contamination from synthetic compounds (including pesticides and herbicides), non-synthetic compounds (including heavy metals) and hydrocarbons (oil related products). As a result of the predominance of physical conditions within the Estuary, for the majority of biological communities there is little unequivocal evidence of additional impact due to contaminants across the Estuary as a whole. Individual populations may have been impacted close to major discharges however.

A number of synthetic compounds may be present locally in elevated concentrations. Riverine inputs are probably responsible for the majority of these compounds entering the Estuary. The concentration of metals in sediments (cadmium, arsenic, chromium, silver, copper, zinc and nickel in particular) are commonly above interim sediment quality guidelines over much of the Estuary, but only occasionally exceed probable effects levels (Langston et al., 2003). Bioaccumulation of metals occurs widely in invertebrates, though the ecological significance is still uncertain. Hydrocarbon compounds may also be present locally in elevated concentrations. Sources include a combination of fossil fuel combustion, shipping, urban run-off, sewage treatment works and various point-source and diffuse discharges from industrialised areas. Moderately high levels of poly-aromatic hydrocarbons (PAHs) are present in sediments across much of the Estuary. Overall vulnerability to all toxic contamination is considered 'high' (due to the exposure from sewage inputs being classed as 'high' and also with 'moderate' levels from industrial inputs etc.).

Note that there is currently insufficient scientific information on the sensitivities of the estuarine habitats to radionuclides to determine any vulnerability. However despite the presence of several potential sources of radionuclides (Berkeley, Oldbury and Hinkley Nuclear Power Plants, a manufacturer of radiopharmaceuticals in Cardiff and a number of other smaller sources) the accumulation of radionuclides in the Severn Estuary is generally low compared with samples from the Irish Sea. The exceptions to this are Tritium and Carbon 14, which have been found locally at significant levels. This is thought to be related to discharges from the radiopharmaceutical company in Cardiff, for which remedial action is being taken. (Langston et al, 2003).

viii. Changes in nutrient loading

The estuary feature is considered to have **high sensitivity** and **high exposure** to changes in nutrient loading but **is not considered vulnerable to changes in nutrient loading due to the high natural turbidity**.

Whilst nutrient levels and loadings within the Estuary are considered significant in UK terms (and thus have been scored as high for sensitivity and high for exposure), the high natural turbidity of the system negates these high levels, with algal productivity being generally low except in localised hotspots. Where these do occur, nutrient enrichment may lead to significant shifts in community composition on/in subtidal sandbanks (see section 5.2) and on/in intertidal mudflats and sandflats (see section 5.3), but recoverability is likely to be high. Should there be a decrease in natural turbidity levels, then the overall associated 'masking effect' would be lessened and there would be a higher risk of nutrient enrichment.

At the present time, despite the high sensitivity and high exposure scores discussed above, the high natural turbidity levels across most of the estuary lead to a conclusion that the estuary is not considered vulnerable to changes in nutrient loading.

ix. Changes in thermal regime

The estuary feature is considered to have **moderate sensitivity** and **moderate exposure** and therefore **moderate vulnerability** to changes in thermal regime

Temperature can affect many biological, physical and chemical geochemical processes within the water column including stratification, mixing and turbidity, nutrients, oxygenation, salinity and pH. For example, activities which can cause short or longterm changes in temperature can include thermal discharges (eg from power station cooling waters and other discharges). Thermal discharges are likely to be between 2 and 10 degrees above ambient temperature and a long term duration of changes may impact on the larval forms and breeding cycles of marine organisms.

x. Changes in salinity

The estuary feature is considered to have **moderate sensitivity** and **high exposure** and therefore **high vulnerability** to changes in salinity.

Decreases in salinity within the Estuary are likely to result from heavy rain events and associated land/waterfront run-off and riverine inputs. The vast floodplain and catchment area of the Severn Estuary results in annual extreme flooding events and prolonged periods of freshwater input the estuary so the exposure is considered to be high. Localised salinity changes may also result around discharges. Certain biotopes associated with subtidal sandbanks occur in conditions of reduced salinity and these biotopes are considered to be moderately vulnerable to any long-term increases in salinity levels.

xi. Changes in oxygenation

The estuary feature is currently considered to have **moderate sensitivity** and **high exposure** and therefore **high vulnerability** to changes in oxygenation.

A cycle of changes in oxygenation occurs within the Severn as a result of both seasonal and tidal cycles and is linked to fluctuating sediment regimes. In addition occasional, intermittent oxygen sags occur in low salinity regions of the Severn and in some of the principal rivers feeding the Estuary. These probably originate from high densities of suspended solids and associated particulate organic matter, perhaps enhanced by discharge outfalls. Other causes include maintenance dredging, aggregate extraction, spoil dumping, coastal farming and shipping.

Oxygen-deficient marine areas are characterized by a decline in the number and diversity of species. Certain communities occurring within the Estuary's intertidal mudflats and sandflats are moderately sensitive to decreases in dissolved oxygen levels. However, recoverability of these areas should be rapid upon return to normal conditions. The fish assemblage is also likely to be sensitive to decreases in dissolved oxygen levels, although it is unclear what the level of sensitivity is at the present time.

xii. Introduction of microbial pathogens

The estuary feature is currently considered to have **high sensitivity** and **high exposure** and therefore **high vulnerability** to changes in microbial pathogens.

Microbial pathogens are most likely to enter the Severn's ecosystem by means of sewage discharges, be these from port facilities, recreational boating, shipping or the outfalls from sewage treatment works. For the majority of biological communities there is insufficient information available to be able to make an assessment of their sensitivity to microbial pathogens. Of the few known impacts, subtidal seagrass beds of *Zostera marina* are known to be highly sensitive to the marine fungus *Labyrinthula macrocystis* which causes 'wasting disease'. The disease causes the death of leaves and, after 2-3 seasons, can lead to the death of regenerative shoots, rhizomes and the loss of up to 90% of the population and its associated

biotope. However, no information has been found which confirms the presence of the wasting disease in the Estuary.

While no information has been found which confirms the presence of the wasting disease in the estuary, the potential significant consequences for one of this notable estuarine community in particular has led to the conclusion that estuary is highly sensitive to microbial pathogens. The exposure is considered to be high due to the high number of sewage discharges.

xiii. Introduction of non-native species

The estuary feature is currently considered to have **high sensitivity** and **moderate exposure** and therefore **high vulnerability** to the introduction of non-native species.

The saltmarsh cordgrass *Spartina anglica* is an invasive pioneer species whose rapid growth consolidates sediment, raises mudflats and reduces sediment availability elsewhere. It is regarded as being a potential threat to intertidal beds of *Zostera noltei* in particular. However, whilst recognising *S. anglica* as an invasive species, it also has a role in saltmarsh formation and the community SM6 in which it features should be allowed to develop into other Atlantic Salt Meadow or transitional communities. The Japanese seaweed *Sargassum muticum* is another non-native species which is thought to compete for space with the subtidal seagrass *Zostera marina*, though evidence for actual competition is conflicting. The presence of another non-native, the slipper limpet *Crepidula fornicata*, in large numbers may alter the species composition within certain soft mud habitats leading to a decline in overall species richness. However, *C. fornicata* has yet to penetrate the Estuary, possibly due to the strong water flows. The exposure to introduction of non-natives to the estuary is considered to be moderate because of the considerable volume of ship traffic, including transport to and from the major ports at Cardiff, Newport and Bristol.

xiv. Selective extraction of species

The estuary feature is currently considered to have **moderate sensitivity** and **high exposure** and therefore **high vulnerability** to the selective extraction of species.

This category refers to the removal of key species within a biotope or of a prey species. Activities which occur within the Estuary which are likely to be implicated bait digging, fixed netting, commercial fishing, recreational angling, wildfowling and educational visits. Whilst the majority of biotopes have a low sensitivity to such activities, intertidal *Zostera noltei* beds are highly sensitive to grazing by species of wildfowl. Significant amounts of dwarf eelgrass can be consumed by wildfowl, particularly during the autumn and winter months. However as these grazers are also part of the natural estuarine ecosystem and designated features in their own right their impact is not judged to be detrimental.

5.6.2 Subtidal sandbanks feature

5.6.2.1 Sensitivity

The **sandbanks** and their associated biological communities are **moderately to highly sensitive** to:

- **physical loss**
- **physical damage**
- **toxic contamination**
- **non-toxic contamination**
- **biological disturbance**

These result from a range of activities known to occur in the vicinity of the sandbanks. Further details are provided in points i) to vii) below, with details of the level of sensitivity set out in Table 22.

5.6.2.2 Exposure

The **sandbanks** and their associated biological communities are **moderately to highly exposed** to:

- **substratum loss**
- **smothering**
- **changes in suspended sediment**
- **abrasion and physical disturbance**
- **noise and visual disturbance**
- **toxic contamination (introduction of synthetic & non synthetic compounds)**
- **changes in nutrient loading**
- **changes in turbidity**
- **changes in salinity**
- **changes in oxygenation**
- **introduction of microbial pathogens**

5.6.2.3 Vulnerability

The subtidal sandbanks communities are **moderately to highly vulnerable** to:

i. Substratum loss

The subtidal sandbanks feature is currently considered to have **moderate sensitivity** and **moderate exposure** and therefore **moderate vulnerability** to substratum loss.

The physical loss of subtidal sandbanks will occur through the removal of material during maintenance dredging and aggregate extraction in particular. These activities, coupled with strong current flows, result in material being suspended in the water column and removed away from their point of origin. Removal of the substratum will lead to partial loss of faunal diversity, exposure of the underlying sediment and changes in the topography of the area. Recolonisation of the biotope might occur within a few months, but the biotope would be unlikely to be recognized until after six months. Cohesive mud and sandy mud communities are considered to be moderately sensitive to substratum loss.

ii. Changes in suspended sediment

The subtidal sandbanks feature is currently considered to have **moderate sensitivity** and **moderate exposure** and therefore **moderate vulnerability** to changes in suspended sediment.

Increase in sediment in suspension are unlikely to cause problems unless it leads to smothering (see smothering). A decrease in suspended sediments may lead to increased light penetration and changes in the sandbank communities.

Activities likely to result in changes in suspended sediment would include those which would affect sediment availability or the water flow rate (coastal defences, development, construction and dredging).

iii. Toxic contamination

The subtidal sandbanks feature is currently considered to have **moderate sensitivity** and **high exposure** and therefore **high vulnerability** to toxic contamination. (Note that there is currently insufficient scientific information on the sensitivities of subtidal sandbank communities to radionuclides to determine their vulnerability).

This category includes contamination from synthetic compounds (including pesticides and herbicides), non-synthetic compounds (including heavy metals) and hydrocarbons (oil related products). As a result of the domination of physical conditions within the Estuary, for the majority of biological communities there is little unequivocal evidence of additional impact due to contaminants across the Estuary as a whole. Individual populations may have been impacted close to major discharges however.

Moderately high levels of poly-aromatic hydrocarbons (PAHs) are present in sediments across much of the Estuary (Langston et al., 2003). Generally speaking however, subtidal sediments are less likely to be at risk from oil spills than intertidal sediments unless oil dispersants are used or if wave action causes dispersion of oil into the water column and sediment mobility drives oil into the sediment. Certain species such as amphipods which occur within the Estuary's infralittoral mobile clean sand community have been found to be moderately sensitive to oil pollution. (See also section 5.1).

Despite the presence of several potential sources of radionuclides (Berkeley, Oldbury and Hinkley Nuclear Power Plants, a manufacturer of radiopharmaceuticals in Cardiff and a number of other smaller sources) the accumulation of radionuclides in the Severn Estuary is generally low compared with samples from the Irish Sea. The exceptions to this are Tritium and Carbon 14, which have been found at locally at significant levels. This is thought to be related to discharges from the radiopharmaceutical company in Cardiff, for which remedial action is being taken. The exposure for subtidal sandbanks is therefore thought to be low.

iv. Changes in nutrient loading

The subtidal sandbanks feature is currently considered to have **low sensitivity** and **high exposure** and therefore **moderate vulnerability** to changes in nutrient loading

Whilst nutrient levels and loadings within the Estuary are considered significant in UK terms the high natural turbidity of the system negates these high levels, with algal productivity being generally low except in localised hotspots. Where these do occur, nutrient enrichment may lead to significant shifts in community composition on/in subtidal sandbanks but recoverability is likely to be high.

v. Changes in salinity

The subtidal sandbanks feature is currently considered to have **moderate sensitivity** and **high exposure** and therefore **high vulnerability** to changes in salinity.

Apelochaeta marioni, a polychaete worm which characterizes the shallow sandbanks' biotope of variable salinity infralittoral mobile sand, is very tolerant of low salinity conditions but would be moderately vulnerable to any long-term increases in salinity levels. This species has a wide distribution throughout the Estuary, being present on subtidal and intertidal sand habitats on both sides of the Estuary.

vi. Changes in oxygenation

The subtidal sandbanks feature is currently considered to have **low sensitivity** and **high exposure** and therefore **moderate vulnerability** to changes in oxygenation.

A cycle of changes in oxygenation occurs within the Severn as a result of both seasonal and tidal cycles and is linked to fluctuating sediment regimes. In addition occasional, intermittent oxygen sags occur in low salinity regions of the Severn and in some of the principal rivers feeding the Estuary.

Decreases in oxygenation levels can result from maintenance dredging, aggregate extraction, industrial effluent discharge, land/waterfront runoff and sewage discharge (Langston et al., 2003). Oxygen-deficient

marine areas are characterized by a decline in the number and diversity of species. Certain communities occurring within the Estuary's subtidal sandbanks are moderately sensitive to decreases in dissolved oxygen levels. However, recoverability of these areas should be rapid upon return to normal conditions.

vii. Introduction of microbial pathogens

The subtidal sandbanks feature is currently considered to have **high sensitivity** and **high exposure** and therefore **high vulnerability** to the introduction of microbial pathogens.

Microbial pathogens are most likely to enter the Severn's ecosystem by means of sewage discharges. For the majority of biological communities there is insufficient information available to be able to make an assessment of their sensitivity to microbial pathogens. However, some research has been undertaken on marine bivalves, several species of which occur within the Estuary's sandbanks. Mass mortalities of bivalves can result from diseases caused by bacteria, viruses (over 20 have been described for marine bivalves) or protozoans. There is a greater likelihood of such events occurring in areas adjacent to outfalls than elsewhere. Recovery of populations is probable.

5.6.3 Mudflats and sandflats feature

(Note : this advice is also relevant to the Ramsar Site as the mudflats and sandflats are both a subfeature of the estuaries feature and a supporting habitat of the birds species, for which the Ramsar Site has been designated – refer also to section 5.8)

5.6.3.1 Sensitivity

The **mudflats and sandflats** and their associated biological communities are **moderately to highly sensitive** to:

- **physical loss**
- **physical damage**
- **toxic contamination**
- **non-toxic contamination**
- **biological disturbance**

These result from a range of activities known to occur in the vicinity of the mudflats and sandflats. Further details are provided in points i) to xiii) below, with details of the level of sensitivity set out in Table 22.

5.6.3.2 Exposure

The **mudflats and sandflats** and their associated biological communities are **moderately to highly exposed** to:

- **substratum loss**
- **smothering**
- **changes in suspended sediment**
- **changes in water flow rate**
- **changes in wave exposure**
- **abrasion and physical disturbance**
- **toxic contamination(introduction of synthetic & non synthetic compounds)**
- **changes in nutrient loading**
- **changes in thermal regime**
- **changes in turbidity**
- **changes in salinity**
- **changes in oxygenation**
- **introduction of microbial pathogens**

5.6.3.3 Vulnerability

The **intertidal mudflats and sandflats** communities are **moderately to highly vulnerable** to:

i. Substratum loss

The intertidal mudflats and sandflats feature is currently considered to have **high sensitivity** and **high exposure** and therefore **high vulnerability** to substratum loss.

Areas of intertidal habitats will be lost as a direct result of land claim or developments, or indirectly as a consequence of changes to sedimentation processes (e.g. resulting from the construction of groynes or of seawalls). Consequently, there is moderate to high exposure of mudflats and sandflats to substratum loss. The sediment infauna reside in the uppermost layers of the substratum and the removal of this layer would cause a major decline in species richness as they would have been removed with it. Thus the sensitivity of the biotopes in question is high. Fortunately, recovery of the community is also regarded as being high as recolonisation is likely following deposition of suitable substrata.

ii. Smothering

The intertidal mudflats and sandflats feature is considered to have **moderate sensitivity** and **moderate exposure** and therefore **moderate vulnerability** to smothering

Smothering of organisms is likely to occur as a result of the direct deposition of material on top of them and/or on their habitat. Examples of activities causing smothering in intertidal areas include beach replenishment, port developments, archaeological activities, coastal farming, industrial effluent discharge, oil spills, land runoff including highways discharge and sewage discharge.

iii. Changes in suspended sediment

The intertidal mudflats and sandflats feature is considered to have **moderate sensitivity** and **moderate exposure** and therefore **moderate vulnerability** to changes in suspended sediment

Changes in suspended sediments could change the extent and nature of intertidal habitats including affecting estuary-wide erosion and accretion patterns. Increase in sediment in suspension are unlikely to cause problems unless it leads to smothering (see smothering) and in some cases the invertebrate communities associated with the sediment may provide additional food resources for feeding birds. A decrease in suspended sediments may lead to increased light penetration and changes in the intertidal mud and sandflat communities.

Activities likely to result in changes in suspended sediment would include those which would affect sediment availability or the water flow rate (coastal defences, development, construction and dredging).

iv. Changes in water flow rate

The intertidal mudflats and sandflats feature is currently considered to have **moderate sensitivity** and **high exposure** and therefore **high vulnerability** to changes in water flow rate.

Increases or decreases to the water flow rate are likely to lead to, respectively, increased sediment erosion or accretion in certain areas. Activities/structures responsible for changing the water flow rate include construction activities, groynes, beach replenishment, sea walls/breakwaters, port developments and aggregate extraction.

v. Changes in wave exposure

The intertidal mudflats and sandflats feature is currently considered to have **high sensitivity** and **high exposure** and therefore **high vulnerability** to changes in wave exposure.

Changes in wave exposure result from coastal defence structures (groynes, seawalls, breakwaters and beach replenishment), shipping and possibly aggregate extraction. Increased wave action will disrupt feeding and burrowing, and reduce species abundance, richness and biomass. The strength of wave action determines the topography, steepness and shore width of the intertidal zone.

vi. Abrasion and physical disturbance

The intertidal mudflats and sandflats feature is currently considered to have **moderate sensitivity** and **high exposure** and therefore **high vulnerability** to physical disturbance and abrasion.

The activities most likely to cause abrasion to mudflats and sandflats include beach replenishment, bait digging, maintenance dredging, aggregate extraction, land-based recreation and archaeology. Boating, anchoring, trampling or the use of vehicles are also likely to cause physical disturbance, with compaction of the substratum being of particular concern. For example, the use of vehicles on mudflats or sandflats appears to have a potentially severe impact on gaper clams *Mya arenaria*. Large clams live in permanent burrows and are therefore susceptible to burrow collapse and sediment compaction through trampling and especially vehicle use. Another two key species found in muddy sand, the heart urchin *Echinocardium cordatum* and the razor shell *Ensis ensis*, are probably highly sensitive to physical disturbance. Recovery is likely to be moderate because, although the individual key species may recolonize an area within five years, several of the species are very long-lived and so the biotope may take longer to return to its original age structure and species diversity.

vii. Toxic contamination

The intertidal mudflats and sandflats feature is currently considered to have **high sensitivity** and **high exposure** and therefore **high vulnerability** to toxic contamination by synthetic and non-synthetic compounds. (Note that there is currently insufficient scientific information on the sensitivities of communities present on/in intertidal mudflats and sandflats to radionuclides to determine their vulnerability).

This category includes contamination from synthetic compounds (including pesticides and herbicides), non-synthetic compounds (including heavy metals) and hydrocarbons (oil related products). Infaunal populations present within intertidal sediments are likely to have been impacted close to major discharges, with a number of synthetic compounds known to have elevated concentrations locally (Langston et al., 2003). However, because of the energetic hydrodynamic regime in the Severn, and the resultant high turbidity, there is considerable mixing and redistribution of fines and their associated contamination burden, resulting in a fairly homogenous distribution.

Whilst the concentration of metals within the Estuary's sediments (cadmium, arsenic, chromium, silver, copper, zinc and nickel in particular) are commonly above interim sediment quality guidelines, these only occasionally exceed probable effects levels (Langston et al., 2003).. Contamination loadings of metals will be highest where fine particulates predominate (for example between Avonmouth and Severn Beach, Caldicot Flats, the River Parrett and outer Bridgewater Bay, and between the mouths of the Usk and Taff), and lowest on sands (for example the Middle to Welsh Grounds, and Culver Sands). Bioaccumulation of metals is known to occur widely in invertebrates, though the ecological significance is still uncertain. Note also that the toxicity of metals to many invertebrates increases with decreased salinity and elevated temperature (Langston et al., 2003). Thus many benthic invertebrates living within their normal salinity range may be less susceptible to heavy metal pollution than those living in salinities near the lower limit of their salinity tolerance.

Hydrocarbon compounds are present locally in elevated concentrations (Langston et al., 2003).. Sources include a combination of fossil fuel combustion, shipping, urban run-off, sewage treatment works and various point-source and diffuse discharges from industrialised areas. Moderately high levels of poly-aromatic hydrocarbons (PAHs) are present in sediments across much of the Estuary (Langston et al., 2003).

Overall vulnerability to all toxic contamination is considered 'high' (due to the exposure from sewage inputs being classed as 'high' and also with 'moderate' levels from industrial inputs etc.).

Despite the presence of several potential sources of radionuclides (Berkeley, Oldbury and Hinkley Nuclear Power Plants, a manufacturer of radiopharmaceuticals in Cardiff and a number of other smaller sources) the accumulation of radionuclides in the Severn Estuary is generally low compared with samples from the Irish Sea. The exceptions to this are Tritium and Carbon 14, which have been found at locally at significant levels. This is thought to be related to discharges from the radiopharmaceutical company in Cardiff, for which remedial action is being taken. The intertidal mudflats and sandflats are therefore thought to be moderately exposed to radionuclides (Langston et al, 2003).

viii. Changes in nutrient loading

The intertidal mudflats and sandflats feature is currently considered to have **moderate sensitivity** and **high exposure** and therefore **high vulnerability** to changes in nutrient loading.

The most obvious sign of an increase in nutrient loading (or organic enrichment) on mudflats is the lush growth of green seaweeds on the surface. Such increases coupled with reduced oxygenation typically lead to anaerobic conditions predominating within the sediment. Moderate organic enrichment does provide food which can enhance species diversity but with greater enrichment, the diversity declines and the community becomes increasingly dominated by a few, pollution tolerant, opportunistic species such as the polychaete *Capitella capitata*. In sandier sediments where particle size is greater, the effects of an increase in organic enrichment are less dramatic. However, the structure of the community is still likely to change from one dominated by suspension feeders to one favouring deposit feeders, accompanied by an increase in the abundance of opportunistic species and a decrease in species richness. Note, however,

that the high natural turbidity of the system negates many of these effects, and algal productivity is generally low except in localised hotspots.

ix. Changes in thermal regime

The intertidal mudflats and sandflats feature is currently considered to have **moderate sensitivity** and **moderate exposure** and therefore **moderate vulnerability** to changes in thermal regime

Temperature can affect many biological, physical and chemical geochemical processes within the water column including stratification, mixing and turbidity, nutrients, oxygenation, salinity and pH. For example, activities which can cause short or longterm changes in temperature can include thermal discharges (eg from power station cooling waters and other discharges). Thermal discharges are likely to be between 2 and 10 degrees above ambient temperature and a long term duration of changes may impact on the larval forms and breeding cycles of marine organisms.

x. Changes in salinity

The intertidal mudflats and sandflats feature is currently considered to have **low sensitivity** and **high exposure** and therefore **moderate vulnerability** to changes in salinity

Decreases in salinity are likely to result from heavy rain events and associated land/waterfront run-off and riverine inputs. Localised salinity changes may also result around discharges. The vast floodplain and catchment area of the Severn Estuary results in annual extreme flooding events and prolonged periods of freshwater input to the intertidal areas so the exposure is considered to be high. However the metabolism of intertidal communities cope with vast extremes of conditions which result from the dynamic nature of the estuary's tidal regime and so are considered to have low sensitivity.

xi. Changes in oxygenation

The intertidal mudflats and sandflats feature is currently considered to have **low sensitivity** and **high exposure** and therefore **moderate vulnerability** to changes in oxygenation.

A cycle of changes in oxygenation occurs within the Severn as a result of both seasonal and tidal cycles and is linked to fluctuating sediment regimes. In addition occasional, intermittent oxygen sags occur in low salinity regions of the Severn and in some of the principal rivers feeding the Estuary.

Decreases in oxygenation levels will result from maintenance dredging, aggregate extraction, industrial effluent discharge, land/waterfront runoff and sewage discharge. Oxygen-deficient marine areas are characterized by a decline in the number and diversity of species. Certain communities occurring within the Estuary's intertidal mudflats and sandflats are moderately sensitive to decreases in dissolved oxygen levels. However, recoverability of these areas should be rapid upon return to normal conditions.

xii. Introduction of microbial pathogens

The intertidal mudflats and sandflats feature is currently considered to have **high sensitivity** and **high exposure** and therefore **high vulnerability** to the introduction of microbial pathogens.

Microbial pathogens are most likely to enter the Severn's ecosystem by means of sewage discharges. For the majority of biological communities there is insufficient information available to be able to make an assessment of their sensitivity to microbial pathogens. However, some research has been undertaken on marine bivalves, several species of which occur within the Estuary's intertidal sandbanks. Mass mortalities of bivalves can result from diseases caused by bacteria, viruses (over 20 have been described for marine bivalves) or protozoans. There is a greater likelihood of such events occurring in areas adjacent to outfalls than elsewhere. Recovery of populations is probable.

xiii. Introduction of non-native species

The intertidal mudflats and sandflats feature is currently considered to have **high sensitivity** and **low exposure** and therefore **moderate vulnerability** to the introduction of non-native species.

The saltmarsh cordgrass *Spartina anglica* is an invasive pioneer species whose rapid growth consolidates sediment, raises mudflats and reduces sediment availability elsewhere. It is regarded as being a potential threat to intertidal beds of *Zostera noltei* in particular. However, whilst recognising *S. anglica* as an invasive species, it also has a role in saltmarsh formation and the community SM6 in which it features should be allowed to develop into other Atlantic Salt Meadow or transitional communities. The presence of another non-native, the slipper limpet *Crepidula fornicata*, in large numbers may alter the species composition within certain soft mud habitats leading to a decline in overall species richness. However, *C. fornicata* has yet to penetrate the Estuary, possibly due to the strong water flows.

Note, in relation to ‘noise and visual disturbance’, that while mudflats and sandflats communities have moderate exposure to both noise and visual disturbance, these habitats are not sensitive to these factors but they do provide a vitally important role as supporting habitats for waterfowl that use these areas for roosting and feeding and these are considered highly sensitive to both noise and visual disturbance – see sections 5.7.1 & 5.7.2). So while the habitats themselves have low vulnerability their dependant bird species have high vulnerability.

5.6.4 Atlantic salt meadow feature

(Note : this advice is also relevant to the Ramsar Site as the Atlantic saltmeadows are both a subfeature of the estuaries feature and a supporting habitat of the birds species, for which the Ramsar Site has been designated – refer also to section 5.8)

5.6.4.1 Sensitivity

The **Atlantic salt meadow** and its associated biological communities are **moderately or highly sensitive** to:

- **physical loss**
- **physical damage**
- **toxic contamination**
- **non-toxic contamination**

These result from a range of activities known to occur on or in the vicinity of the salt meadows. Further details are provided in points i) to xiii) below, with details of the level of sensitivity set out in Table 22.

5.6.4.2 Exposure

The **Atlantic salt meadow** and its associated biological communities are **moderately to highly exposed** to:

- **substratum loss**
- **smothering**
- **changes in suspended sediment**
- **changes in water flow rate**
- **changes in wave exposure**
- **abrasion and physical disturbance**
- **changes in grazing management**
- **noise and visual disturbance**
- **toxic contamination(introduction of synthetic & non synthetic compounds)**
- **changes in nutrient loading**
- **changes in salinity**
- **changes in oxygenation**
- **introduction of microbial pathogens**

5.6.4.3 Vulnerability

The **saltmarsh** communities are **moderately to highly vulnerable** to:

i. Substratum loss

The Atlantic salt meadows and their associated communities feature is currently considered to have **high sensitivity** and **high exposure** and therefore **high vulnerability** to substratum loss

Saltmarshes, cordgrass and *Salicornia* are highly sensitive to physical loss. This can occur mostly through one-off developments such as infrastructure construction and modification involving land claim and changes in land management and coastal farming, and also as a result of coastal squeeze. This is a process by which coastal features such as saltmarshes and *Salicornia* are eroded as they become trapped between man-made structures such as sea walls and rising sea levels. Where this occurs on saltmarshes, it may result in the replacement of mid-marsh communities by pioneer saltmarsh communities or through erosion changing saltmarsh to intertidal mud and sand. Changes to coastal processes may also affect the sediment budget of estuaries and reduce the supply of sediment to saltmarsh, *Salicornia* and cordgrass areas. Whilst some areas of the Estuary are subject to these pressures, others are not, yet it remains a real

threat as is reflected in the moderate to high exposure score. When combined with high sensitivity this leads to a high vulnerability.

ii. Smothering

The Atlantic salt meadows feature is considered to have **high sensitivity** and **moderate exposure** and therefore **high vulnerability** to smothering.

Smothering of saltmarsh is likely to occur as a result of the direct deposition of material on the surface. This can happen by either direct deposition of materials on land or through silt-laden tides. The saltmarshes of the Severn are subject to spring tides each year which can in some locations deposit a thick layer of sediment on the surface which can persist for some months. Normally the level of this natural deposition is compatible with the speed of vertical accretion and growth of the saltmarsh. Higher levels of sediment deposition which may be associated with development activities (increasing sediment suspension) can cause smothering to occur resulting in loss of vegetation or shifts in community composition and zonation. Examples of activities likely to cause smothering from tidal deposition include coastal defence works, dredging, construction and archaeological works. Examples of direct deposition are fly tipping and accumulation of tidal debris.

iii. Changes in suspended sediment

The Atlantic salt meadows and their associated communities feature is currently considered to have **moderate sensitivity** and **moderate exposure** and therefore **moderate vulnerability** to changes in suspended sediment

Changes in suspended sediments could change the extent and nature of saltmarsh communities and other intertidal habitats including affecting estuary-wide erosion and accretion patterns. Increases in suspended sediment are unlikely to cause problems unless it leads to smothering (see smothering).

Activities likely to result in changes in suspended sediment would include those which would affect sediment availability or the water flow rate (coastal defences, development, construction and dredging).

iv. Desiccation and changes in emergence regime

The Atlantic salt meadows and their associated communities feature is currently considered to have **high sensitivity** and **low exposure** and therefore **moderate vulnerability** to desiccation and changes in emergence regime

Changes in the emergence regime will result in changes in the time habitats or species spend either covered in water or exposed to the air, one consequence of which is the desiccation (drying) of habitats and species. Examples of activities which may induce these changes are the construction of coastal and flood defences and other developments which change the tidal regime and water flow characteristics of the estuary.

The morphology, zonation and composition of saltmarshes are determined by their position within the tidal frame. They therefore considered highly sensitive to changes in the emergence regime and desiccation in particular.

These changes occurring in saltmarshes may result in either the stranding and exposure of communities or lengthened periods of inundation and lack of drying out with consequent impacts on species composition of swards (through dieback and shifts in community types) and affecting their suitability for species dependant on them. These changes may also cause the expansion of *Spartina* into both saltmarsh habitats and across adjacent mudflats.

The size of the estuary means that most small scale activities will have limited impacts with only large scale or estuary-wide activities likely to be of concern and exposure to this operation is therefore currently considered as low.

v. Changes in water flow rate

The Atlantic salt meadows and their associated communities feature is currently considered to have **moderate sensitivity** and **high exposure** and therefore **high vulnerability** to changes in water flow rate.

A reduction in the rate of water flow over the saltmarsh will result in an increase in the deposition of sediment. The rate at which this occurs will depend on the sediment supply, the duration of the tidal cover and the extent to which the tidal flow is impeded by the vegetation itself to facilitate deposition. Saltmarsh communities actually require a degree of sediment deposition in order to survive and flourish and they have been assessed as having a low to moderate sensitivity. Exposure to changes in water flow rate on saltmarsh communities will vary throughout the Estuary.

vi. Changes in wave exposure

The Atlantic salt meadows and their associated communities feature is currently considered to have **high sensitivity** and **high exposure** and therefore **high vulnerability** to changes in wave exposure.

Changes in wave exposure result from the presence of coastal defence structures (groynes, seawalls, breakwaters), beach replenishment and possibly aggregate extraction. Increased wave action can have two opposing effects. On the one hand it is likely to lead to a greater amount of suspended sediment being carried to the saltmarsh, while on the other hand the greater energy regime is likely to prevent the settlement of this material and may even remove material from the saltmarsh through erosion at the saltmarsh edge. A decrease in wave action will lead to greater sediment deposition with the possibility of smothering.

vii. Abrasion and physical disturbance

The Atlantic salt meadows and their associated communities feature is currently considered to have **moderate sensitivity** and **high exposure** and therefore **high vulnerability** to physical disturbance and abrasion.

Physical disturbance or abrasion to saltmarsh communities may result from a wide range of activities including recreational usage (both land-based and water-based), any of which may damage individual saltmarsh plants or areas of saltmarsh. Trampling by foot, and particularly by off-road vehicles, causes localised damage which may impact upon the ecological structure and function of larger areas, and requiring long-term recovery. Saltmarshes are also sensitive to erosion as a result of trampling or overgrazing, with communities that support succulents such as *Limonium* spp. being very susceptible to any form of grazing. In addition, it is widely recognised that shipping and boating can increase saltmarsh erosion from their wash.

viii. Changes in grazing management

The Atlantic salt meadows and their associated communities feature is currently considered to have **high sensitivity** and **high exposure** and therefore **high vulnerability** to changes in grazing management.

The presence, duration and intensity of grazing management can alter the vegetation composition and structure of saltmarsh habitats. Abandonment or introduction of grazing can result in changes in the saltmarsh plant and animal communities which are important in their own right and which also provide food resources for passage and wintering birds. Grazing changes may also affect the suitability of saltmarsh areas as resting and roosting sites for birds where open terrain with low vegetation is an important factor. Changes may also affect the presence of specific niches for scarce and notable plants.

ix. Toxic contamination

The Atlantic salt meadows and their associated communities feature is currently considered to have **moderate to high sensitivity** and **high exposure** and therefore **high vulnerability** to toxic contamination from both synthetic and non-synthetic compounds.

Atlantic salt meadows, cordgrass swards and *Salicornia* within the Estuary are considered to have a moderate sensitivity to toxic contamination by synthetic compounds (which includes domestic/industrial effluent, pesticides, anti-foulant paints and PCBs) and a high sensitivity to non-synthetic compounds

(which includes domestic/industrial effluent, heavy metals and hydrocarbons). Although saltmarsh plants may be reasonably tolerant of certain synthetic substances, they can bioaccumulate toxic compounds and act as sinks for them. This could have implications for wildfowl which feed on saltmarsh plants.

Saltmarsh communities are also highly sensitive to oil and oil products, even at relatively low levels. This is mainly by virtue of their ability to trap sediments. Acute events, such as oil spills, can be particularly damaging to saltmarsh plants. Dispersants used to treat oil spills can also have a toxic effect on saltmarsh plants, sometimes to a greater degree than the spilled oil itself. Saltmarshes have been reported to recover from chronic oil pollution, where denuded of vegetation, within ten years, although recovery depends largely on the degree to which oil is retained in the sediment and the clean up procedures used.

x. Changes in nutrient loading

The Atlantic salt meadows and their associated communities feature is currently considered to have **moderate sensitivity** and **high exposure** and therefore **high vulnerability** to changes in nutrient loading.

The Estuary's saltmarshes and associated communities are thought to be more susceptible to nutrient enrichment than was previously realised (Deegan, L. A. et al. 2007), so they have been assessed as being of high sensitivity to increases in nutrient loading and/or organic enrichment. However, increased growth of certain seaweed species may result from elevated levels of nitrates and phosphates and cause local smothering which is known to have a detrimental effect on glasswort (*Salicornia* spp.) in low marsh communities. In addition, the species composition of the plants on the saltmarsh may be altered by changes in nutrient loading leading to a change in the structure of the sward.

xi. Changes in salinity

The Atlantic salt meadows and their associated communities feature is currently considered to have **moderate sensitivity** and **high exposure** and therefore **high vulnerability** to changes in salinity.

Changes to the salinity of water flowing across the saltmarshes as a result of the tides are likely to occur following heavy rain events and associated land/waterfront run-off and riverine inputs. The vast floodplain and catchment area of the Severn Estuary results in annual extreme flooding events and prolonged periods of freshwater input to the intertidal areas so the exposure is considered to be high. The botanical composition of the saltmarshes reflects salinity. The saltmarshes, while capable of tolerating a wide range of salinities, are considered moderately sensitive to changes in salinity particularly prolonged periods of change which can cause shifts in composition and zonation.

xii. Changes in oxygenation

The Atlantic salt meadows and their associated communities feature is currently considered to have **low sensitivity** and **high exposure** and therefore **moderate vulnerability** to changes in oxygenation.

A cycle of changes in oxygenation occurs within the Severn as a result of both seasonal and tidal cycles and is linked to fluctuating sediment regimes. In addition occasional, intermittent oxygen sags occur in low salinity regions of the Severn and in some of the principal rivers feeding the Estuary.

xiii. Introduction of microbial pathogens

The Atlantic salt meadows and their associated communities feature is currently considered to have **low sensitivity** and **high exposure** and therefore **moderate vulnerability** to the introduction of microbial pathogens

For the majority of saltmarsh communities there is insufficient information available to be able to make an assessment of their sensitivity to microbial pathogens.

*Note, in relation to 'noise and visual disturbance', that while Atlantic salt meadows and their associated plant communities have **high exposure** to both noise and visual disturbance, these habitats are **not sensitive** to these factors but they do provide a vitally important role as supporting habitats for waterfowl that use these areas for roosting and feeding and these are considered **highly sensitive** to both noise and*

*visual disturbance – see sections 5.7.1 & 5.7.2). So while the habitats themselves have **low vulnerability** their dependant bird species have high vulnerability.*

5.6.5 Reefs feature

5.6.5.1 Sensitivity

The reefs and their associated biological communities are **moderately to highly sensitive** to:

- **physical loss**
- **physical damage**

These result from a range of activities. Note that there is currently insufficient scientific information to assess the degree of sensitivity of reefs to **toxic & non-toxic contamination** and also to **biological disturbance**. In these cases, the precautionary principle has been applied with a **moderate level of sensitivity** being assumed until proven otherwise. Further details are provided in points i) to vii) below, with details of the level of sensitivity set out in Table 22.

5.6.5.2 Exposure

The reefs and associated biological communities are **moderately to highly exposed** to:

- **changes in suspended sediment**
- **toxic contamination (introduction of synthetic & non synthetic compounds)**
- **changes in nutrient loading**
- **changes in turbidity**
- **changes in salinity**
- **changes in oxygenation**
- **introduction of microbial pathogens**

The reefs of the Severn Estuary are biogenic in origin, that is, they are built by a concretion-forming organism creating elevated structures. The organism in this case is the honeycomb worm *Sabellaria alveolata*. These reefs occur both in the intertidal (where one might expect to find them) and, most unusually, in the subtidal. Indeed, the Severn Estuary has the only extensive subtidal *Sabellaria alveolata* reef in Britain. There has been little research undertaken on these subtidal *Sabellaria alveolata* reefs, so the scientific information on their sensitivities is extremely limited. In the advice given here, much has been drawn on the information known about subtidal reefs of the closely related *Sabellaria spinulosa*.

5.6.5.3 Vulnerability

The reef communities are **moderately to highly vulnerable** to:

i. Changes in suspended sediment

The reefs feature is currently considered to have **moderate sensitivity** and **moderate exposure** and therefore **moderate vulnerability** to changes in suspended sediment

The reduced availability of sand, essential for *S. alveolata* tube building, may lead to the reduced development of *S. alveolata* reefs and the decline of colonies. Increase in suspended sediment is unlikely to cause problems unless it leads to smothering of the reef. Activities likely to result in changes in suspended sediment would include those which would affect sediment availability or the water flow rate (coastal defences, development, construction and dredging).

ii. Toxic contamination

The **sensitivity** of *Sabellaria alveolata* to toxic contaminants (domestic effluent, industrial effluent, heavy metals, hydrocarbons) entering the water is **not known**. The precautionary principle should therefore be applied.

The reefs are considered to have **high exposure** to both synthetic compounds and non-synthetic compounds (industrial effluents, heavy metals, hydrocarbons etc.),

The reefs are therefore **moderately vulnerable** to the introduction of synthetic compounds and non-synthetic compounds.

iii. Changes in nutrient loading

The reefs feature is currently considered to have **low sensitivity** and **high exposure** and therefore **moderate vulnerability** to changes in nutrients.

iv. Changes in salinity

The reefs feature is currently considered to have **low sensitivity** and **high exposure** and therefore **moderate vulnerability** to changes in salinity.

Decreases in salinity within the Estuary are likely to result from heavy rain events and associated land/waterfront run-off and riverine inputs. The vast floodplain and catchment area of the Severn Estuary results in annual extreme flooding events and prolonged periods of freshwater input the estuary so the exposure is considered to be high.

v. Changes in oxygenation

The reefs feature is currently considered to have **low sensitivity** and **high exposure** and therefore **moderate vulnerability** to changes in oxygenation.

A cycle of changes in oxygenation occurs within the Severn as a result of both seasonal and tidal cycles and is linked to fluctuating sediment regimes. In addition occasional, intermittent oxygen sags occur in low salinity regions of the Severn and in some of the principal rivers feeding the Estuary.

vi. Introduction of microbial pathogens

Microbial pathogens are most likely to enter the Severn's ecosystem by means of sewage discharges. There is considered to be **high exposure** to microbial pathogens due to the high number of sewage discharges within the estuary.

For the majority of biological communities there is insufficient information available to be able to make an assessment of their sensitivity to microbial pathogens and there is currently no information on the sensitivity of *Sabellaria* reefs to the introduction of microbial pathogens. The vulnerability of the *Sabellaria* reefs therefore remains unknown and the precautionary principle should be applied.

vii. Introduction of non-native species

There is insufficient information on the sensitivity of reefs to introduction of non native species therefore the vulnerability is unknown.

5.6.6 Shad and lamprey features

(Note : this advice is also relevant to the Ramsar Site as these features are also part of the “assemblage of migratory fish species” for which the Ramsar Site has been designated – refer also to section 5.8)

Note that in the explanatory text that follows, the term ‘shad and lamprey’ refer to three species of migratory fish: twaite shad *Alosa fallax*, river lamprey *Lampetra fluviatilis* and sea lamprey *Petromyzon marinus*.

As the populations of these migratory fish depend upon the freshwater habitats of the Rivers Usk, Wye and Severn as well as the estuarine habitats of the Severn Estuary during their lifetime, the advice presented here should be read in conjunction with the advice given for the River Usk SAC and the River Wye SAC (Management Plans and Conservation Objectives) available from CCW and Natural England on request.

5.6.6.1 Sensitivity

The **shad and lamprey** are considered **sensitive** to:

- **physical damage** of their supporting habitats
- **non-physical disturbance**
- **toxic contamination**
- **non-toxic contamination**
- **biological disturbance**

These result from a range of activities known to occur within the Estuary on which further details are provided in points i) to xi) below.

5.6.6.2 Exposure

The **shad and lamprey** and their supporting habitats (whilst within the Estuary) are **moderately to highly exposed** to:

- **noise** (part of ‘noise and visual presence’ but latter not applicable)
- **toxic contamination(introduction of synthetic & non synthetic compounds)**
- **changes in nutrient loading**
- **changes in thermal regime**
- **changes in turbidity**
- **changes in salinity**
- **changes in oxygenation**
- **introduction of microbial pathogens**

The Estuary provides an important migration route for these three rare species, to and from their spawning and nursery grounds. Shad and lamprey are known to be present in coastal and estuarine waters throughout the year, though there remains a lack of information on these migratory species during the time they actually spend in the Estuary. More information exists for the rivers where they migrate to spawn and for the subsequent development of juveniles. Little is known of their biology and distribution during the marine part of their life cycle.

In the assessments given below, it is assumed that these species would be capable of avoiding unsuitable areas, that is, given the size of the Estuary, localized activities are unlikely to adversely affect the population.

5.6.6.3 Vulnerability

Assessment of vulnerability of these features is particularly difficult given that there is little or no information to enable the level of sensitivity to be established. In line with the “precautionary principle” **where there is moderate to high exposure the feature is considered vulnerable.**

Therefore the **shad and lamprey** are considered **vulnerable** to:

i. Noise (part of ‘noise and visual presence’ but latter not applicable)

Research has shown that shad are sensitive to vibration which can arise from noisy activities. High frequency vibration (70 – 300Khtz) can be barrier to migration affecting movement both up and downstream and preventing fish reaching spawning areas. In some circumstances high frequency vibrations can be fatal. Vibration sources need to be assessed at the planning and consent stage and their potential impacts mitigated for, particularly during the key upstream migration phase.

ii. Toxic contamination

A decrease in water quality within the Estuary may impede the migration of these fish to their spawning grounds in the rivers. Poor water quality may also affect their supply of food. Shad require a good supply of small crustacean prey species, especially mysids and small fish (particularly clupeids). At sea, river lamprey feed on a variety of small fish such as clupeids, whilst sea lamprey feed on larger fish including salmon. Pollution tolerance levels of shad and lamprey are unknown, but EA water quality policy is that levels should comply with targets established under the EA Review of Consents and the Water Framework Directive.

iii. Changes in nutrient loading

It is possible that changes in nutrient levels may affect the food supply of the shad and lamprey. However, due to the natural high turbidity of the system and the volumes of water involved, it is thought that any effects would be minimal.

iv. Changes in thermal regime

Water temperature is believed to act as a trigger for the shad to migrate upstream to spawn in the rivers. There could be changes in water temperature in the vicinity of the power stations (eg Hinkley Point and Oldbury) and from other discharges

v. Changes in turbidity

It is not known whether the migratory fish are sensitive to changes in turbidity within the Estuary. Given the extremely high background levels of turbidity, it is unlikely that any changes in turbidity will have any significant impact on the shad and lamprey whilst in the estuarine waters.

vi. Changes in salinity

Decreases in salinity within the Estuary are likely to result from heavy rain events and associated land/waterfront run-off and riverine inputs. The vast floodplain and catchment area of the Severn Estuary results in annual extreme flooding events and prolonged periods of freshwater input the estuary so the exposure is considered to be high. Within the Estuary, juvenile twaite shad prey on mysids feeding at the salt wedge near the head of the tide. It must be assumed that any activities affecting the salinity regime of the estuary would in turn affect the distribution of these prey species, which may have consequences for the shad.

vii. Changes in oxygenation

A cycle of changes in oxygenation occurs within the Severn as a result of both seasonal and tidal cycles and is linked to fluctuating sediment regimes. In addition occasional, intermittent oxygen sags occur in low salinity regions of the Severn and in some of the principal rivers feeding the Estuary. Shad and lamprey may therefore be vulnerable to changes in oxygenation given the high exposure to changes resulting from operations within the Estuary.

viii. Introduction of microbial pathogens

There is insufficient information available to make any meaningful assessment on the introduction of microbial pathogens to these species of fish, but there is potential for high exposure.

Note regarding ‘changes in water flow rate’

It is thought unlikely that changes in water flow rate within the Estuary will affect these fish but they are likely to be affected (and therefore vulnerable) once in the rivers where water abstraction and freshwater flows may have more of a bearing.

Note regarding ‘selective extraction of species’

After hatching in the rivers, young shad gradually move downstream into the upper estuary where they feed and mature until the end of their second summer before moving into coastal waters. Young shad feed on estuarine invertebrates while adult shad feed on mysids and other fish (particularly other clupeids such as sprat and herring). Both river and sea lamprey spend several years of development in riverine mud and then, after a relatively rapid metamorphosis, migrate downstream to the estuary. River lamprey feed on a variety of estuarine fish, particularly herring, sprat and flounder. At sea, sea lamprey feed on larger fish including large salmon.

Extraction of target species - *it is reported that twaite shad are vulnerable to capture on cooling water intakes, particularly those associated with power stations, where the numbers killed can be considerable.*

Extraction on non target species - *the shad and lamprey may be vulnerable to the extraction of their prey species (levels unknown) affecting their feeding behavior and patterns and long-term survival.*

Table 22 Sensitivity, exposure and vulnerability of the Severn Estuary SAC to physical, chemical and biological pressures

Sensitivity		Exposure		Vulnerability	
High sensitivity	OOO O	High Exposure	x x x x	High vulnerability	⊗⊗⊗⊗ ⊗⊗⊗O ⊗⊗⊗x
Moderate sensitivity	OOO	Medium Exposure	x x x	Moderate vulnerability	⊗⊗OO ⊗⊗x x ⊗⊗⊗
Low sensitivity	OO	Low Exposure	x x	Low vulnerability	⊗⊗O ⊗xxx ⊗⊗x ⊗xx ⊗⊗ ⊗x
No detectable sensitivity	O	No exposure	x	No vulnerability	⊗O
?S = Insufficient information on sensitivity; ✓ = migratory fish considered to be sensitive, but insufficient information to assess level of sensitivity					Unknown vulnerability

Categories of operations which may cause deterioration or disturbance ²⁵	Annex I features						Annex II species
	Estuaries	Subtidal Sandbanks	Mudflats & sandflats	Atlantic saltmeadow	Reefs	Fish ²⁶	
Physical loss							
Removal / substratum loss	⊗⊗⊗⊗	⊗⊗⊗	⊗⊗⊗⊗	⊗⊗⊗⊗	⊗⊗O	⊗x	
Smothering	⊗⊗⊗O	⊗⊗x	⊗⊗⊗	⊗⊗⊗O	⊗⊗	⊗x	
Physical damage							
Changes in suspended sediment	⊗⊗⊗	⊗⊗⊗	⊗⊗⊗	⊗⊗⊗	⊗⊗⊗	⊗x	
Desiccation & changes in emergence regime	⊗⊗O	⊗O	⊗⊗O	⊗⊗OO	⊗O	✓xx	
Changes in water flow rate	⊗⊗⊗x	⊗⊗O	⊗⊗⊗x	⊗⊗⊗x	⊗⊗O	✓xx	
Changes in wave exposure	⊗⊗⊗⊗	⊗⊗O	⊗⊗⊗⊗	⊗⊗⊗⊗	⊗⊗O	⊗x	
Abrasion / physical disturbance (of habitats)	⊗⊗⊗x	⊗⊗x	⊗⊗⊗x	⊗⊗⊗x	⊗⊗O	✓xx	
Changes in grazing management	⊗⊗	Not relevant	Not relevant	⊗⊗⊗⊗	Not relevant	Not relevant	
Non-physical disturbance							
Noise & visual presence	⊗xx	⊗xx	⊗⊗x	⊗xxx	⊗x	✓xxx	
Toxic contamination							
Introduction of synthetic compounds	⊗⊗⊗x	⊗⊗⊗x	⊗⊗⊗⊗	⊗⊗⊗x	⊗⊗xx	✓xxxx	
Introduction of non-synthetic compounds	⊗⊗⊗x	⊗⊗⊗x	⊗⊗⊗⊗	⊗⊗⊗⊗	?Sxxxx	✓xxxx	
Introduction of radionuclides	?Sxx	?Sxx	?Sxx	?Sxx	?Sxx	✓xx	
Non-toxic contamination²⁷							
Changes in nutrient loading	⊗⊗⊗⊗ ²⁸	⊗⊗xx	⊗⊗⊗x	⊗⊗⊗x	⊗⊗xx	✓xxxx	
Changes in thermal regime	⊗⊗⊗	⊗⊗	⊗⊗⊗	⊗⊗	⊗⊗	✓xxxx	
Changes in turbidity ²⁹ (light penetration)	⊗⊗x	⊗⊗x	⊗⊗x	⊗x	⊗xx	✓xxx	
Changes in salinity	⊗⊗⊗x	⊗⊗⊗x	⊗⊗xx	⊗⊗⊗x	⊗⊗xx	✓xxxx	
Changes in oxygenation	⊗⊗⊗x	⊗⊗xx	⊗⊗xx	⊗⊗xx	⊗⊗xx	✓xxxx	
Biological disturbance							
Introduction of microbial pathogens	⊗⊗⊗⊗	⊗⊗⊗⊗	⊗⊗⊗⊗	⊗⊗xx	?Sxxxx	✓xxxx	
Introduction of non-native species	⊗⊗⊗O	⊗⊗O	⊗⊗OO	⊗⊗	?Sxx	✓xx	
Selective extraction of species	⊗⊗⊗x	⊗⊗	⊗⊗	⊗⊗	⊗⊗	✓xx	

²⁵ For a further explanation of each category see <http://www.marlin.ac.uk/sah/baskitemplate.php?benchmarks>

²⁶ River lamprey, sea lamprey & twaite shad

²⁷ All elements of non toxic contamination are interrelated and also link closely with changes in suspended sediment (physical damage)

²⁸ The high natural turbidity of the estuary negates these high levels with algal productivity being generally low – the estuary feature is therefore not considered vulnerable – see section 5.6.1.3.(viii)

²⁹ Turbidity here incorporates light penetration; suspended sediment under ‘changes in suspended sediment’ and its deposition under ‘smothering’

5.7 Specific Advice on Operations for the Severn Estuary SPA

This section provides information to help relate general advice to each of the specific interest features of the Severn Estuary SPA. Where specific examples are given they are provided to aid understanding of possible impacts and are not intended to be a comprehensive list of all relevant operations.

This advice relates to the vulnerability of the interest features and supporting habitats of the Severn Estuary SPA as set out in Table 23. An explanation of the sensitivity of the interest features or supporting habitats follows with an explanation of their exposure and therefore their vulnerability to damage or disturbance from the listed categories of operations. This enables links between the categories of operation and the ecological requirements of the SPA's interest features (as set out in Section 2.2) to be made. It should be noted that sensitivity scorings are a combination of whether the habitat itself is likely to be affected by a particular operation (which is drawn from the SAC scores in Table 22), in combination with an assessment as to whether the outcome is likely to affect the bird's use of that habitat.

Note that this advice for the SPA supercedes that issued to ASERA in February 2005 following reassessment of exposure, sensitivity and vulnerability to take account of availability of new information in the Severn Estuary CHaMP and MarLIN sensitivities and following the more detailed analysis of impacts on the SAC estuarine habitats that are supporting habitats for the birds of the SPA.

5.7.1 Internationally important populations of regularly occurring Annex 1 species (Bewick's swan)

(Note : this advice is also relevant to the Ramsar Site's internationally important population of waterfowl "Bewick's swan" feature and as part of the "internationally important assemblage of waterfowl" feature for which the Ramsar Site has been designated – refer also to section 5.8)

5.7.1.1 Sensitivity

The Annex 1 species is **moderately to highly sensitive** to :

- **Physical loss**
- **Physical damage**
- **Non-physical disturbance**
- **Toxic contamination**
- **Non- toxic contamination**
- **Biological disturbance**

These result from a range of activities known to occur within the Estuary. Further details are provided in points i) to xii) below, with details of the level of sensitivity set out in Table 23.

5.7.1.2 Exposure

The Annex 1 species is **moderately to highly exposed** to:

- **Substratum loss and smothering**
- **Changes in suspended sediment**
- **Desiccation and changes in emergence regime**
- **Changes in water flow**
- **Changes in wave exposure**
- **Changes in grazing regime**
- **Noise and visual disturbance**
- **Toxic contamination**
- **Changes in nutrient loading**
- **Changes in salinity**
- **Changes in oxygenation**
- **Introduction of microbial pathogens**

5.7.1.3 Vulnerability

The Annex 1 species is **moderately to highly vulnerable** to:

i. Substratum loss and smothering

The intertidal habitats and therefore the Bewick's Swan feature which these habitats support are considered to have **moderate to high sensitivity** and **moderate to high exposure** and therefore **moderate to high vulnerability** to physical loss (removal and smothering).

The physical loss of areas of intertidal habitats may be caused directly through change of land use or indirectly as a consequence of changes to sedimentation processes (e.g. coastal defences) as well as via the effects of smothering by artificial structures (e.g. jetties) or the disposal of spoils. Activities or developments resulting in physical loss of the intertidal supporting habitats are likely to reduce the availability of food and roosting habitat and thus be detrimental to the favourable condition of the SPA interest features including the Annex 1 species, Bewick's swan. The intertidal mudflats and sandflats and the saltmarsh are highly sensitive to removal by land reclamation and major construction activities.

ii. Changes in suspended sediment

It is thought unlikely that changes in the suspended sediment within the Estuary will affect the Bewick's Swan directly but such changes may have marked effects on the supporting habitats on which they are dependant for roosting and feeding. The saltmarshes and intertidal mudflats and sandflats are currently considered to have **moderate sensitivity** and **moderate exposure** and therefore **moderate vulnerability** to changes in suspended sediments. (Refer also to sections 5.6.3 and 5.6.4). Impacts on the suitability of these habitats may affect the long term survival of individuals (in terms of energy and competition) or alter behavior and patterns of use or distribution.

iii. Desiccation and changes in emergence regime

It is thought unlikely that changes in the emergence regime within the Estuary will affect the Bewick's Swan directly but such changes may have marked effects on the supporting habitats on which they are dependant for roosting and feeding. The saltmarshes are currently considered to have **high sensitivity** and **low exposure** and therefore **moderate vulnerability** to desiccation and changes in emergence regime. (Refer also to section 5.6.4.) Impacts on the suitability of these habitats may affect the long term survival of individuals (in terms of energy and competition) or alter behavior and patterns of use or distribution.

iv. Changes in water flow rate

It is thought unlikely that changes in water flow rate within the Estuary will affect the Bewick's Swan directly but such changes may have marked effects on the supporting habitats on which they are dependant for roosting and feeding. The saltmarshes and intertidal mudflats and sandflats of the estuary are considered to have **moderate sensitivity** and **high exposure** and therefore **high vulnerability** to changes in water flow rate. (Refer also to sections 5.6.3 and 5.6.4). Impacts on the suitability of these habitats may affect the long term survival of individuals (in terms of energy and competition) or alter behavior and patterns of use or distribution.

v. Changes in wave exposure

It is thought unlikely that changes in wave exposure within the Estuary will affect the Bewick's Swan directly but such changes may have marked effects on the supporting habitats on which they are dependant for roosting and feeding. The saltmarshes and intertidal mudflats and sandflats of the estuary are considered to have **high sensitivity** and **high exposure** and therefore **high vulnerability** to changes in water flow rate. (Refer also to sections 5.6.3 and 5.6.4). Impacts on the extent and suitability of these habitats may affect the long term survival of individuals (in terms of energy and competition) or alter behavior and patterns of use or distribution.

vi. Changes in grazing management

The Bewicks Swan feature, which is dependent on the saltmarsh habitats, is considered to have **high sensitivity** and **high exposure** and therefore **high vulnerability** to changes in grazing management.

The vegetation composition of saltmarsh habitats can be altered by changes in grazing management. This can affect the palatability of the sward for grazing Bewick's swans and therefore affect the availability of adequate preferred feeding areas within the SPA. There are critical areas for this species located at the Dumbles in the uppermost part of the estuary all of which are grazed.

vii. Noise and visual presence

Overwintering birds are disturbed by sudden movements and sudden noises. This can displace the birds from their feeding grounds. Disturbance can prevent the birds from feeding and in response they either a) decrease their energy intake at their present (disturbed) feeding site through displacement activity, or b) move to an alternative less favoured feeding site. Such a response affects energy budgets and thus survival. There is intermittent disturbance from both the landward and seaward side of the site. Bewick's swans are mainly affected by disturbance from the landward side and any increase in disturbance should be avoided. At present the Annex 1 species are **moderately vulnerable** to noise and visual disturbance on the intertidal mudflats and sandflats and have a **high vulnerability** to this category of operation on the saltmarsh.

viii. Toxic contamination through the introduction of synthetic and/or non-synthetic compounds

Waterfowl are subject to the accumulation of toxins through the food chain or through direct contact with toxic substances when roosting or feeding. Their ability to feed can also be affected by the abundance or change in palatability of their prey caused by toxic contamination. At the moment there is no evidence to show that this is the case, but the estuary is vulnerable to oil spills and there is a continuous discharge of toxins into the estuary,

some of which bind to the sediments. This is an area which requires further assessment and is likely to be addressed by work arising from both the Water Framework Directive and ongoing Review of Consents by the Environment Agency. The Bewick's swans has a **moderate vulnerability** to toxic contamination.

ix. **Changes in nutrient loading**

Changes in organic or nutrient loading can change the species composition of the plants on the saltmarsh and thus the structure of the sward. This could affect the palatability of the sward for grazing Bewick's swans and therefore affect the availability of adequate preferred feeding areas within the SPA. There are critical areas for this species located at the Dumbles in the uppermost part of the estuary all of which are grazed.

x. **Changes in salinity**

It is thought unlikely that changes in salinity within the Estuary will affect the Bewicks Swan feature directly but such changes may have marked effects on the supporting saltmarsh habitats on which this species are dependant for feeding. The saltmarshes of the estuary are considered to have **moderate sensitivity** and **high exposure** and therefore **high vulnerability** to changes in salinity. Impacts on these habitats may affect the long term survival of individuals (in terms of energy and competition) or alter behavior and patterns of use or distribution.

xi. **Changes in oxygenation**

It is thought unlikely that changes in oxygenation within the Estuary will affect the Bewicks Swan feature directly but such changes may have an effect on the community composition of supporting saltmarsh habitats on which this species are dependant for feeding. The saltmarshes of the estuary are considered to have **low sensitivity** and **high exposure** and therefore **moderate vulnerability** to changes in oxygenation. Impacts on these habitats may affect the long term survival of individuals (in terms of energy and competition) or alter behavior and patterns of use or distribution.

xii. **Introduction of microbial pathogens**

Bewicks swan is considered to have **low sensitivity** and **high exposure** (due to the high number of sewage discharges) and therefore **moderate vulnerability** to the introduction of microbial pathogens.

Microbial pathogens are most likely to enter the Severn's ecosystem by means of sewage discharges. Bewicks swans on their feeding or roosting grounds may be affected by direct infection by pathogens (bacteria or viruses) present in the water or river sediments and through the release of endo or exotoxins bacterial toxins. Infection may cause mortality, loss of condition and behavioural changes in individuals and within the population using the site through onward contamination.

5.7.2 Internationally important waterfowl assemblage including populations of regularly occurring migratory species

(Note : this advice is also relevant to the Ramsar Site's "internationally important populations of waterfowl" features and the "internationally important assemblage of waterfowl" feature for which the Ramsar Site has been designated – refer also to section 5.8)

5.7.2.1 Sensitivity

The Internationally important waterfowl assemblage including populations of regularly occurring migratory species is **moderately to highly sensitive** to:

- Physical loss
- Physical damage
- Non-physical disturbance
- Toxic contamination
- Non-Toxic contamination
- Biological disturbance

These result from a range of activities known to occur within the Estuary. Further details are provided in points i) to xvi) below, with details of the level of sensitivity set out in Table 23.

5.7.2.2 Exposure

The Internationally important waterfowl assemblage including populations of regularly occurring migratory species is **moderately to highly exposed** to:

- Substratum loss and smothering
- Changes in suspended sediment
- Desiccation and changes in emergence regime
- Changes in water flow
- Changes in wave exposure
- Abrasion and physical disturbance
- Grazing management
- Noise and visual disturbance
- Toxic contamination
- Changes in nutrient loading
- Changes in thermal regime
- Changes in salinity
- Changes in oxygenation
- Introduction of microbial pathogens
- Introduction of non-native species
- Selective extraction of species

5.7.2.3 Vulnerability

The Internationally important waterfowl assemblage including populations of regularly occurring migratory species has **moderate to high vulnerability** to:

i. Substratum loss and smothering

The intertidal habitats and therefore the waterfowl assemblage feature which these habitats support are considered to have **moderate to high sensitivity** and **moderate to high exposure** and therefore **moderate to high vulnerability** to physical loss (substratum loss and smothering).

The physical loss of areas of intertidal habitats may be caused directly through change of land use or indirectly as a consequence of changes to sedimentation processes (e.g. coastal defences) as well as via the effects of smothering by artificial structures (e.g. jetties) or the disposal of spoils. Activities or developments resulting in

physical loss of the intertidal supporting habitats are likely to reduce the availability of food and roosting habitat and thus be detrimental to the favourable condition of the SPA interest features including all the migratory species and waterfowl assemblage. The intertidal mudflats and sandflats and the saltmarsh are highly sensitive to removal by land reclamation and major construction activities.

Eelgrass beds (which are a food source for some species of the assemblage) are being affected by siltation due to changes in sediment movement after construction of the Second Severn Crossing which has resulted in smothering.

ii. Changes in suspended sediment

It is thought unlikely that changes in the suspended sediment within the Estuary will affect the waterfowl assemblage directly but such changes may have marked effects on the supporting habitats on which they are dependant for roosting and feeding.. (Refer also to sections 5.6.1, 5.6.3 and 5.6.4). The supporting habitats are all are currently considered to have **moderate sensitivity** and **moderate exposure** and therefore **moderate vulnerability** to desiccation and changes in emergence regime. Impacts on the suitability of these habitats may affect the long term survival of individuals (in terms of energy and competition) or alter behavior and patterns of use or distribution.

iii. Desiccation and changes in emergence regime

It is thought unlikely that changes in the emergence regime within the Estuary will affect the waterfowl assemblage directly but such changes may have marked effects on the supporting habitats on which they are dependant for roosting and feeding.. (Refer also to sections 5.6.1, 5.6.3 and 5.6.4). The saltmarshes are currently considered to have **high sensitivity** and **low exposure** and therefore **moderate vulnerability** to desiccation and changes in emergence regime. Impacts on the suitability of these habitats may affect the long term survival of individuals (in terms of energy and competition) or alter behavior and patterns of use or distribution.

iv. Changes in water flow rate

It is thought unlikely that changes in water flow rate within the Estuary will affect the designated bird species of the assemblage directly but such changes may have marked effects on the supporting habitats on which these species are dependant for roosting and feeding. All the supporting habitats are considered to have **moderate sensitivity** and **high exposure** and therefore **high vulnerability** to changes in water flow rate . (Refer also to sections 5.6.1, 5.6.3 and 5.6.4). Impacts on the suitability of these habitats may affect the long term survival of individuals (in terms of energy and competition) or alter behavior and patterns of use or distribution.

v. Changes in wave exposure

It is thought unlikely that changes in wave exposure within the Estuary will affect the designated bird species of the assemblage directly but such changes may have marked effects on the supporting habitats on which these species are dependant for roosting and feeding. All the supporting habitats are considered to have **high sensitivity** and **high exposure** and therefore **high vulnerability** to changes in water flow rate . (Refer also to sections 5.6.1, 5.6.3 and 5.6.4). Impacts on the extent and suitability of these habitats may affect the long term survival of individuals (in terms of energy and competition) or alter behavior and patterns of use or distribution.

vi. Abrasion and physical disturbance

Saltmarsh may be physically damaged from overgrazing or eroded when boats are moored on it and when paths are worn through it to reach moored boats on foot or via vehicles. Currently all supporting habitats are considered to be moderately vulnerable to abrasion. Intertidal habitats are **highly sensitive** to damage by direct and indirect effects of aggregate dredging. The intertidal mudflats and sandflats and the shingle and rocky shore are therefore considered **highly vulnerable** to selective extraction.

vii. Changes in grazing management

The waterfowl assemblage which is in part dependant on the saltmarsh habitats is considered to have **high sensitivity** and **high exposure** and therefore **high vulnerability** to changes in grazing management.

The vegetation composition of saltmarsh habitats can be altered by changes in grazing management. This can affect the palatability of the sward for grazing wildfowl and availability of invertebrate food sources and therefore affect the availability of adequate preferred feeding areas within the SPA. Grazing changes may also

affect the suitability saltmarsh areas as resting and roosting sites for birds where open terrain with low vegetation is an important factor.

viii. Noise or visual disturbance

Overwintering birds are disturbed by sudden movements and sudden noises. This can have the effect of displacing the birds from their feeding grounds. Disturbance can prevent the birds from feeding and in response they either a) decrease their energy intake at their present (disturbed) feeding site through displacement activity, or b) move to an alternative less favoured feeding site. Such a response affects energy budgets and thus survival. There is intermittent disturbance to the internationally important migratory species and the waterfowl assemblage from both the landward and seaward side of the site which has increased in recent years, due to the estuary becoming more populated and the development of all weather recreational pursuits. All supporting habitats are currently **highly vulnerable** to noise and visual disturbance.

ix. Toxic contamination through the introduction of synthetic and/or non-synthetic compounds

Waterfowl are subject to the accumulation of toxins through the food chain or through direct contact with toxic substances when roosting or feeding. Their ability to feed can also be affected by the abundance or change in palatability of their prey caused by toxic contamination. At the moment there is no evidence to show that this is the case on the Severn Estuary, but the estuary is vulnerable to oil spills and there is a continuous discharge of toxins into the estuary, some of which bind to the sediments. This is an area that requires further assessment. The intertidal mudflats and sandflats and the saltmarsh are currently **highly vulnerable** to the introduction of synthetic and non-synthetic compounds.

x. Changes in nutrient loading

Changes in organic or nutrient loading can change the species composition of the plants on the saltmarsh and thus the structure of the sward. Increases in nutrients can cause excessive algal growth on the mudflats, denying the birds access to their invertebrate prey and changing the invertebrate species composition in the sediment. However, high nutrient loads can also be beneficial to some species of birds by increasing the density and size of prey items. Though the water quality has been improved in recent years there are still local areas of concern. On balance, any increase in nutrient loading should be avoided. At present the intertidal mudflats and sandflats are **moderately vulnerable** to this category of operation.

xi. Changes in thermal regime

It is thought unlikely that changes in the thermal regime within the Estuary will affect the designated bird species of the assemblage directly but such changes may have marked effects on the community composition of supporting habitats on which these species are dependant for feeding. The intertidal mudflats and sandflats of the estuary are considered to have **moderate sensitivity** and **moderate exposure** and therefore **moderate vulnerability** to changes in thermal regime. Impacts on these habitats may affect the long term survival of individuals (in terms of energy and competition) or alter behavior and patterns of use or distribution.

xii. Changes in salinity

It is thought unlikely that changes in salinity within the Estuary will affect the waterfowl assemblage feature directly but such changes may have marked effects on the supporting habitats on which these species are dependant for feeding. The saltmarshes, intertidal mudflats and sand flats and hard substrate habitats (rocky shores) of the estuary are considered to have **low to moderate sensitivity** and **high exposure** and therefore **moderate to high vulnerability** to changes in salinity. Impacts on these habitats may affect the long term survival of individuals (in terms of energy and competition) or alter behavior and patterns of use or distribution.

xiii. Changes in oxygenation

It is thought unlikely that changes in oxygenation within the Estuary will affect the waterfowl assemblage feature directly but such changes may have marked effects on the community composition of supporting habitats on which these species are dependant for feeding. The saltmarshes, intertidal mudflats and sand flats and hard substrate habitats (rocky shores) of the estuary are considered to have **low sensitivity** and **high exposure** and therefore **moderate vulnerability** to changes in oxygenation. Impacts on these habitats may affect the long term survival of individuals (in terms of energy and competition) or alter behavior and patterns of use or distribution.

xiv. Introduction of microbial pathogens

The bird assemblage is considered to have **low to high sensitivity** and **high exposure** (due to the high number of sewage discharges) and therefore **moderate vulnerability** to the introduction of microbial pathogens.

Microbial pathogens are most likely to enter the Severn's ecosystem by means of sewage discharges. Waterfowl may be affected by microbial pathogens (bacteria or viruses) on their feeding or roosting grounds and are considered to be particularly highly exposed when feeding and roosting on the intertidal mudflats and sandflats and hard substrate habitats where there may be bioaccumulation of pathogens within food sources (filter feeding organisms). Birds may also be affected by direct infection by pathogens present in the water or river sediments and through the release of endo or exotoxins bacterial toxins. Infection may cause mortality, loss of condition and behavioural changes in individuals and within the population using the site through onward contamination.

xv. Introduction of non-native species

The birds assemblage is considered to have **high sensitivity** and **low exposure** and therefore **moderate vulnerability** to the introduction of non native species.

The saltmarsh cordgrass *Spartina anglica* is an invasive pioneer species whose rapid growth consolidates sediment, raises mudflats and reduces sediment availability elsewhere. This expansion can affect areas of intertidal habitats (mud and sandflats and hard substrate habitats) which are key habitats for roosting and feeding birds. Such expansion is regarded as being a potential threat to intertidal beds of eelgrass *Zostera noltei* in particular which are a food source for some species within the assemblage (Wigeon and European white-fronted goose). However, whilst recognising *S. anglica* as an invasive species, it also has a role in saltmarsh formation and the community SM6 in which it features should be allowed to develop into other Atlantic Salt Meadow or transitional communities which are also of value as feeding and roosting habitats for birds within the assemblage.

The presence of another non-native, the slipper limpet *Crepidula fornicata*, in large numbers may alter the species composition within certain soft mud habitats leading to a decline in overall species richness and consequent implications on food availability for feeding birds. However, *C. fornicata* has yet to penetrate the Estuary, possibly due to the strong water flows.

xvi. Selective extraction of species

The birds assemblage is considered to have **moderate sensitivity** and **moderate exposure** and therefore **moderate vulnerability** to the selective extraction of species.

Wildfowling is carried out all around the estuary. It is believed that there is currently no direct detrimental effect on the overall bird populations but wildfowling is one of many activities that may be contributing (through disturbance) to the decline in some species on the Severn. Continuing monitoring and regulation of wildfowling is achieved by the countryside agencies and through the management of wildfowling by a British Association of Shooting and Conservation (BASC) affiliated associations, applying the BASC wildfowlers code of conduct.

Bait digging is also carried out in localised areas of the mid and outer estuary. Extensive areas of digging can change the availability of prey in the sediment as the area needs a period of recovery and recolonisation. There is currently no evidence that existing levels of activity is detrimental to the birds on the European Marine Site.

The removal of strandline vegetation by beach cleaning removes an important habitat for invertebrates, as well as many of the invertebrates themselves, reducing the quantity and variety of prey available to the birds. Much of the saltmarsh is managed by grazing and changes in management can alter the availability of prey and suitability of roosting sites.

Table 23 Sensitivity, exposure and vulnerability of the Severn Estuary SPA to physical, chemical and biological pressures (See note in section 5.7 on changes to this table since version issued in 1995.)

Sensitivity		Exposure		Vulnerability	
High sensitivity	OOOO	High Exposure	× × × ×	High vulnerability	⊗⊗⊗⊗ ⊗⊗⊗O ⊗⊗⊗×
Moderate sensitivity	OOO	Medium Exposure	× × ×	Moderate vulnerability	⊗⊗OO ⊗⊗× × ⊗⊗⊗
Low sensitivity	OO	Low Exposure	× ×	Low vulnerability	⊗⊗O ⊗××× ⊗⊗× ⊗×× ⊗⊗ ⊗×
No detectable sensitivity	O	No exposure	×	No vulnerability	⊗O
?S =Insufficient information on sensitivity				Unknown vulnerability	

Categories of operations which may cause deterioration or disturbance	Internationally important populations of regularly occurring Annex 1 species		Internationally important migratory species and waterfowl assemblage		
	Intertidal mudflats and sandflats	Saltmarsh	Intertidal mudflats and sandflats	Saltmarsh	Hard substrates
Physical Loss					
Removal/substratum loss	⊗⊗⊗⊗	⊗⊗⊗⊗	⊗⊗⊗⊗	⊗⊗⊗⊗	⊗⊗⊗⊗
Smothering	⊗⊗⊗	⊗⊗⊗	⊗⊗⊗	⊗⊗⊗	⊗⊗⊗
Physical Damage					
Changes in suspended sediment	⊗⊗⊗	⊗⊗⊗	⊗⊗⊗	⊗⊗⊗	⊗⊗⊗
Desiccation and changes in emergence regime	⊗⊗O	⊗⊗OO	⊗⊗O	⊗⊗OO	⊗⊗O
Changes in water flow	⊗⊗⊗×	⊗⊗⊗×	⊗⊗⊗×	⊗⊗⊗×	⊗⊗⊗×
Changes in wave exposure	⊗⊗⊗⊗	⊗⊗⊗⊗	⊗⊗⊗⊗	⊗⊗⊗⊗	⊗⊗⊗⊗
Abrasion / physical disturbance (of habitats)	⊗⊗	⊗⊗O	⊗⊗⊗⊗	⊗⊗⊗×	⊗⊗⊗×
Grazing management	Not relevant	⊗⊗⊗⊗	Not relevant	⊗⊗⊗⊗	Not relevant
Non-physical disturbance					
Noise & visual presence	⊗⊗OO	⊗⊗⊗O	⊗⊗⊗O	⊗⊗⊗⊗	⊗⊗⊗O
Toxic contamination					
Introduction of synthetic compounds	⊗⊗⊗	⊗⊗⊗	⊗⊗⊗⊗	⊗⊗⊗×	⊗⊗⊗×
Introduction of non-synthetic compounds	⊗⊗⊗	⊗⊗⊗	⊗⊗⊗⊗	⊗⊗⊗⊗	⊗⊗⊗×
Introduction of radionuclides	?Sxx	?Sxx	?Sxx	?Sxx	?Sxx
Non-toxic contamination					
Changes in nutrient loading	⊗×××	⊗⊗⊗×	⊗⊗⊗×	⊗⊗⊗×	⊗⊗××
Changes in thermal regime	⊗×	⊗⊗	⊗⊗⊗	⊗⊗	⊗⊗
Changes in turbidity (light penetration)	⊗××	⊗×	⊗⊗×	⊗×	⊗⊗×
Changes in salinity	⊗×××	⊗⊗⊗×	⊗⊗××	⊗⊗⊗×	⊗⊗××
Changes in oxygenation	⊗×××	⊗⊗××	⊗⊗××	⊗⊗××	⊗⊗××
Biological disturbance					
Introduction of microbial pathogens	⊗⊗××	⊗⊗××	⊗⊗⊗⊗	⊗⊗××	⊗⊗⊗⊗
Introduction of non-native species	⊗×	⊗⊗	⊗⊗OO	⊗⊗	⊗⊗OO
Selective extraction of species	⊗⊗O	⊗⊗O	⊗⊗⊗	⊗⊗⊗	⊗××

5.8 Specific Advice on Operations for the Severn Estuary Ramsar Site

Separate advice for the Ramsar Site features has not been produced here as it repeats the advice given in the previous sections (5.6 and 5.7) for the SAC and SPA respectively due to the overlapping nature of the Ramsar features. The following table therefore cross references the features of these designations and provides a direct reference to the section where advice relevant to the Ramsar features can be found.

Table 24 Cross reference table relating features of the Ramsar Site to the advice on operations for the SAC and SPA

Ramsar interest features	Relevant SAC and SPA features and supporting habitats	Reference section for advice on operations relevant to the Ramsar features
<i>Ramsar Interest feature 1 : Estuaries</i>	SAC: Annex I habitats Estuaries Intertidal mudflats and sandflats Atlantic Salt Meadows	Section 5.6.1 & Table 22 Section 5.6.3 & Table 22 Section 5.6.4 & Table 22
<i>Ramsar Interest feature 2 : Migratory fish assemblage</i>	SAC : Annex II species River lamprey <i>Lampetra fluviatilis</i> ; Sea lamprey <i>Petromyzon marinus</i> ; Twaite shad <i>Alosa fallax</i>	Section 5.6.6 & Table 22 Section 5.6.6 & Table 22 Section 5.6.6 & Table 22
Internationally important populations of waterfowl <i>Ramsar Interest feature 3: Bewick's swan</i> <i>Ramsar Interest feature 4: European white-fronted goose</i> <i>Ramsar Interest feature 5: Dunlin</i> <i>Ramsar Interest feature 6: Redshank</i> <i>Ramsar Interest feature 7: Shelduck</i> <i>Ramsar Interest feature 8: Gadwall</i>	SPA : Internationally important populations of regularly occurring Annex 1 species (Bewick's swan) SPA: Internationally important populations of regularly occurring migratory species (same species as column to left) Supporting habitats Intertidal mudflats and sandflats Saltmarsh Hard substrates .	Section 5.7.1 & Table 23 Section 5.7.2 & Table 23 Section 5.6.3 & Table 22 Section 5.6.4 & Table 22
<i>Ramsar Interest feature 9</i> Internationally important assemblage of waterfowl	SPA: Internationally important assemblage of waterfowl Supporting habitats Intertidal mudflats and sandflats Saltmarsh Hard substrates	Section 5.7.2 & Table 23 Section 5.6.3 & Table 22 Section 5.6.4 & Table 22

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7. Glossary

Advisory Group	The body of the representatives from local interests, user groups and conservation groups, formed to advise the management group
Annex 1 Bird species	The species listed in Annex 1 of the Birds Directive are the subject of special conservation measures concerning their habitat. These measures ensure the survival and reproduction of the birds in their area of distribution. Species listed on Annex 1 are in danger of extinction, rare or vulnerable
Annex I habitat type(s)	A natural habitat(s) listed in Annex I of the Habitats Directive for which Special Areas of Conservation can be selected.
Annex II species	A species listed in Annex II of the Habitats Directive for which Special Areas of Conservation can be selected.
Annex V	The listing, in the Habitats Directive, of the animal and plant species whose taking in the wild and exploitation may be subject to management measures.
Assemblage	A collection of plants and/or animals characteristically associated with a particular environment.
Attribute	Characteristic of an interest feature or supporting habitat which provides an indication of the condition of the feature or supporting habitat to which it applies.
BASC	British Association of Shooting and Conservation
Benthos	Those organisms attached to, or living on, in or near, the seabed, including that part which is exposed by tides.
Birds Directive	The abbreviated term of <i>Council Directive 79/409/EEC of 1979 on the conservation of wild birds</i> .
Biodiversity	The total variety of life on earth. This includes diversity within species, between species and ecosystems.
Biotope	The physical habitat with its biological community; a term which refers to the combination of physical environment and its distinctive assemblage of conspicuous species.
BTO	British Trust for Ornithology
CCW	Countryside Council for Wales
Characteristic	Special to, or especially abundant in, a particular situation or biotope. Characteristic species should be immediately conspicuous and easily identified.
Community	A group or organisms occurring in a particular environment, presumably interacting with each other and with the environment, and identifiable by means of ecological survey from other groups.
Competent authority	Any Minister, government department, public or statutory undertaker, public body or person holding a public office that exercises legislative powers.
Conservation objective	A statement of the nature conservation aspirations for a site, expressed in terms of the favourable condition that we wish to see the species and/or habitats for which the site has been selected to attain. Conservation objectives for European Marine Sites relate to the aims of the Habitats Directive.
DEFRA	Department for Environment, Food and Rural Affairs
DETR	Department of the Environment, Transport and the Regions
Epifauna	Benthic animals living on the seabed.
EN	English Nature (now incorporated into Natural England).
Eulittoral	The main part of the intertidal zone characterised by limpets, barnacles, mussels, fucoid algae and with red algae often abundant on the lower part.

European Marine Site	A European site which consists of, or in so far as it consists of, areas covered intermittently or continuously by seawater.
European Site	A classified SPA, designated SAC, site of Community importance (a site selected as a candidate SAC, adopted by the European Commission but not yet designated), a candidate SAC (in England only) or a site hosting a priority species in respect of which Article 5 of the Habitats directive applies.
Favourable condition	The condition represented by the achievement of the conservation objectives, in other words the desired condition for a designated habitat or a species on an individual site.
Favourable conservation status (FCS)	A range of conditions for a natural habitat or species at which the sum of the influences acting upon that habitat or species are not adversely affecting its distribution, abundance, structure or function throughout the EC in the long term. The condition in which the habitat or species is capable of sustaining itself on a long-term basis.
Habitat	The place in which a plant or animal lives.
Habitats Directive	The abbreviated term of <i>Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora</i> . It is the aim of this Directive to promote the conservation of certain habitats and species within the European Union.
Habs Regs	The Conservation (Natural Habitats &c.) Regulations 1994.
HAT	Highest Astronomical Tide.
Infauna	Benthic animals which live within the sediment.
Infralittoral	The subtidal zone in which upward facing rocks are dominated by erect algae, typically kelps.
Interest feature	A natural or semi-natural feature for which a European site has been selected. This includes any Habitats Directive Annex I habitat, or any Annex II species and any population of a bird species for which an SPA has been designated under the Birds Directive.
JNCC	Joint Nature Conservation Committee.
Maintain	The action required for an interest feature when it is considered to be in favourable condition.
Management group	The body of relevant authorities formed to manage the European Marine Site.
Management scheme	The framework established by the relevant authorities at a European Marine Site under which their functions are exercised to secure, in relation to that site, compliance with the requirements of the Habitats Directive.
MNR	Marine Nature Reserve.
Nationally scarce/rare Natura 2000	For marine purposes, these are regarded as species of limited national occurrence. The European network of protected sites established under the Birds Directive and the Habitats Directive.
NNR	National Nature Reserve.
Notable species	A species that is considered to be notable due to its importance as an indicator, and may also be of nature conservation importance, and which is unlikely to be a 'characteristic species.'
Operations which may cause deterioration or disturbance	Any activity or operation taking place within, adjacent to, or remote from a European Marine Site that has the potential to cause deterioration to the natural habitats for which the site was designated, or disturbance to the species and its habitats for which the site was designated.
PCB	Polychlorinated Biphenyls.

Peak mean counts (5 yr)	The Severn Estuary is broken down into count sectors. Over the winter months WeBS volunteers count all the birds which are visible within each sector. The yearly figures for each species in the Severn Estuary are then averaged over a five year period to give the 5 yr peak mean count.
Plan or project	Any operation that is within a competent authority's (including relevant authorities) function to control, or over which a competent authority (including relevant authorities) has a statutory function to decide on applications for consents, authorisations, licences or permissions. There is no generally accepted definition of the term "plan or project". This definition may be subject to review and may require further discussion in the context of developing a management scheme for the Severn Estuary SPA.
Ramsar	Site designated under the 1971 Ramsar Convention as a wetland of international importance.
Relevant authority	The specific competent authority which has powers or functions which have, or could have, an impact on the marine environment, or adjacent to, a European Marine Site.
Reporting period	The cycle within which a definitive report on the condition of features protected within the site series will be produced, set as once in every 6 years.
Restore	The action required for an interest feature when it is not considered to be in a favourable condition.
SAC	Special Area of Conservation.
Sensitivity	The intolerance of a habitat, community or individual species to damage from an external force.
SPA	Special Protection Area for birds.
SSSI	Site of Special Scientific Interest.
Strandline	The organic matter particularly rotting seaweed deposited by the tide anywhere along the intertidal.
Supporting Habitats	The key habitats within the European Marine Site necessary to support the interest feature.
TAN 5	Planning Guidance (Wales) Technical Advice Note (TAN)5: Nature Conservation and Planning (Welsh Assembly Government)
TBT	Tri-butyl tin
Vulnerability	The exposure of a habitat, community or individual of a species to an external factor to which it is sensitive.
WeBS	Wetland Bird Survey: a collaborative national surveillance scheme of the UK's waterfowl based on counts undertaken once per month outside of the breeding season.
WWT	Wildfowl & Wetlands Trust

**CYNGOR CEFN GWLAD CYMRU
COUNTRYSIDE COUNCIL FOR WALES**

**CORE MANAGEMENT PLAN
INCLUDING CONSERVATION OBJECTIVES
FOR
RIVER USK SPECIAL AREA OF CONSERVATION**

Version: 1.5

Date: 7th March 2008

Approved by: David Mitchell

**More detailed maps of management units can be provided on request.
A Welsh version of all or part of this document can be made available on request.**



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PREFACE

This document provides the main elements of CCW's management plan for the sites named. It sets out what needs to be achieved on the sites, the results of monitoring and advice on the action required. This document is made available through CCW's web site and may be revised in response to changing circumstances or new information. This is a technical document that supplements summary information on the web site.

One of the key functions of this document is to provide CCW's statement of the Conservation Objectives for the relevant Natura 2000 sites. This is required to implement the Conservation (Natural Habitats, &c.) Regulations 1994, as amended (Section 4). As a matter of Welsh Assembly Government Policy, the provisions of those regulations are also to be applied to Ramsar sites in Wales.

1. VISION FOR THE SITE

This is a descriptive overview of what needs to be achieved for conservation on the site. It brings together and summarises the Conservation Objectives (part 4) into a single, integrated statement about the site.

Our vision for the River Usk SAC is to maintain, or where necessary restore the river to high ecological status, including its largely unmodified and undisturbed physical character, so that all of its special features are able to sustain themselves in the long-term as part of a naturally functioning ecosystem. Allowing the natural processes of erosion and deposition to operate without undue interference and maintaining or restoring connectivity maintains the physical river habitat, which forms the foundation for this ecosystem. The quality and quantity of water, including natural flow variability, and the quality of adjacent habitats, are maintained or restored to a level necessary to maintain the features in favourable condition for the foreseeable future. In places such as urban environments where natural processes are likely to cause significant damage to the public interest, artificial control measures are likely to be required.

The aquatic plant communities that characterise parts of the river are not only attractive but also give a good indication of the overall quality of the environment. They contain the variety and abundance of species expected for this type of river, in conditions of suitably clean water and bed substrate combined with a relatively stable flow regime. Locally, there are patches of white-flowered water-crowfoots. In the more shaded reaches, aquatic plants may be scarce, consisting mainly of mosses and liverworts.

The special fish species found in the river, both residents such as the bullhead and brook lamprey, and migratory species such as the Atlantic salmon, sea lamprey and shad, which swim up river to spawn and go through their juvenile stages in the river, are present in numbers that reflect a healthy and sustainable population supported by well-distributed good quality habitat. The migratory fish are able to complete their migrations and life cycles largely unhindered by artificial barriers such as weirs, pollution, or depleted flows.

The abundance of prey and widespread availability of undisturbed resting and breeding sites, allows a large otter population to thrive. They are found along the entire length of the river and its main tributaries.

The presence of the River Usk SAC and its special wildlife enhances the economic and social values of the area, by providing a high quality environment for ecotourism, outdoor activities and peaceful enjoyment by local people and visitors. The river catchment's functions of controlling flooding and supplying clean water are recognised and promoted through appropriate land management. The river is a focus for education to promote increased understanding of its biodiversity and the essential life support functions of its ecosystems.

2. SITE DESCRIPTION

2.1 Area and Designations Covered by this Plan

Grid reference: SO126219

Unitary authorities: Powys County Council, Monmouthshire County Council, Newport County Borough Council

Area (hectares): 1008.26

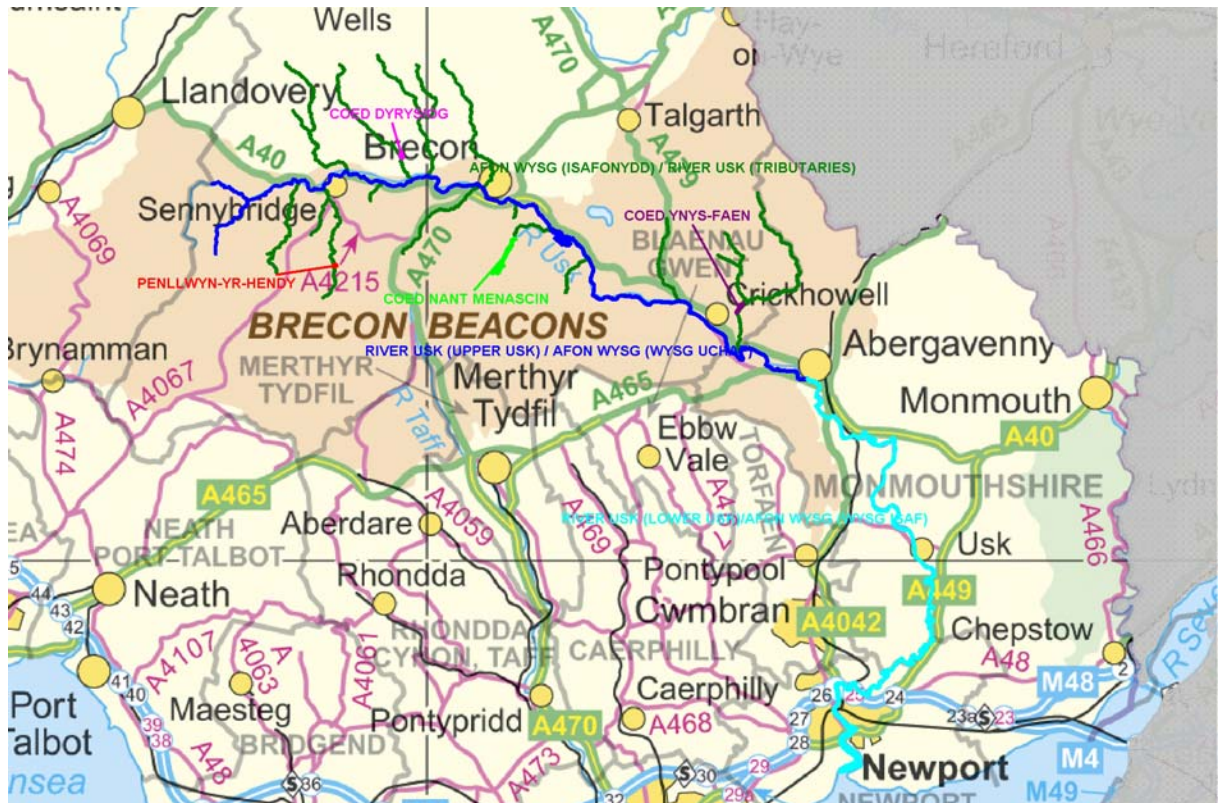
Designations covered:

River Usk (Upper Usk) SSSI
River Usk (Lower Usk) SSSI
River Usk (Tributaries) SSSI
Penllwyn-yr-hendy SSSI
Coed Dyrysiog SSSI
Coed Nant Menascin SSSI
Coed Ynysfaen SSSI

Detailed maps of the designated sites are available through CCW's web site:

<http://www.ccw.gov.uk/interactive-maps/protected-areas-map.aspx>

A summary map showing the coverage of this document is shown below:



2.2 Outline Description

The River Usk SAC rises in the Black Mountain range in the west of the Brecon Beacons National Park and flows east and then south, to enter the Severn Estuary at Newport. The overall form of the catchment is long and narrow, with short, generally steep tributaries flowing north from the Black Mountain, Fforest Fawr and Brecon Beacons, and south from Mynydd Epynt and the Black Mountains. The underlying geology consists predominantly of Devonian Old Red Sandstone with a moderate base status, resulting in waters that are generally well buffered against acidity. This geology also produces a generally low to moderate nutrient status, and a moderate base-flow index, intermediate between base-flow dominated rivers and more flashy rivers on less permeable geology. The run-off characteristics and nutrient status are significantly modified by land use in the catchment, which is predominantly pastoral with some woodland and commercial forestry in the headwaters and arable in the lower catchment. The Usk catchment is entirely within Wales.

The ecological structure and functions of the site are dependent on hydrological and geomorphological processes (often referred to as hydromorphological processes), as well as the quality of riparian habitats and connectivity of habitats. Animals that move around and sometimes leave the site, such as migratory fish and otters, may also be affected by factors operating outside the site.

Hydrological processes, in particular river flow (level and variability) and water chemistry, determine a range of habitat factors of critical importance to the SAC features, including current velocity, water depth, wetted area, substrate quality, dissolved oxygen levels and water temperature. Maintenance of both high 'spate' flows and base-flows is essential. Reduction in flows may reduce the ability of the adults of migratory fish to reach spawning sites. Water-crowfoot vegetation thrives in relatively stable, moderate flows and clean water. The flow regime should be characteristic of the river in order to support the functioning of the river ecosystem.

Geomorphological processes of erosion by water and subsequent deposition of eroded sediments downstream, create the physical structure of the river habitats. Whilst some sections of the river are naturally stable, especially where they flow over bedrock, others undergo constant and at times rapid change through the erosion and deposition of bed and bank sediments as is typical of meandering sections within floodplains (called 'alluvial' rivers). These processes help to sustain the river ecosystem by allowing a continued supply of clean gravels and other important substrates to be transported downstream. In addition, the freshly deposited and eroded surfaces, such as shingle banks and earth cliffs, enable processes of ecological succession to begin again, providing an essential habitat for specialist, early-successional species. Processes at the wider catchment scale generally govern processes of erosion and deposition occurring at the reach scale, although locally, factors such as the effect of grazing levels on riparian vegetation structure may contribute to enhanced erosion rates. In general, management that interferes with natural geomorphological processes, for example preventing bank erosion through the use of hard revetments or removing large amounts of gravel, are likely to be damaging to the coherence of the ecosystem structure and functions.

Riparian habitats, including bank sides and habitats on adjacent land, are an integral part of the river ecosystem. Diverse and high quality riparian habitats have a vital role in maintaining the SAC features in a favourable condition. The type and condition of riparian vegetation influences shade and water temperature, nutrient run-off from adjacent land, the availability of woody debris to the channel and inputs of leaf litter and invertebrates to support in-stream consumers. Light, temperature and nutrient levels influence in-stream plant production and habitat suitability for the SAC features. Woody debris is very important as it provides refuge areas from predators, traps sediment to create spawning and juvenile habitat and forms the

base of an important aquatic food chain. Otters require sufficient undisturbed riparian habitats as breeding and resting sites. It is important that appropriate amounts of tree cover, in general at least 50% high canopy cover, tall vegetation and other semi-natural habitats are maintained on the riverbanks and in adjacent areas, and that they are properly managed to support the SAC features. This may be achieved, for example, through managing grazing levels, selective coppicing of riparian trees and restoring adjacent wetlands. In the urban sections the focus may be on maintaining the river as a communication corridor but this will still require that sufficient riparian habitat is present and managed to enable the river corridor to function effectively.

Habitat connectivity is an important property of river ecosystem structure and function. Many of the fish that spawn in the river are migratory, depending on the maintenance of suitable conditions on their migration routes to allow the adults to reach available spawning habitat and juvenile fish to migrate downstream. For resident species, dispersal to new areas, or the prevention of dispersal causing isolated populations to become genetically distinct, may be important factors. Naturally isolated feature populations that are identified as having important genetic distinctiveness should be maintained. Artificial obstructions including weirs and bridge sills can reduce connectivity for some species. In addition, reaches subject to depleted flow levels, pollution, or disturbance due to noise, vibration or light, can all inhibit the movement of sensitive species. The dispersal of semi-terrestrial species, such as the otter, can be adversely affected by structures such as bridges under certain flow conditions; therefore, these must be designed to allow safe passage. The continuity of riparian habitats enables a wide range of terrestrial species, for example lesser horseshoe bats, to migrate and disperse through the landscape. Connectivity should be maintained or restored where necessary as a means to ensure access for the features to sufficient habitat within the SAC.

External factors, operating outside the SAC, may also be influential, particularly for the migratory fish and otters. For example, salmon may be affected by barriers to migration in the Severn Estuary, inshore fishing and environmental conditions prevailing in their north Atlantic feeding grounds. Otters may be affected by developments that affect resting and breeding sites outside the SAC boundary.

2.3 Outline of Past and Current Management

There are many different aspects to the management of this large and complex site that may affect its conservation status. These are summarised in the Site Management Statements for the component SSSIs.

2.4 Management Units

The plan area has been divided into management units to enable practical communication about features, objectives, and management. This will also allow us to differentiate between the different designations where necessary. In this plan the management units have been based on the following:

- SSSI boundaries
- Artificial barriers, where they significantly affect one or more of the features' range
- Major impacts, in particular major water abstractions
- Natural hydromorphology, where there are significant differences in management issues/key features between reaches
- Estuaries: the reach below the tidal limit is treated as a separate unit
- The units include one or more of EA's River Basin Management Plan water bodies; as far as is practicable, unit boundaries coincide with these water body boundaries.

3. **THE SPECIAL FEATURES**

3.1 Confirmation of Special Features

<i>Designated feature</i>	<i>Relationships, nomenclature etc</i>	<i>Conservation Objective in part 4</i>
<i>SAC features</i>		
<i>Annex II species that are a primary reason for selection of this site</i>		
Sea lamprey <i>Petromyzon marinus</i>		1
Brook lamprey <i>Lampetra planeri</i>	These two species are generally indistinguishable for the purposes of monitoring; however management requirements are similar	2
River Lamprey <i>Lampetra fluviatilis</i>		
Twaite shad <i>Alosa fallax</i>	Management for this feature is effectively the same as for allis shad	3
Atlantic salmon <i>Salmo salar</i>		4
Bullhead <i>Cottus gobio</i>		5
European otter <i>Lutra lutra</i>		6
<i>Annex I habitats and Annex II species present as qualifying features, but not primary reasons for site selection</i>		
Allis shad <i>Alosa alosa</i>	Management for this feature is effectively the same as for twaite shad	3
Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation		7
<i>SPA features</i>		
Not applicable		
<i>Ramsar features</i>		
Not applicable		
<i>SSSI features</i>		
To be added		

3.2 Special Features and Management Units

This section sets out the relationship between the special features and each management unit. This is intended to provide a clear statement about what each unit should be managed for, taking into account the varied needs of the different special features.

All special features are allocated to one of seven classes in each management unit. These classes are:

Key Features

KH - a 'Key Habitat' in the management unit, i.e. the habitat that is the main focus of management and monitoring effort, perhaps because of the dependence of a key species (see KS below). There will rarely be more than one Key Habitat in a unit.

KS - a 'Key Species' in the management unit, often driving both the selection and management of a Key Habitat.

Geo - an earth science feature that is the main focus of management and monitoring effort in a unit.

Other Features

Sym - habitats, species and earth science features that are of importance in a unit but are not the main focus of management or monitoring. These features will benefit from management for the key feature(s) identified in the unit. These may be classed as 'Sym' features because:

- they are present in the unit but are of less conservation importance than the key feature; and/or
- they are present in the unit but in small areas/numbers, with the bulk of the feature in other units of the site; and/or
- their requirements are broader than and compatible with the management needs of the key feature(s).

Nm - an infrequently used category where features are at risk of decline within a unit as a result of meeting the management needs of the key feature(s), i.e. under Negative Management. These cases will usually be compensated for by management elsewhere in the plan, and can be used where minor occurrences of a feature would otherwise lead to apparent conflict with another key feature in a unit.

Mn - Management units with no special feature present but which are of importance for management of features elsewhere on a site e.g. livestock over-wintering area included within designation boundaries.

x – Features not present in the management unit.

The tables below set out the relationship between the special features and management units identified in this plan:

River Usk (Lower Usk) SSSI	Management unit				
	1	2	3		
SAC	I	I	I		
SSSI	I	I	I		
CCW ownership					
SAC Features					
1. Sea lamprey	KS	KS	KS		
2. River lamprey	Sym	Sym	Sym		
3. Brook lamprey	x	Sym	Sym		
4. Twaite shad	KS	KS	KS		
5. Allis shad	Sym	Sym	Sym		
6. Atlantic salmon	Sym	Sym	Sym		
7. Bullhead	x	Sym	Sym		
8. European otter	KS	KS	KS		
9. Rivers with floating vegetation often dominated by water-crowfoot	x	KH	KH		
SSSI Features					
To be added					

- Twaite shad and sea lamprey spawn within Units 2 & 3 and migrate through Unit 1, where they may be subject to disturbance impacts, so are selected as key features in all units.
- Management for twaite shad and sea lamprey should also be sympathetic for Atlantic salmon, river/brook lamprey (spawning habitat) and bullhead.
- Specific management measures for otter relating to adjacent habitats and disturbance require its selection as a key feature in all units.
- The feature 'Rivers with floating vegetation often dominated by water-crowfoot' occurs in Units 2 & 3 in this SSSI and is selected as a key habitat.

- The status of allis shad is uncertain in River Usk (Lower Usk) SSSI. It is assumed to be present in the same units as twaite shad.

River Usk (Upper Usk) SSSI	Management unit				
	4	5	6		
SAC	I	I	I		
SSSI	I	I	I		
CCW ownership					
SAC Features					
1. Sea lamprey	KS	KS	x		
2. River lamprey	Sym	Sym	Sym		
3. Brook lamprey	Sym	Sym	Sym		
4. Twaite shad	KS	KS	x		
5. Allis shad	Sym	Sym	x		
6. Atlantic salmon	Sym	Sym	KS		
7. Bullhead	Sym	Sym	Sym		
8. European otter	KS	KS	KS		
9. Rivers with floating vegetation often dominated by water-crowfoot	x	x	x		
SSSI Features					
To be added					

- Atlantic salmon is a key feature in Unit 6 due to the presence of spawning sites, although salmon may occasionally also spawn within Units 4 & 5.
- Twaite shad is recorded only infrequently in Unit 5 as their distribution is constrained by the barrier created by Crickhowell Bridge footings.
- Sea lamprey is recorded more frequently than shad within Unit 5 but may also be affected to an extent by Crickhowell Bridge. The natural range of sea lamprey may extend upstream into Unit 6, however the degree to which their distribution may be constrained by Brecon weir is poorly understood. Sea lamprey is assumed to be generally absent from Unit 6 due to natural range limits.
- Management for Atlantic salmon, twaite shad and sea lamprey is expected to be sympathetic for river/brook lamprey (spawning habitat) and bullhead.
- Specific management measures for otter relating to adjacent habitats and disturbance require its selection as a key feature in all units.
- The status of the features Allis shad and 'Rivers with floating vegetation often dominated by water-crowfoot' is uncertain in River Usk (Upper Usk) SSSI. Allis shad is assumed to be present in the same units as twaite shad.

River Usk (Tributaries) SSSI	Management unit				
	7	8	9	10	
SAC	I	I	I	I	
SSSI	I	I	I	I	
CCW ownership					
SAC Features					
1. Sea lamprey	x	x	x	x	
2. River lamprey	Sym	Sym	KS	KS	
3. Brook lamprey	Sym	Sym	KS	KS	
4. Twaite shad	x	x	x	x	
5. Allis shad	x	x	x	x	

6. Atlantic salmon	KS	KS	KS	KS	
7. Bullhead	Sym	Sym	Sym	Sym	
8. European otter	KS	KS	KS	KS	
9. Rivers with floating vegetation often dominated by water-crowfoot	x	x	x	KH	
SSSI Features					
Atlantic salmon	KS	KS	KS	KS	
Brook lamprey	Sym	Sym	KS	KS	
Bullhead	Sym	Sym	Sym	Sym	
European otter	KS	KS	KS	KS	

- Atlantic salmon spawns in all tributaries within this SSSI and so is selected as a key feature in all units.
- Twaite shad, allis shad and sea lamprey are thought not to occur within this SSSI.
- River/brook lamprey are selected as key features within Units 9 & 10, which are thought to contain a higher proportion of suitable ammocoete habitat compared to other units so are expected to hold important populations of these features⁴. Monitoring confirms this to an extent².
- Unit 10 is the only unit within this SSSI known to contain the feature 'Rivers with floating vegetation often dominated by water-crowfoot'. The good stands of water-crowfoot dominated vegetation justify its selection as a key feature in this unit.

4. CONSERVATION OBJECTIVES

Background to Conservation Objectives:

a. Outline of the legal context and purpose of conservation objectives.

Conservation objectives are required by the 1992 'Habitats' Directive (92/43/EEC). The aim of the Habitats Directives is the maintenance, or where appropriate the restoration of the 'favourable conservation status' of habitats and species features for which SACs and SPAs are designated (see Box 1).

In the broadest terms, 'favourable conservation status' means a feature is in satisfactory condition and all the things needed to keep it that way are in place for the foreseeable future. CCW considers that the concept of favourable conservation status provides a practical and legally robust basis for conservation objectives for Natura 2000 and Ramsar sites.

Box 1

Favourable conservation status as defined in Articles 1(e) and 1(i) of the Habitats Directive

“The conservation status of a natural habitat is the sum of the influences acting on it and its typical species that may affect its long-term natural distribution, structure and functions as well as the long term survival of its typical species. The conservation status of a natural habitat will be taken as favourable when:

- Its natural range and areas it covers within that range are stable or increasing, and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- The conservation status of its typical species is favourable.

The conservation status of a species is the sum of the influences acting on the species that may affect the long-term distribution and abundance of its populations. The conservation status will be taken as 'favourable' when:

- population dynamics data on the species indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.”

Achieving these objectives requires appropriate management and the control of factors that may cause deterioration of habitats or significant disturbance to species.

As well as the overall function of communication, Conservation objectives have a number of specific roles:

- Conservation planning and management.

The conservation objectives guide management of sites, to maintain or restore the habitats and species in favourable condition.

- Assessing plans and projects.

Article 6(3) of the ‘Habitats’ Directive requires appropriate assessment of proposed plans and projects against a site's conservation objectives. Subject to certain exceptions, plans or projects may not proceed unless it is established that they will not adversely affect the integrity of sites. This role for testing plans and projects also applies to the review of existing decisions and consents.

- Monitoring and reporting.

The conservation objectives provide the basis for assessing the condition of a feature and the status of factors that affect it. CCW uses ‘performance indicators’ within the conservation objectives, as the basis for monitoring and reporting. Performance indicators are selected to provide useful information about the condition of a feature and the factors that affect it.

The conservation objectives in this document reflect CCW’s current information and understanding of the site and its features and their importance in an international context. The conservation objectives are subject to review by CCW in light of new knowledge.

b. Format of the conservation objectives

There is one conservation objective for each feature listed in part 3. Each conservation objective is a composite statement representing a site-specific description of what is considered to be the favourable conservation status of the feature. These statements apply to a whole feature as it occurs within the whole plan area, although section 3.2 sets out their relevance to individual management units.

Each conservation objective consists of the following two elements:

1. Vision for the feature
2. Performance indicators

As a result of the general practice developed and agreed within the UK Conservation Agencies, conservation objectives include performance indicators, the selection of which should be informed by JNCC guidance on Common Standards Monitoring¹.

There is a critical need for clarity over the role of performance indicators within the conservation objectives. **A conservation objective, because it includes the vision for the feature, has meaning and substance independently of the performance indicators, and is more than the sum of the performance indicators.** The performance indicators are simply what make the conservation objectives measurable, and are thus part of, not a substitute for, the conservation objectives. Any feature attribute identified in the performance indicators should be represented in the vision for the feature, but not all elements of the vision for the feature will necessarily have corresponding performance indicators.

As well as describing the aspirations for the condition of the feature, the Vision section of each conservation objective contains a statement that the factors necessary to maintain those desired conditions are under control. Subject to technical, practical and resource constraints, factors which have an important influence on the condition of the feature are identified in the performance indicators.

¹ Web link: <http://www.jncc.gov.uk/page-2199>

The ecological status of the water course is a major determinant of FCS for all features. The required conservation objective for the water course is defined below.

4.1 Conservation Objective for the water course

- 4.1.1 The capacity of the habitats in the SAC to support each feature at near-natural population levels, as determined by predominantly unmodified ecological and hydromorphological processes and characteristics, should be maintained as far as possible, or restored where necessary.
- 4.1.2 The ecological status of the water environment should be sufficient to maintain a stable or increasing population of each feature. This will include elements of water quantity and quality, physical habitat and community composition and structure. It is anticipated that these limits will concur with the relevant standards used by the Review of Consents process given in Annexes 1-3.
- 4.1.3 Flow regime, water quality and physical habitat should be maintained in, or restored as far as possible to, a near-natural state, in order to support the coherence of ecosystem structure and function across the whole area of the SAC.
- 4.1.4 All known breeding, spawning and nursery sites of species features should be maintained as suitable habitat as far as possible, except where natural processes cause them to change.
- 4.1.5 Flows, water quality, substrate quality and quantity at fish spawning sites and nursery areas will not be depleted by abstraction, discharges, engineering or gravel extraction activities or other impacts to the extent that these sites are damaged or destroyed.
- 4.1.6 The river planform and profile should be predominantly unmodified. Physical modifications having an adverse effect on the integrity of the SAC, including, but not limited to, revetments on active alluvial river banks using stone, concrete or waste materials, unsustainable extraction of gravel, addition or release of excessive quantities of fine sediment, will be avoided.
- 4.1.7 River habitat SSSI features should be in favourable condition. In the case of the Usk Tributaries SSSI, the SAC habitat is not underpinned by a river habitat SSSI feature. In this case, the target is to maintain the characteristic physical features of the river channel, banks and riparian zone.
- 4.1.8 Artificial factors impacting on the capability of each species feature to occupy the full extent of its natural range should be modified where necessary to allow passage, eg. weirs, bridge sills, acoustic barriers.
- 4.1.9 Natural factors such as waterfalls, which may limit the natural range of a species feature or dispersal between naturally isolated populations, should not be modified.
- 4.1.10 Flows during the normal migration periods of each migratory fish species feature will not be depleted by abstraction to the extent that passage upstream to spawning sites is hindered.
- 4.1.11 Flow objectives for assessment points in the Usk Catchment Abstraction Management Strategy will be agreed between EA and CCW as necessary. It is anticipated that these limits will concur with the standards used by the Review of Consents process given in Annex 1 of this document.
- 4.1.12 Levels of nutrients, in particular phosphate, will be agreed between EA and CCW for each Water Framework Directive water body in the Usk SAC, and measures taken to maintain nutrients below these levels. It is anticipated that these limits will concur with the standards used by the Review of Consents process given in Annex 2 of this document.
- 4.1.13 Levels of water quality parameters that are known to affect the distribution and abundance of SAC features will be agreed between EA and CCW for each Water Framework Directive water body in the Usk SAC, and measures taken to maintain pollution below these levels. It is anticipated that these limits will concur with the

standards used by the Review of Consents process given in Annex 3 of this document.

- 4.1.14 Potential sources of pollution not addressed in the Review of Consents, such as contaminated land, will be considered in assessing plans and projects.
- 4.1.15 Levels of suspended solids will be agreed between EA and CCW for each Water Framework Directive water body in the Usk SAC. Measures including, but not limited to, the control of suspended sediment generated by agriculture, forestry and engineering works, will be taken to maintain suspended solids below these levels.

4.2 Conservation Objective for Features 1-5:

- Sea lamprey *Petromyzon marinus* (EU Species Code: **1095**) ;
 - Brook lamprey *Lampetra planeri* (EU Species Code : **1096**) ;
 - River lamprey *Lampetra fluviatilis* (EU Species Code : **1099**) ;
 - Twaite shad *Alosa fallax* (EU Species Code : **1103**) ;
 - Allis shad *Alosa alosa* (EU Species Code : **1102**) ;
 - Atlantic salmon *Salmo salar* (EU Species Code : **1106**) ;
 - Bullhead *Cottus gobio* (EU Species Code : **1163**)
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Vision for features 1-5

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

FCS component	Supporting information / current knowledge
4.2.1 The conservation objective for the water course as defined in 4.1 above must be met	
4.2.2 The population of the feature in the SAC is stable or increasing over the long term.	<p>Refer to sections 5.1 to 5.5 for current assessments of feature populations</p> <p>Entrainment in water abstractions directly impacts on population dynamics through reduced recruitment and survival rates.</p> <p>Fish stocking can adversely affect population dynamics through competition, predation, and alteration of population genetics and introduction of disease.</p>
4.2.3 The natural range of the feature in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future. The natural range is taken to mean those reaches where predominantly suitable habitat for each life stage exists over the long term. Suitable habitat is defined in terms of near-natural hydrological and geomorphological processes and forms eg. suitable flows to allow upstream migration, depth of water and substrate type at spawning sites, and ecosystem structure and functions eg. food supply (as described in sections 2.2	<p>Some reaches of the Usk SAC are more suitable for some features than others e.g. the Senni has important populations of brook/river lamprey and salmon but is not used by shad due to its small size and distance from the estuary. These differences influence the management priorities for individual reaches and are used to define the site units described in section 3.2. Further details of feature habitat suitability are given in section 5. In general, management for one feature is likely to be sympathetic for the other features present in the river, provided that the components of favourable conservation status for the water course given in section 4.1 are secured.</p> <p>The characteristic channel morphology provides the diversity of water depths, current velocities and</p>

<p>and 5). Suitable habitat need not be present throughout the SAC but where present must be secured for the foreseeable future. Natural factors such as waterfalls may limit the natural range of individual species. Existing artificial influences on natural range that cause an adverse effect on site integrity, such as physical barriers to migration, will be assessed in view of 4.2.4</p>	<p>substrate types necessary to fulfil the habitat requirements of the features. The close proximity of different habitats facilitates movement of fish to new preferred habitats with age. The presence of hard bank revetments in a number of active alluvial reaches e.g. through Brecon and upstream of Abergavenny, adversely affects the processes that maintain suitable habitat for the SAC features.</p> <p>Hydrological processes in the Usk are currently affected by large abstractions, especially at Prioress Mill and Brecon Weir. However, there are many smaller abstractions not considered to cause a problem at present.</p> <p>Shad and salmon migration can be affected by acoustic barriers and by high sediment loads, which can originate from a number of sources including construction works.</p>
<p>4.2.4 There is, and will probably continue to be, a sufficiently large habitat to maintain the feature's population in the SAC on a long-term basis.</p>	<p>Allis and twaite shad are affected by range contraction due to artificial barriers to migration in the Usk. It is likely that this loss of habitat affects their maintenance in the SAC on a long-term basis.</p>

Performance indicators for features 1-5

The performance indicators are part of the conservation objective, not a substitute for it. Assessment of plans and projects must be based on the entire conservation objective, not just the performance indicators.

Sea lamprey <i>Petromyzon marinus</i> : <i>Performance indicators for feature condition</i>			
<i>Attribute</i>	<i>Specified limits</i>	<i>Comments</i>	<i>Relevant unit(s)</i>
a) Distribution within catchment	Suitable habitat adjacent to or downstream of known spawning sites should contain <i>Petromyzon ammocoetes</i> .	This attribute provides evidence of successful spawning and distribution trends. Spawning sites known to have been used within the previous 10 years and historical sites considered still to have suitable habitat, are shown in Annex 4. Spawning locations may move within and between sites due to natural processes or new sites may be discovered over time. Silt beds downstream of all sites identified in Annex 4 will be sampled for presence or absence of ammocoetes. Where apparently suitable habitat at any site is unoccupied feature condition will be considered unfavourable.	1-5

b) Ammocoete density	Ammocoetes should be present in at least four sampling sites each not less than 5km apart.	This standard CSM attribute establishes a minimum occupied spawning range, within any sampling period, of 15km. In the Usk, spawning sites within units 2 to 5 will be assessed against this attribute.	2-5
	Overall catchment mean $>0.1\text{m}^{-2}$ (Harvey & Cowx 2003) ¹	Although this attribute is not used in CSM for sea lamprey, baseline monitoring in the Usk gave an overall catchment mean of 2.27 ammocoetes m^{-2} in suitable habitat ² , therefore 0.1m^{-2} is a conservative threshold value for unfavourable condition.	

Brook lamprey *Lampetra planeri* and River lamprey *Lampetra fluviatilis* :
Performance indicators for feature condition

Attribute	Specified limits	Comments	Relevant unit(s)
a) Age/size structure of ammocoete population	Samples < 50 ammocoetes ~ 2 size classes Samples > 50 ammocoetes ~ at least 3 size classes	This gives an indication of recruitment to the population over the several years preceding the survey. Failure of one or more years recruitment may be due to either short or long term impacts or natural factors such as natural flow variability, therefore would trigger further investigation of the cause rather than leading automatically to an unfavourable condition assessment.	2-10
b) Distribution of ammocoetes within catchment	Present at not less than 2/3 of sites surveyed within natural range No reduction in distribution of ammocoetes	The combined natural range of these two species in terms of ammocoete distribution includes all units above the tidal limit ie. all except unit 1 Presence at less than 2/3 of sample sites will lead to an unfavourable condition assessment. Reduction in distribution will be defined as absence of ammocoetes from all samples within a single unit or sub-unit/tributary, and will lead to an unfavourable condition assessment.	2-10
c) Ammocoete density	Optimal habitat: $>10\text{m}^{-2}$ Overall catchment mean: $>5\text{m}^{-2}$	Optimal habitat comprises beds of stable fine sediment or sand $\geq 15\text{cm}$ deep, low water velocity and the presence of organic detritus, as well as, in the Usk, shallower sediment, often patchy and interspersed among coarser substrate.	2-10

Twaite shad *Alosa fallax* and Allis shad *Alosa alosa* :
Performance indicators for feature condition

Attribute	Specified limits	Comments	Relevant unit(s)
a) Spawning distribution	No decline in spawning distribution	Spawning distribution is assessed by kick sampling for eggs and/or observations of spawning adults. A representative sample of	1-5

		sites within units 2 to 5 will be monitored at 3 yearly intervals. Absence from any site in 2 consecutive surveys will result in an unfavourable condition assessment.	
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Performance indicators for factors affecting the feature

a) Flow	Targets are set in relation to river/reach type(s)	Targets equate to those levels agreed and used in the Review of Consents (see Annex 1). Shad are particularly sensitive to flow. The ideal regime is one of relatively high flows in March-May, to stimulate migration and allow maximum penetration of adults upstream, followed by rather low flows in June-September, which ensures that the juveniles are not washed prematurely into saline waters and grow rapidly under warmer conditions. The release of freshets to encourage salmonid migration should therefore be discouraged on shad rivers during this period.	1-5
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Atlantic salmon *Salmo salar* :

Performance indicators for feature condition

<i>Attribute</i>	<i>Specified limits</i>	<i>Comments</i>	<i>Relevant unit(s)</i>
a) Adult run size	Conservation Limit complied with at least four years in five (see 5.4)	CSM guidance states: Total run size at least matching an agreed reference level, including a seasonal pattern of migration characteristic of the river and maintenance of the multi-sea-winter component. As there is no fish counter in the Usk, adult run size is calculated using rod catch data. Further details can be found in the EA Usk Salmon Action Plan.	All
b) Juvenile densities	Expected densities for each sample site using HABSCORE	CSM guidance states: These should not differ significantly from those expected for the river type/reach under conditions of high physical and chemical quality. Assessed using electrofishing data.	6-10

Performance indicators for factors affecting the feature

Water quality

a) Biological quality	Biological GQA class A	This is the class required in the CSM guidance for Atlantic salmon, the most sensitive feature.	6-10
b) Chemical quality	RE1	It has been agreed through the Review of Consents process that RE1 will be used throughout the SAC (see Annex 3)	All

Hydromorphology

a) Flow	Targets are set in relation to river/reach type(s)	Targets equate to those levels agreed and used in the Review of Consents (see Annex 1)	All
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Bullhead <i>Cottus gobio</i> : Performance indicators for feature condition			
Attribute	Specified limits	Comments	Relevant unit(s)
a) Adult densities	No less than 0.2 m ⁻² in sampled reaches	CSM guidance states that densities should be no less than 0.2 m ⁻² in upland rivers (source altitude >100m) and 0.5 m ⁻² in lowland rivers (source altitude ≤100m). A significant reduction in densities may also lead to an unfavourable condition assessment.	2-10
b) Distribution	Bullheads should be present in all suitable reaches. As a minimum, no decline in distribution from current	Suitable reaches will be mapped using fluvial audit information validated using the results of population monitoring. Absence of bullheads from any of these reaches, or from any previously occupied reach, revealed by on-going monitoring will result in an unfavourable condition assessment.	2-10
c) Reproduction / age structure	Young-of-year fish should occur at densities at least equal to adults	This gives an indication of successful recruitment and a healthy population structure. Failure of this attribute on its own would not lead to an unfavourable condition assessment.	2-10

4.3 Conservation Objective for Feature 6:

- European otter *Lutra lutra* (EU Species Code: 1355)

Vision for feature 6

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

FCS component	Supporting information / current knowledge
4.3.1 The population of otters in the SAC is stable or increasing over the long term and reflects the natural carrying capacity of the habitat within the SAC, as determined by natural levels of prey abundance and associated territorial behaviour.	Refer to section 5.9 for current assessment of feature population
4.3.2 The natural range of otters in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future. The natural range is taken to mean those reaches that are potentially suitable to form part of a breeding territory and/or provide routes between breeding territories. The whole area of the Usk SAC is considered to form potentially suitable breeding habitat for otters. The size of breeding territories may	Survey information shows that otters are widely distributed in the Usk catchment. While the breeding population in the Usk is not currently considered to be limited by the availability of suitable breeding sites, there is some uncertainty over the number of breeding territories which the SAC is capable of supporting given near-natural levels of prey abundance. The decline in eel populations may be having an adverse effect on the population of otters in the Usk.

vary depending on prey abundance. The population size should not be limited by the availability of suitable undisturbed breeding sites. Where these are insufficient they should be created through habitat enhancement and where necessary the provision of artificial holts. No otter breeding site should be subject to a level of disturbance that could have an adverse effect on breeding success. Where necessary, potentially harmful levels of disturbance must be managed.

4.3.3	The safe movement and dispersal of individuals around the SAC is facilitated by the provision, where necessary, of suitable riparian habitat, and underpasses, ledges, fencing etc at road bridges and other artificial barriers.	Restrictions on the movement of otters around the SAC, and between adjoining sites are currently a particular concern in the reach through Newport as a result of a continued decrease in undisturbed suitable riparian habitat.
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Performance indicators for feature 6

The performance indicators are part of the conservation objective, not a substitute for it. Assessment of plans and projects must be based on the entire conservation objective, not just the performance indicators.

<i>Performance indicators for feature condition</i>			
<i>Attribute</i>	<i>Specified limits</i>	<i>Comments</i>	<i>Relevant unit(s)</i>
a) Distribution	Otter signs present at 90% of Otter Survey of Wales sites	Ref: CCW Environmental Monitoring Report No 19 (2005) ³	All
b) Breeding activity	2 reports of cub/family sightings at least 1 year in 6	Ref: CCW Environmental Monitoring Report No 19 (2005) ³	All
c) Actual and potential breeding sites	No decline in number and quality of mapped breeding sites in sub-catchments (see Ref)	Ref: CCW Environmental Monitoring Report No 19 (2005) ³ In the Usk catchment, 77 actual or potential breeding sites have been identified, distributed throughout the catchment on the main river and tributaries.	All

4.4 Conservation Objective for Feature 7:

- Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitriche-Batrachion* vegetation

Vision for feature 7

The performance indicators are part of the conservation objective, not a substitute for it. Assessment of plans and projects must be based on the entire conservation objective, not just the performance indicators.

FCS component	Supporting information / current knowledge
4.4.1 The conservation objective for the water course as defined in 4.1 above must be met	
4.4.2 The natural range of the plant communities represented within this feature should be stable or increasing in the SAC. The natural range is taken to mean those reaches where predominantly suitable habitat exists over the long term. Suitable habitat and associated plant communities may vary from reach to reach. Suitable habitat is defined in terms of near-natural hydrological and geomorphological processes and forms eg. depth and stability of flow, stability of bed substrate, and ecosystem structure and functions eg. nutrient levels, shade (as described in section 2.4). Suitable habitat for the feature need not be present throughout the SAC but where present must be secured for the foreseeable future, except where natural processes cause it to decline in extent.	More information is required on the natural range and distribution of this feature in the Usk. Important examples of the feature may be present outside currently known locations. Sympathetic management will be promoted wherever the feature is present. Species indicative of unfavourable condition for this feature eg. filamentous algae associated with eutrophication, invasive non-native species, should be maintained or restored below an acceptable threshold level, indicative of high ecological status, within the SAC.
4.4.3 The area covered by the feature within its natural range in the SAC should be stable or increasing.	Important stands of the feature are known to occur within site management unit nos. 2, 3 & 10. Management to maintain or increase the feature within these units will be a priority. Adverse factors may include elevated nutrient levels, shading or altered flow and/or sediment transport regimes.
4.4.4 The conservation status of the feature's typical species should be favourable. The typical species are defined with reference to the species composition of the appropriate JNCC river vegetation type for the particular river reach, unless differing from this type due to natural variability when other typical species	More information on the typical species expected to be found with each management unit in the SAC is required.

may be defined as appropriate.

Performance indicators for feature 7

The performance indicators are part of the conservation objective, not a substitute for it. Assessment of plans and projects must be based on the entire conservation objective, not just the performance indicators.

Performance indicators for feature condition			
Attribute	Specified limits	Comments	Relevant unit(s)
a) Distribution within catchment	Distribution within site units 2,3 & 10	<i>Ranunculus</i> spp. will be present with an MTR species cover score of at least 5 in: Any three representative sample 100m stretches of suitable habitat between Usk Town bridge and the bridge at Newbridge-on-Usk: AND In one representative sample 100m stretch of suitable habitat along the Senni	2,3,10
b) Typical species	Species list for reference vegetation type	Should conform to appropriate JNCC type or other list for site unit as appropriate. Details to be confirmed	2,3,10
Performance indicators for factors affecting the feature			
Negative indicators			
a) Native species	Cover of indicators of eutrophication maintained below threshold over the medium to long term	CSM guidance states: Care should be taken with the setting of these targets as thresholds may vary considerably by site and conservation goals. For the Usk SAC: Algae indicative of eutrophication (<i>Enteromorpha</i> spp., <i>Cladophora</i> spp. and <i>Vaucheria</i> spp.) should not have an MTR cover value of greater than 5 (ie.10%) in 3 consecutive years in: Any three representative sample 100m stretches of suitable habitat between Usk Town bridge and the bridge at Newbridge-on-Usk: AND In one representative sample 100m stretch of suitable habitat along the Senni	2,3,10
b) Alien / introduced species	No impact on native biota from alien or introduced species	In the CSM guidance, the SERCON scoring system for naturalness of aquatic and marginal macrophytes and naturalness of banks and riparian zone, are used to assess this attribute. SERCON protocols have not been applied in the Usk SAC, therefore assessment of this attribute relies on locally defined thresholds and expert judgement. Details to be confirmed	

5. ASSESSMENT OF CONSERVATION STATUS AND MANAGEMENT REQUIREMENTS

This part of the document provides:

- A summary of the assessment of the conservation status of each feature.
- A summary of the management issues that need to be addressed to maintain or restore each feature.

5.1 Conservation status and management requirements of Feature 1: Sea lamprey *Petromyzon marinus*

Conservation status

Status: Unfavourable: Unclassified. Sea lamprey monitoring showed that overall catchment mean ammocoete density considerably exceeded the JNCC target threshold and also complied with targets for spawning site and ammocoete distribution. A caveat on the latter is uncertainty over whether the natural range of sea lamprey extends above Brecon weir: this is assumed not to be the case.

Factors leading to an unfavourable assessment are the presence of probable partial barriers further downstream (notably Crickhowell Bridge), and flow depletion resulting from abstractions including Brecon canal and Prioress Mill public water supply abstraction. The latter in particular has been shown to have effects both on a seasonal timescale by reducing spate flows during the migration period and on a diurnal timescale by substantially depleting flows during the night time to the extent that sea lamprey nests and nursery areas are likely to be exposed above the water level. The effect of the Brecon canal abstraction has been shown to comprise a substantial depletion of flows, at least locally, during low flow periods with a resulting reduction in river depth downstream of the off-take weir.

Management requirements

The impacts of barriers to migration and flow depletion are highlighted in the assessment of conservation status for this feature. The impact of barriers should be assessed on a case-by-case basis. Physical modification of barriers is required where depth/velocity/duration of flows is unsuitable to allow passage. Crickhowell Bridge is considered to be the most significant barrier to fish migration in the Usk. Management to reduce or remove the effect of this barrier is a high priority for the River Usk SAC. An assessment of options will be carried out in conjunction with the other relevant competent authorities.

The impact of acoustic (ie noise/vibration) and sediment/chemical barriers arising from plans or projects should also be assessed. When arising from construction or other development related activities it may be necessary to restrict the timing of such activities.

The impact of flow depletion resulting from a small number of major abstractions was highlighted in the Review of Consents process. As a result of this process, flow targets have been set which are considered likely to significantly reduce or remove the impacts on SAC features. These targets (given in Annex 1) are expressed as, 1) a flow duration curve using recent daily mean flow data, used to set abstraction licence conditions including 'hands-off flows', 2) hourly maximum abstraction rates for certain licences to reduce or remove the effect of diurnal flow variations. There are also requirements for screening of intakes to reduce or remove the impact of impingement and entrainment on juvenile fish migrating downstream.

Entrainment in water abstractions directly impacts on population dynamics through reduced recruitment and survival rates. Information on likely rates of entrainment of lamprey ammocoetes is required before acceptable levels can be assessed.

The extent and quality of suitable sea lamprey habitat must be maintained. Elevated levels of fines (particles <0.83mm) within spawning substrates can interfere with egg survival. Spawning habitat consists of well-oxygenated gravel/pebble substrate of >10cm depth in a range of water depths (0.2 to 1.5m). Sea and river lamprey tend to spawn in deeper water than brook lamprey. Nursery habitat consists of open-structured, aerated, silty and sandy substrates between 2 and 40cm depth generally in shallow (<0.5m) slack-water channel margins.

5.2 Conservation status and management requirements of Feature 2: Brook lamprey *Lampetra planeri* and River lamprey *Lampetra fluviatilis*

Conservation status

Status: Favourable. Brook/river lamprey monitoring showed that overall catchment mean ammocoete density considerably exceeded the JNCC target threshold and also complied with targets for ammocoete distribution¹.

It has not been possible to distinguish between these two species during monitoring, due to the reliance on juvenile stages (ammocoetes). Anecdotal evidence suggests that both species are likely to be present in many reaches, though brook lamprey are expected to predominate in the headwaters and river lamprey may be the more abundant species in the main channel and the lower reaches of larger tributaries. More information on the relative abundance of these two species in different parts of the Usk SAC is desirable. Records of spawning adult river lamprey would be particularly useful.

Management requirements

The extent and quality of suitable habitat for brook and river lamprey must be maintained. Elevated levels of fines (particles <0.83mm) within spawning substrates can interfere with egg survival. Spawning habitat consists of well-oxygenated gravel/pebble substrate of >10cm depth in a range of water depths (0.2 to 1.5m). Sea and river lamprey tend to spawn in deeper water than brook lamprey. Nursery habitat consists of open-structured, aerated, silty and sandy substrates between 2 and 40cm depth generally in shallow (<0.5m) slack-water channel margins.

Entrainment in water abstractions directly impacts on population dynamics through reduced recruitment and survival rates. Information on likely rates of entrainment of lamprey ammocoetes is required before acceptable levels can be assessed.

The currently favourable condition assessment suggests that there are no strongly adverse factors influencing these species. However, the species are likely to benefit from positive management for the other SAC features, and may see further improvement in condition as a result. On-going monitoring will allow a better understanding of population fluctuations, distributional changes etc.

5.3 Conservation status and management requirements of Feature 3: Twaite shad *Alosa fallax* and Allis shad *Alosa alosa*

Conservation status

Status: Unfavourable: Unclassified. Monitoring of these species in the Usk relies on two methods,

- i. Kick sampling for eggs provides qualitative information on spawning distribution,
- ii. Netting for juveniles in the lower river and tidal reaches during late summer/autumn when juveniles drift downstream towards the estuary.

These methods do not distinguish between the two species. Allis shad is thought to be rare, with no recent records in the Usk, while twaite shad is relatively common. Kick sampling for eggs is only able to give a broad scale indication of presence or absence at sampled locations. Netting for juveniles gives a quantitative estimate of abundance, though may be subject to a high degree of uncertainty due to sampling error. This uncertainty is likely to be compounded by variation between years in the size of the adult run, spawning success and resulting numbers of juveniles. Poor adult runs are likely to result from unsuitable flows during the March to June migration period, in particular prolonged low flows, while poor survival of eggs and juveniles is related to spate flows in the mid to late summer which can flush them into the estuary prematurely.

CSM guidance states that adult run size should comply with an agreed target for each river, with no drop in the annual run greater than would be expected from variations in natural mortality alone. This attribute is not currently assessed in the Usk due to the absence of a fish counter.

The current unfavourable status results from a precautionary assessment of feature distribution and abundance, and from the presence of adverse factors, in particular flow depletion and physical barriers to migration.

Management requirements

The impacts of barriers to migration and flow depletion are highlighted in the assessment of conservation status for these features.

Artificial physical barriers are probably the single most important factor in the decline of shad in Europe. Impassable obstacles between suitable spawning areas and the sea can eliminate breeding populations of shad. Both species (but particularly allis shad) can make migrations of hundreds of kilometres from the estuary to spawning grounds in the absence of artificial barriers. Existing fish passes designed for salmon are often not effective for shad. Any new provisions need to take their requirements into account. The impact of existing barriers in the Usk should be assessed on a case-by-case basis. Physical modification of barriers is required where depth/velocity/duration of flows is unsuitable to allow passage. Crickhowell Bridge is considered to be the most significant barrier to fish migration in the Usk. Management to reduce or remove the effect of this barrier is a high priority for the River Usk SAC. Other barriers that may be significant include Trostrey Weir and Radyr Weir. An assessment of options will be carried out in conjunction with the other relevant competent authorities.

Development pressure in the lower catchment can cause temporary physical, acoustic, chemical and sediment barrier effects that need to be addressed in the assessment of specific plans and projects. Noise/vibration e.g. due to impact piling, drilling, salmon fish counters present within or in close proximity to the river can create a barrier to shad migration. Land on both sides of the river in Newport is potentially highly contaminated. Contamination of the river can arise when this is disturbed e.g. as a result of development. Contamination can also arise from pollution events (which could be shipping or industry related). Barriers resulting from vibration, chemicals, low dissolved oxygen and artificially high sediment levels must be prevented at key times (generally March to June). The possible barrier effects that might be caused by the installation of an acoustic salmonid fish counter should also be evaluated.

The impact of flow depletion resulting from a small number of major abstractions was highlighted in the Review of Consents process. As a result of this process, flow targets have been set which are considered likely to significantly reduce or remove the impacts on SAC features. These targets (given in Annex 1) are expressed as, 1) a flow duration curve using recent daily mean flow data, which is used to set abstraction licence conditions including 'hands-off flows', 2) hourly maximum abstraction rates for certain licences to reduce or remove the effect of diurnal flow variations. There are also requirements for screening of intakes to reduce or remove the impact of impingement and entrainment on juvenile shad drifting downstream and post-spawning adult shad.

The extent and quality of suitable shad habitat must be maintained. Spawning habitat is defined as stable, clean gravel/pebble-dominated (approximately 70%) substrate without an armoured layer and with <10% fines in the top 30 cm. Water depth during the spawning and incubation periods should be 50-75 cm. Holding areas are defined as pools of at least 200 cm depth, with cover from features such as undercut banks, vegetation, submerged objects and surface turbulence.

Anglers occasionally fish for shad, and they are sometimes taken in quite large numbers. Further research is necessary to define sustainable levels of angling. If this shows there is cause for concern, a temporary cessation of fishing activity in the vicinity of known spawning grounds during the spawning period should be considered, particularly where shad are known to be taken regularly. Exploitation of shad is currently unregulated and controls are being considered through the review of freshwater fisheries legislation.

Commercial fishermen also take shad as a by-catch, with whitebait and shrimp fishing being of particular concern. Changes in fishing methods need to be promoted to minimize captures, whilst both anglers and trawler men should be encouraged to return alive any individuals caught.

Artificially enhanced densities of other fish may introduce unacceptable competition or predation pressure and the aim should be to minimise these risks in considering any proposals for stocking.

5.4 Conservation status and management requirements of Feature 4: Atlantic salmon *Salmo salar*

Conservation status

Status: Unfavourable: Unclassified. Monitoring of Atlantic salmon in the Usk relies on two methods,

- i. Estimation of adult run size from angling catch returns,
- ii. Electro-fishing for juveniles in nursery areas.

The estimate of adult numbers is converted into an estimate of numbers of eggs deposited which is compared against an Egg Deposition Target (EDT), calculated by considering the area of suitable spawning habitat within the catchment. The equivalent adult run to achieve the EDT is described in terms of a Conservation Limit, which must be exceeded 4 years in 5 for the Management Target to be considered attained. Electro-fishing for juveniles is either quantitative or semi-quantitative, and estimated juvenile densities are classified in one of six categories A to F. The monitoring guidance produced by the LIFE in UK Rivers project recommends that ideally juvenile densities should be compared to predicted densities for the sample reach using the HABSCORE model⁶. These targets are calculated and monitored by the Environment Agency as part of the Salmon Action Plan for the Usk.

The current unfavourable status results from a precautionary assessment of feature distribution and abundance, in particular the results of juvenile surveys, and from the presence of adverse factors, in particular flow depletion and localised water quality failures.

Management requirements

The Atlantic salmon is the focus for much of the management activity carried out on the Usk. The relatively demanding water quality and spawning substrate quality requirements of this feature mean that reduction in diffuse pollution and siltation impacts is a high priority. Measures to address these problems include the establishment of buffer zones on reaches adjacent to intensively managed livestock grazing or arable land. Tree management, especially coppicing and pollarding to increase light levels to the channel, is also often carried out. The Wye and Usk Foundation through their Usk Project have carried out much of this work in recent years. Other work has included removal of weirs and construction of fish passes to ease artificial barriers to salmon migration, and reduction in exploitation pressure through buying out net fisheries in the estuary.

Elevated levels of fines (particles <0.83mm) within spawning substrates can interfere with egg and fry survival. Clean substrate free from excessive siltation should predominate at suitable spawning sites. Spawning habitat is defined as stable coarse substrate without an armoured layer, in the pebble to cobble size range (16-256 mm) but with the majority being <150 mm. Water depth during the spawning and incubation periods should be 15-75 cm. Fry habitat is indicated by water of <20 cm deep and a gravel/pebble/cobble substrate. Parr habitat is indicated by water 20-40 cm deep and similar substrate. Holding areas are defined as pools of at least 1.5 m depth, with cover from features such as undercut banks, vegetation, submerged objects and surface turbulence. Coarse woody debris should not be removed from rivers as it plays a significant role in the formation of new gravel beds, and provides cover for fish and a source of food for invertebrates.

In the Usk catchment, the most significant sources of diffuse pollution and siltation are from agriculture, including fertiliser run-off, livestock manure, silage effluent and soil erosion from ploughed land. The most intensively used areas such as heavily trampled gateways and tracks can be especially significant sources of polluting run-off. Preventative measures can include surfacing of tracks and gateways, moving feeding areas, and separating clean and dirty water in farmyards. Farm operations should avoid ploughing land which is vulnerable to soil erosion or leaving such areas without crop cover during the winter.

Among toxic pollutants, sheep dip and silage effluent present a particular threat to aquatic animals in this predominantly rural area. Contamination by synthetic pyrethroid sheep dips, which are extremely toxic to aquatic invertebrates, has a devastating impact on crayfish populations and can deprive fish populations of food over large stretches of river. These impacts can arise if recently dipped sheep are allowed access to a stream or hard standing area, which drains into a watercourse. Pollution from organophosphate sheep dips and silage effluent can be very damaging locally. Pollution from slurry and other agricultural and industrial chemicals, including fuels, can kill all forms of aquatic life. All sheep dips and silage, fuel and chemical storage areas should be sited away from watercourses or bunded to contain leakage. Recently dipped sheep should be kept off stream banks. Used dip should be disposed of strictly in accordance with Environment Agency Regulations and guidelines. Statutory and voluntary agencies should work closely with landowners and occupiers to minimise the risk of any pollution incidents and enforce existing regulations.

Measures to control diffuse pollution in the water environment, including 'Catchment Sensitive Farming', may be implemented as a result of the Water Framework Directive and, along with existing agri-environment schemes, will help to achieve the conservation objectives for the SAC.

Discharges from sewage treatment works, urban drainage, engineering works such as road improvement schemes, contaminated land, and other domestic and industrial sources can also be significant causes of pollution, and must be managed appropriately. Current consents for discharges entering, or likely to impact upon the site should be monitored, reviewed and altered if necessary.

Overhanging trees provide valuable shade and food sources, whilst tree root systems provide important cover and flow refuges for juveniles. At least 50% high canopy cover to the water course/banks should be maintained, where appropriate. Some reaches may naturally have lower tree cover. Cover may also be lower in urban reaches.

In all river types, artificial barriers should be made passable. The impact of existing barriers in the Usk should be assessed on a case-by-case basis. Physical modification of barriers is required where depth/velocity/duration of flows is unsuitable to allow passage. Complete or partial natural barriers to potentially suitable spawning areas should not be modified or circumvented.

Development pressure in the lower catchment can cause temporary physical, acoustic, chemical and sediment barrier effects that need to be addressed in the assessment of specific plans and projects. Land on both sides of the river in Newport is potentially highly contaminated. Contamination of the

river can arise when this is disturbed eg as a result of development. Contamination can also arise from pollution events (which could be shipping or industry related) e.g. chemical spillage, low dissolved oxygen.

Entrainment in water abstractions directly impacts on population dynamics through reduced recruitment and survival rates. Intake screens must meet statutory requirements under the Salmon & Freshwater Fisheries Act.

There is currently no stocking of salmon into the Usk. The management objectives for SAC salmon populations are to attain naturally self-sustaining populations. Salmon stocking should not be routinely used as a management measure. Salmon stocking represents a loss of naturalness and, if successful, obscures the underlying causes of poor performance (potentially allowing these risks to perpetuate). It carries various ecological risks, including the loss of natural spawning from broodstock, competition between stocked and naturally produced individuals, disease introduction and genetic alterations to the population. Therefore, there is a presumption against salmon stocking in the Usk SAC.

The presence of artificially high densities of other fish can create unacceptably high levels of predatory and competitive pressure on juvenile salmon and the aim should be to minimise these risks in considering any proposals for stocking. Escapes from fish farms are a form of uncontrolled introduction and should be prevented by effective screening on all intakes and discharges.

Controls on exploitation should include migratory passage to the SAC within territorial waters, including estuarine and coastal net fisheries, as well as exploitation within the SAC from rod fisheries. Net Limitation Orders are used to control the estuarine fishery. Exploitation of salmon by rod fisheries is regulated by EA licensing and byelaws controlling the fishing season and allowable methods.

5.5 Conservation status and management requirements of Feature 5: Bullhead *Cottus gobio*

Conservation status

Status: Unfavourable: Unclassified. The current unfavourable status results from the presence of adverse factors, in particular flow depletion and localised water quality failures. Records obtained from juvenile salmon monitoring show that bullhead are widespread in the main river and tributaries. There is a need for quantitative information on bullhead abundance, which will be addressed by targeted monitoring in 2007.

Management requirements

Vertical drops of >18-20 cm are sufficient to prevent upstream movement of adult bullheads. They will therefore prevent recolonisation of upper reaches affected by lethal pollution episodes, and will also lead to constraints on genetic interactions that may have adverse consequences. New instream structures should be avoided, whilst the impact of existing artificial structures needs to be evaluated.

The extent and quality of suitable bullhead habitat must be maintained. Elevated levels of fines can interfere with egg and fry survival. Spawning habitat is defined as unsilted coarse (gravel/pebble/cobble) dominated substrate: males guard sticky eggs on the underside of stones. Larger stones on a hard substrate providing clear spaces between the stream bed and the underside of pebbles/cobbles are therefore important.

The importance of submerged higher plants to bullhead survival is unclear, but it is likely that where such vegetation occurs it is used by the species for cover against predators. Weed cutting should be limited to no more than half of the channel width in a pattern of cutting creating a mosaic of bare substrate and beds of submerged plants. Slack-water areas provide important refuges against high flow

conditions. Suitable refuges include pools, submerged tree root systems and marginal vegetation with >5 cm water depth.

Bullheads are particularly associated with woody debris in lowland reaches, where it is likely that it provides an alternative source of cover from predators and floods. It may also be used as an alternative spawning substrate. Debris dams and woody debris should be retained where characteristic of the river/reach. Woody debris removal should be minimised, and restricted to essential activities such as flood defence.

Maintenance of intermittent tree cover in conjunction with retention of woody debris helps to ensure that habitat conditions are suitable. At least 50% high canopy cover to the water course/banks should be maintained, where appropriate. Some reaches may naturally have lower tree cover. Cover may also be lower in urban reaches.

Bullhead densities have been found to be negatively correlated with densities of non-native crayfish, suggesting competitive and/or predator-prey interactions. Non-native crayfish should be absent from the SAC.

The presence of artificially high densities of salmonids and other fish will create unacceptably high levels of predatory and competitive pressure on juvenile and adult bullhead. Stocking of fish should be avoided in the SAC.

Escapes from fish farms are a form of uncontrolled introduction and should be prevented by effective screening on all intakes and discharges.

Bullheads are relatively sedentary and interactions between populations in different parts of the catchment and in different catchments are likely to be limited, suggesting the existence of genetically discrete populations. Since they are of no angling interest, deliberate transfers between sites are unlikely to have been undertaken in the past, such that the genetic integrity of populations is likely to be intact. There should be no stocking/transfers of bullhead unless agreed to be in the best interests of the population.

In general, management for other SAC features is expected to result in favourable habitat for bullhead, through improvements in water quality and flow regime and maintenance of suitable physical habitat.

5.6 Conservation status and management requirements of Feature 6: European otter *Lutra lutra*

Conservation status

Status: Favourable. The conservation status of otters in the Usk SAC is determined by monitoring their distribution, breeding success, and the condition of potential breeding and feeding habitat outlined in the Performance Indicators. Their current condition can be considered favourable, but with scope for further improvement, if habitat and other natural factors can be maintained and enhanced.

Management requirements

The catchment should be capable of supporting at least 18 breeding females, based on one breeding female per 20km stretch of river. It is possible that if all the breeding sites achieve optimal habitat conditions and fish and amphibian stocks are secured that the catchment may then support further breeding animals. However, the amount of compression of home ranges that otters will accept cannot as yet be determined³.

Management should aim to ensure that there is sufficient undisturbed breeding habitat to support an otter population of a size determined by natural prey availability and associated territorial behaviour.

The involvement of river users and land managers will be important in improving potential breeding habitat near to the river. Agri-environment schemes and the Better Woodlands for Wales scheme provide possible mechanisms for maintaining suitable sites, such as lightly grazed woodlands, areas of dense scrub, and tussocky fens with purple moor-grass.

Food availability is an important factor. Fish biomass should stay within expected natural fluctuations. A potential problem appears to be the decline in eel populations, and similar concerns are apparent with respect to amphibian numbers.

Measures to ensure the safe movement of otters around the catchment will be promoted, in particular the provision of ledges, tunnels and fencing on new road bridge schemes. Where bridges are being repaired or replaced, or at especially bad locations for otter road deaths, such features may be retro-fitted.

Certain areas of the SAC are critical to the movement of otters both within the system and to adjacent sites. The Usk SAC provides a key movement corridor for otters passing between the relatively high densities in mid Wales and the south-east Wales coastal strip (Seven Estuary and Gwent Levels). The function of this aspect of the site should be protected through the maintenance of suitable resting sites (in terms of size, quality and levels of disturbance) through the major urban centre of Newport.

Pollution of rivers with toxic chemicals, such as PCBs, was one of the major factors identified in the widespread decline of otters during the last century. There should be no increase in pollutants potentially toxic to otters.

5.7 Conservation status and management requirements of Feature 7: Water courses of plain to montane levels with the *Ranunculon fluitantis* and *Callitricho-Batrachion* vegetation

Conservation status

Status: Unfavourable: Unclassified. This feature is not identified as one of the primary reasons for designation of the River Usk SAC; its distribution being apparently limited by the availability of suitable hydromorphological conditions. Important stands have been identified in the lower reaches of the main river below Abergavenny down to the tidal limit, and in the upper reaches of a headwater stream, the Afon Senni. These reaches may represent a sub-type of the feature where large submerged and floating leaved flowering plants, in particular *Ranunculus*, are dominant. Habitat suitability studies⁴ suggest that the natural range of the feature may be more widespread within the SAC. More widespread sub-types may consist of communities dominated by aquatic bryophytes. Where necessary, examples of these sub-types may be identified as priorities for management, for example through the management of riparian vegetation to preserve shade and humidity. Further understanding of the distribution and status of this feature and its natural range within the River Usk SAC is required.

The present unfavourable status of the feature results from the over-abundance of invasive non-native species of bankside plant communities, which are included within the feature definition. These are predominantly giant hogweed and Himalayan balsam in the lower reaches of the main river.

Management requirements

Factors that are important to the favourable conservation status of this feature include flow, substrate quality and water quality, which in turn influence species composition and abundance. These factors often interact, producing unfavourable conditions by promoting the growth of a range of algae and other species indicative of eutrophication. Under conditions of prolonged low flows and high nutrient status, epiphytic algae may suppress the growth of aquatic flowering plants. Favourable management for this feature is therefore largely dependent on ensuring that sufficient depth, velocity and duration of flow and sufficiently low phosphate levels are maintained within the natural range of the vegetation.

A favourable flow regime can be defined with reference to naturalised flows (removing the influence of artificial abstractions and discharges from flow records). While more sophisticated analysis of depth and velocity has been carried out locally for the Review of Consents process, a flow level criterion is generally applied to regulate abstractions. Based on current available information, the recent level of flow depletion downstream of major abstractions in the River Usk SAC is not considered to be damaging to this feature, either through limiting its range or adversely affecting its community composition⁵.

The conservation objectives require that the area covered by the feature is stable or increasing within its natural range, which is likely to require catchment-wide measures to control diffuse pollution from agriculture, as the principal source of phosphate. Measures should be targeted initially at those reaches identified as holding important stands of this vegetation, in particular the Afon Senni.

Invasive non-native plants are a detrimental impact on this feature. Giant hogweed, Himalayan balsam and Japanese knotweed should be actively managed to control their spread and hopefully reduce their extent in the SAC.

6. ACTION PLAN: SUMMARY

This section takes the management requirements outlined in Section 5 a stage further, assessing the specific management actions required on each management unit. This information is a summary of that held in CCW's Actions Database for sites, and the database will be used by CCW and partner organisations to plan future work to meet the Wales Environment Strategy targets for sites.

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
001	000467	Tidal reach	Development pressures in Newport leading to increased disturbance and pollution risk.	Yes
002	000468	Prioress Mill to tidal limit	Dwr Cymru Prioress Mill abstraction causing flow depletion and fish entrainment. Invasive weeds affect river bank areas.	Yes
003	000469	Llanfoist Bridge to Prioress Mill	Trostrey Weir forms a partial barrier to migration of shad. Invasive weeds affect river bank areas.	Yes
004	000470	Crickhowell Bridge to Llanfoist Bridge	Trostrey Weir and Llanfoist Bridge form a partial barrier to migration of shad. Tipped waste affects a significant length of river bank at Llanfoist. Invasive weeds affect river bank areas.	Yes
005	000471	Brecon Weir to Crickhowell Bridge	Crickhowell Bridge forms a near-total barrier to migration of shad. Canal abstraction at Brecon Weir causes localised significant flow depletion at low flows. Himalayan balsam is invasive over large areas of river bank.	Yes
006	000472	Usk Reservoir to Brecon Weir & Afon Hydfer	Brecon Weir forms a partial barrier to fish migration. The main River Usk is partially regulated by Usk Reservoir. Forestry affects the upper part of Afon Hydfer. Agriculture and forestry affect run-off regime and water quality.	Yes
007	000473	Usk Tributaries, Brecon downstream	Partial barriers to fish migration at several locations. Caerfanell is regulated by Talybont Reservoir. Grwynne Fawr is regulated by Grwynne Fawr Reservoir. Agricultural land management affects run-off regime and water quality.	Yes
008	000474	Camlais, Bran & Ysgir	Agricultural land management affects run-off regime and water quality.	Yes
009	000475	Crai & Cilieni	Crai is regulated by Cray Reservoir. Agricultural land management affects run-off regime and water quality.	Yes
010	000476	Afon Senni	Agricultural land management affects run-off regime and water quality.	Yes
011	000488	Upper Nant Menascin	No known significant issues.	No

7. GLOSSARY

This glossary defines some of the terms used in this **Core Management Plan**. Some of the definitions are based on definitions contained in other documents, including legislation and other publications of CCW and the UK nature conservation agencies. None of these definitions is legally definitive.

Action	A recognisable and individually described act, undertaking or project of any kind, specified in section 6 of a Core Management Plan or Management Plan , as being required for the conservation management of a site.
Attribute	A quantifiable and monitorable characteristic of a feature that, in combination with other such attributes, describes its condition .
Common Standards Monitoring (CSM)	A set of principles developed jointly by the UK conservation agencies to help ensure a consistent approach to monitoring and reporting on the features of sites designated for nature conservation, supported by guidance on identification of attributes and monitoring methodologies.
Condition	A description of the state of a feature in terms of qualities or attributes that are relevant in a nature conservation context. For example the condition of a habitat usually includes its extent and species composition and might also include aspects of its ecological functioning, spatial distribution and so on. The condition of a species population usually includes its total size and might also include its age structure, productivity, relationship to other populations and spatial distribution. Aspects of the habitat(s) on which a species population depends may also be considered as attributes of its condition.
Condition assessment	The process of characterising the condition of a feature with particular reference to whether the aspirations for its condition, as expressed in its conservation objective , are being met.
Condition categories	<p>The condition of feature can be categorised, following condition assessment as one of the following²:</p> <p>Favourable: maintained; Favourable: recovered; Favourable: un-classified Unfavourable: recovering; Unfavourable: no change; Unfavourable: declining; Unfavourable: un-classified Partially destroyed; Destroyed.</p>
Conservation management	Acts or undertaking of all kinds, including but not necessarily limited to actions , taken with the aim of achieving the conservation objectives of a site. Conservation management includes the taking of statutory and non-statutory measures, it can include the acts of any party and it may take place outside site

² See JNCC guidance on Common Standards Monitoring <http://www.jncc.gov.uk/page-2272>

boundaries as well as within sites. Conservation management may also be embedded within other frameworks for land/sea management carried out for purposes other than achieving the conservation objectives.

Conservation objective	The expression of the desired conservation status of a feature , expressed as a vision for the feature and a series of performance indicators . The conservation objective for a feature is thus a composite statement, and each feature has one conservation objective.
Conservation status	A description of the state of a feature that comprises both its condition and the state of the factors affecting or likely to affect it. Conservation status is thus a characterisation of both the current state of a feature and its future prospects.
Conservation status assessment	The process of characterising the conservation status of a feature with particular reference to whether the aspirations for it, as expressed in its conservation objective , are being met. The results of conservation status assessment can be summarised either as ‘favourable’ (i.e. conservation objectives are met) or unfavourable (i.e. conservation objectives are not met). However the value of conservation status assessment in terms of supporting decisions about conservation management , lies mainly in the details of the assessment of feature condition , factors and trend information derived from comparisons between current and previous conservation status assessments and condition assessments.
Core Management Plan	A CCW document containing the conservation objectives for a site and a summary of other information contained in a full site Management Plan .
Factor	Anything that has influenced, is influencing or may influence the condition of a feature . Factors can be natural processes, human activities or effects arising from natural process or human activities, They can be positive or negative in terms of their influence on features, and they can arise within a site or from outside the site. Physical, socio-economic or legal constraints on conservation management can also be considered as factors.
Favourable condition	See condition and condition assessment
Favourable conservation status	See conservation status and conservation status assessment ³
Feature	The species population, habitat type or other entity for which a site is designated. The ecological or geological interest which justifies the designation of a site and which is the focus of conservation management.
Integrity	See site integrity
Key Feature	The habitat or species population within a management unit that is the primary focus of conservation management and monitoring in that unit.
Management Plan	The full expression of a designated site’s legal status, vision , features , conservation objectives , performance indicators and

³ A full definition of favourable conservation status is given in Section 4.

	management requirements. A complete management plan may not reside in a single document, but may be contained in a number of documents (including in particular the Core Management Plan) and sets of electronically stored information.
Management Unit	An area within a site, defined according to one or more of a range of criteria, such as topography, location of features , tenure, patterns of land/sea use. The key characteristic of management units is to reflect the spatial scale at which conservation management and monitoring can be most effectively organised. They are used as the primary basis for differentiating priorities for conservation management and monitoring in different parts of a site, and for facilitating communication with those responsible for management of different parts of a site.
Monitoring	An intermittent (regular or irregular) series of observations in time, carried out to show the extent of compliance with a formulated standard or degree of deviation from an expected norm. In Common Standards Monitoring , the formulated standard is the quantified expression of favourable condition based on attributes .
Operational limits	The levels or values within which a factor is considered to be acceptable in terms of its influence on a feature . A factor may have both upper and lower operational limits, or only an upper limit or lower limit. For some factors an upper limit may be zero.
Performance indicators	The attributes and their associated specified limits , together with factors and their associated operational limits , which provide the standard against which information from monitoring and other sources is used to determine the degree to which the conservation objectives for a feature are being met. Performance indicators are part of, not the same as, conservation objectives. See also vision for the feature .
Plan or project	Project: Any form of construction work, installation, development or other intervention in the environment, the carrying out or continuance of which is subject to a decision by any public body or statutory undertaker. Plan: a document prepared or adopted by a public body or statutory undertaker, intended to influence decisions on the carrying out of projects . Decisions on plans and projects which affect Natura 2000 and Ramsar sites are subject to specific legal and policy procedures.
Site integrity	The coherence of a site's ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it is designated.
Site Management Statement (SMS)	The document containing CCW's views about the management of a site issued as part of the legal notification of an SSSI under section 28(4) of the Wildlife and Countryside Act 1981, as substituted.
Special Feature	See feature
Specified limit	The levels or values for an attribute which define the degree to which the attribute can fluctuate without creating cause for

concern about the **condition** of the **feature**. The range within the limits corresponds to favourable, the range outside the limits corresponds to unfavourable. Attributes may have lower specified limits, upper specified limits, or both.

Unit

See **management unit**

Vision for the feature

The expression, within a **conservation objective**, of the aspirations for the **feature** concerned. See also **performance indicators**.

Vision Statement

The statement conveying an impression of the whole site in the state that is intended to be the product of its **conservation management**. A 'pen portrait' outlining the **conditions** that should prevail when all the **conservation objectives** are met. A description of the site as it would be when all the **features** are in **favourable condition**.

8. REFERENCES AND ANNEXES

¹ Harvey JP & Cowx IG (2003). *Monitoring the River, Brook and Sea Lamprey*, Lampetra fluviatilis, L. planeri and Petromyzon marinus. Conserving Natura 2000 Rivers Monitoring Series No.5, English Nature, Peterborough.

http://www.english-nature.org.uk/LIFEinUKRivers/species/lamprey_monitoring.pdf

² Hull International Fisheries Institute (2006). *Monitoring of lamprey in the rivers Wye and Usk SACs 2005-2006*. Unpublished report to CCW, available on request.

³ Morgan P (2005). *Current and potential distribution, condition and breeding success of the otter (Lutra lutra) in the River Usk catchment*. CCW Environmental Monitoring Report No.19

⁴ Geodata Institute (2005). *Fluvial audit of the Upper Usk Tributaries*. CCW

⁵ Holmes NTH (2004). *A review of water quality monitoring on the Usk catchment using macrophytes*. Environment Agency Wales, South East Area

⁶ Cowx IG & Fraser D (2003). *Monitoring the Atlantic Salmon*. Conserving Natura 2000 Rivers Monitoring Series No.7, English Nature, Peterborough.

http://www.english-nature.org.uk/LIFEinUKRivers/species/salmon_monitoring.pdf

ANNEX 1 – STANDARDS USED IN THE USK REVIEW OF CONSENTS FOR FLOW

The flow target used in the Environment Agency (EA) Resource Assessment and Management Framework (RAM) for the River Usk utilises the Habitats Directive Ecological River Flow (HDERF) objective during the key fish migration period in April to June. The maximum permissible percentage reduction from naturalised flow levels during this period is given in Table 1. Within the River Usk SAC, all reaches above Abergavenny are classified as having Very High sensitivity to abstraction, and below Abergavenny as High sensitivity. At other times of year the flow objective is derived from the CAMS River Flow Objective and recent actual abstraction scenario, whichever is the more stringent. At low flows this is equivalent to the HDERF objective. Some licences including the major public water supply abstractions in the lower river have Hands-off Flow conditions, which prevent abstraction during low flows.

Table 1 HDERF1 - River flow thresholds for SAC/SSSI rivers

EW band (sensitivity)	Maximum % reduction from daily naturalised flow		
	>Qn50	Qn50-95	<Qn95
Very High	10	10	1-5
High	15	10	5-10

For reaches below reservoirs, the effect of abstraction from storage is excluded from the assessment, so that the target flow is a ‘benchmark’ flow, incorporating the reservoir compensation release, rather than a naturalised flow. At times of low flow, compensation releases may increase the flow downstream of the reservoir above natural levels. There may also be effects resulting from reduced water temperature.

ANNEX 2 – STANDARDS USED IN THE USK REVIEW OF CONSENTS FOR PHOSPHATE

Source: ‘Usk Phosphate Target setting’ Environment Agency Wales Ref. No: EASE/TM/04/03

INTRODUCTION

The Environment Agency, English Nature and the Countryside Council for Wales have agreed on a methodology for the determination of guideline phosphorus standards on SAC rivers. The methodology is based upon catchment geology and river size, and a set of guideline standards has been applied to the typology which permits a reasonable degree of anthropogenic change but which should be consistent with the favorable condition of SAC interest features. The full details can be found in WQTAG048b – Guideline Phosphorus Standards for SAC Rivers.

The purpose of this report is to detail how these guidelines have been applied to the Usk SAC.

1.1 Determining River Size Class

There are three size classes, representing headwaters, river, and large river (Table 1). The division is based on the river flow categories used in the General Quality Assessment and the River Habitat Survey (Table 2). By reference to these data, the river can be allocated to one of the 3 classes.

Table 1. River size classification

River class	GQA flow band
1 – Headwaters	1 – 2
2 – River	3 – 8
3 – Large river	9 – 10

Table 2. GQA Flow Bands

GQA flow band	Long Term Average Natural Flow (cumecs)	Equivalent in ML/day
1	<0.31	<26.8
2	<0.62	<53.6
3	<1.25	<108
4	<2.5	<216
5	<5.0	<432
6	<10	<864
7	<20	<1728
8	<40	<3456
9	<80	<6912
10	>80	>6912

When the SIMCAT model of the Usk was built, Hydrology provided flow gauge information, flow estimates and headwater flow estimates (see Usk SIMCAT Final Model Build Report). The information from these was used to determine the GQA flow band and hence the river class.

The main River Usk is classed as a ‘river’ from just below Usk reservoir to the tidal limit. The SAC tributaries will obviously start off as headwaters but invariably reach ‘river’ size by the time they enter the main river Usk. In order to differentiate the point at which the tributary changed from ‘headwater’ to ‘river’ class, detailed flow data along the length of the tributaries would be required rather than the usual two flow estimates that we currently have. Therefore, to keep the classification simple, the SAC tributaries will be classed as ‘river’ along their entire lengths.

1.2 Determining the Geological Class

Table 3. Geological classification

A. Hard upland geologies (all land over 330m)	Igneous, plus Cambrian to Devonian series and Carboniferous. Low porosity, poor geology with hill farming and v. low population density
B. Other Cambrian – Devonian, and Carboniferous	Hard mudstones, sandstones, limestones. Improved pasture plus some arable, low population density
C. Jurassic and Cretaceous limestones	Soft limestones and chalk. More intensive agriculture and higher population densities, but relatively resistant to P enrichment due to soil/geological adsorption capacity. Form major aquifers whose P levels set background P concentrations of the rivers
D. Triassic sandstones and mudstones	Soft sandstones and mudstones in lowland areas, agriculture and population densities similar to (C) but more vulnerable to P enrichment due to low adsorption capacity. Form major aquifers whose P levels set background P concentrations of the rivers
E. Mesozoic clay vales and Tertiary clays	Very low porosity, rich soils in lowland areas. Intensive agriculture and high population densities, yielding highest background P levels.

The Methodology identifies five geological types (Table 3).

The Usk catchment is predominantly Old Red Sandstone and was therefore assigned to category ‘B’.

1.3 Combining River Size and Geological Class

Combining the river size and geological class information allows an appropriate guideline standard to be allocated (Figure 1).

Table 4. Phosphorus values assigned to river types (total reactive phosphorus mg/l, except * total phosphorus)

Geological class	1. Headwaters	2. River	3. Large river
<i>A</i>			
Natural	Undetectable	0.02	0.02
Standard	0.02	0.04	0.06
Threshold	<i>0.04</i>	<i>0.06</i>	<i>0.10</i>
<i>B</i>			
Natural	0.02	0.02	0.03
Standard	0.06	0.06	0.10
Threshold	<i>0.10</i>	<i>0.10</i>	<i>0.10</i>
<i>C</i>			
Natural	0.02	0.02	0.02
Standard	0.04	0.06	0.06
Threshold	<i>0.06</i>	<i>0.10</i>	<i>0.10</i>
<i>D</i>			
Natural	0.02	0.02	0.03
Standard	0.06	0.06	0.10
Threshold	<i>0.10</i>	<i>0.10</i>	<i>0.20</i>
<i>E</i>			
Natural	0.02	0.03	0.03
Standard	0.06	0.10*	0.10*
Threshold	<i>0.10</i>	<i>0.20*</i>	<i>0.20*</i>

The Usk SAC falls into flow category 2 ‘River’ and Geological class ‘B’, and therefore gets a P Target of 0.06 mg/l.

ANNEX 3 – STANDARDS USED IN THE USK REVIEW OF CONSENTS FOR WATER QUALITY

Table 1 sets out the targets specified in the EA Appropriate Assessment for the River Usk Review of Consents. RE1 applies to all of the designated SAC reaches of the River Usk (RE2 applies to some non-designated tributaries).

Table 1 River ecosystem (RE) classification

	Dissolved O xygen (% sat) 10%ile	Biological Oxygen Demand (mg/l) 90%ile	Total Ammonia (mg N/l) 90%ile	Un-ionised Ammonia (mg N/l) 95%ile	pH (lower limit as 5%ile, upper limit as 95%ile)	Hardness (mg/l CaCO ₃) Mean	Dissolved Copper (µg/l) 95%ile	Total Zinc (µg/l) 95%ile
RE1	80	2.5	0.25	0.021	6.0-9.0	≤10 >10 and ≤50 >50 and ≤ 100 >100	5 22 40 112	30 200 300 500
RE2	70	4.0	0.6	0.021	6.0-9.0	≤10 >10 and ≤50 >50 and ≤ 100 >100	5 22 40 112	30 200 300 500

From: Kathryn Maye <Kathryn.Maye@canalrivertrust.org.uk>
Sent: 21 November 2019 11:21
To: Pearce, Hannah
Cc: WA 2003 New Authorisations
Subject: RE: NA Monmouthshire & Brecon Canal - Invalid Applications
Attachments: Llangattock Feeder Location Map.pdf; CRT91_Cwm Cwannon Raw Data.xlsx; CRT327_River Usk at Brecon Raw Data.xlsx; CRT438_Trosnant Spring Raw Data.xlsx; CRT234_Llangattock Raw Data.xlsx; CRT61_Castle Turn Raw Data.xlsx; CRT263_Mill Turn Raw Data.xlsx; CRT276_Ochran Turn Raw Data.xlsx; Figure 1.pdf; Figure 2.pdf

Follow Up Flag: Follow up
Flag Status: Completed

Good morning Hannah,

Please see below responses to your queries on the Monmouthshire & Brecon Canal applications.

Points of abstraction

Llangattock

Llangattock feeder flow is diverted into the canal via two sets of removable boards at locations 1 and 2 in the schematic provided. As noted in the supporting information, normal operation is for boards at these two locations to be installed during our main boating season, April to October. In a dry year e.g. 2011, these boards may need to be installed all year. I would agree that it would be acceptable, therefore, to add a second abstraction point at the location of 'removable boards 2' as you suggest. The approximate NGR of this location is SO 20857 16966. However, I do not believe a third abstraction point is needed at the location of 'removable boards 3' as boards are only installed at this location during the winter months, November to March i.e. when abstraction to the canal is not needed, to divert water away from the canal i.e. when no abstraction is taking place.

I have added Abstraction Point C to the map as requested. The approximate NGR of this location is given above. Please see revised location map attached.

Rights of Access

Cwm Cwannon and Brecon Access

I can confirm that the abstraction points for both Cwm Cwannon and Brecon feeders are within our land ownership. Please see Figures 1 and 2 attached showing the location of abstraction and land ownership boundary for each feeder. For Cwm Cwannon, there is no sluice (s) symbol in our GIS system as there is for the River Usk at Brecon, but the start of the feeder (shown by the blue line) is at the location of the sluice. It can be clearly seen that the start of this blue line i.e. the location of the sluice, is within our land ownership boundary.

Llangattock, Castle Turn, Mill Turn, Ochran Turn and Trosnant Spring

It is acknowledged that the Acts of Parliament giving legal rights of access for the above feeders may be requested during the determination period.

Abstraction Quantities

All sites

You note in your email that the instantaneous rates and annual quantities for each year do not correlate. This is the case for all sites. The abstractions do take place over 24 hours, but not at the maximum instantaneous flow rates for the whole day, every day of the year. For sites with SCADA, we have calculated the maximum peak instantaneous flow rate from the maximum daily abstraction on the day when the maximum hourly abstraction rate was recorded in each year i.e. $PI = MD/0.0864$, where the PI is the peak instantaneous flow in l/s and MD is the maximum daily abstraction in Ml/d. For those sites without SCADA, the maximum instantaneous flow rate has been estimated from the maximum daily abstraction in each year using the same formula above.

Evidence

Cwm Cwannon, Brecon and Trosnant Spring

Please see attached documents providing raw data for the above sites.

Llangattock, Castle Turn, Mill Turn and Ochran Turn

Please see attached documents providing raw data for the above sites.

Means of Measurement

Brecon

The abstraction is monitored via the Trust's telemetry/SCADA (Supervisory Control and Data Acquisition) system approximately 1km downstream of the abstraction on the M&B Canal at Bridge 167 (Dadford's Bridge). An ADCP (Acoustic Doppler Current Profiler) is installed at this location. This ADCP is a SonTek Argonaut SL and is mounted on a frame as a side looking instrument. The ADCP measures velocities over a range of depths using acoustic Doppler technology and converts this along with the cross sectional area to flow using the velocity area method. Calibrations of the instrument are undertaken by SonTek in collaboration with the Trust's SCADA and Water Management Teams periodically, as appropriate. Readings from the ADCP are recorded at a Dynamic Logic Outstation on site which is linked by telemetry to the Trust's SCADA database.

Trosnant Spring

The abstraction is monitored via the Trust's telemetry/SCADA (Supervisory Control and Data Acquisition) system approximately 0.9km downstream of the abstraction. A Kent Flow Meter is installed within the pipeline, downstream of the control valve to the canal. This meter is an inline meter which works off a rotary action when flow is passed through the pipe to give a flow reading. Readings from the meter are recorded at a Schneider T4 Outstation on site which is linked by telemetry to the Trust's SCADA database.

I hope this answers all your queries,

Kind regards,

Kathryn

Kathryn Maye

PhD BSc (Hons) MCIWEM C.WEM CEnv CSci

Senior Hydrologist

Water Management Team

I work a 4 day week with reduced hours. My working days are Monday to Thursday.

T 01926 626166 **M** 07824 473869

E kathryn.maye@canalrivertrust.org.uk

Canal & River Trust

Canal Lane, Hatton, Warwick, CV35 7JL

Please visit our [website](#) for more information about the water management of our canals.

We have published our third annual update on our Water Resources Strategy, take a look – [Water Resources Strategy Annual Update 2018](#)

We have published the 2018 Annual Lockage Report - [take a look at this year's figures here!](#)



From: Pearce, Hannah [mailto:Hannah.Pearce@cyfoethnaturiolcymru.gov.uk]

Sent: 23 October 2019 15:21

To: Kathryn Maye <Kathryn.Maye@canalrivertrust.org.uk>

Cc: WA 2003 New Authorisations <New.Authorisations@canalrivertrust.org.uk>

Subject: NA Monmouthshire & Brecon Canal - Invalid Applications

Dear Kathryn,

Please find attached the invalid letter for the below applications:

PAN-006993 – Llangattock
PAN-006994 – Cwm Crawnnon
PAN-006995 – Castle Turn
PAN-006996 – Mill Turn
PAN-006997 – Ochram Turn
PAN-006998 – River Usk at Brecon Access
PAN-006999 - Trosnant Spring

I have included all applications on the same letter for ease. Some of the points may be easier to talk about over the phone so please do not hesitate to contact me if further clarification is needed.

Kind regards,
Hannah

Hannah Pearce
Sywddog Trwyddedu Uwchradd / Senior Permitting Officer
Adnoddau Dŵr / Water Resources
Cyfarwyddiaeth Tystiolaeth, Polisi a Thrwyddedu / Evidence, Policy and Permitting Directorate
Cyfoeth Naturiol Cymru / Natural Resources Wales
Ffon / Telephone 0300 065 4554

www.cyfoethnaturiol.cymru / www.naturalresources.wales

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Mae Glandŵr Cymru yn gwmni cyfyngedig drwy warant a gofrestrwyd yng Nghymru a Lloegr gyda rhif cwmni 7807276 a rhif elusen gofrestredig 1146792. Swyddfa gofrestredig: First Floor North, Station House, 500 Elder Gate, Milton Keynes MK9 1BB.

Allcorn, Emma

From: Nicholas Saiz <Nicholas.Saiz@canalrivertrust.org.uk>
Sent: 20 September 2022 10:04
To: Allcorn, Emma; Kathryn Maye; Adam Comerford
Cc: WA 2003 New Authorisations
Subject: RE: PAN-006999 Trosnant Spring Intake – internal consultation feedback

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Emma,
I can confirm that we will agree to the daily volume limit of 2,000 cubic metres.

All the best,

Nicholas Saiz
Project Manager
M 07584 543214
E nicholas.saiz@canalrivertrust.org.uk

From: Allcorn, Emma <Emma.Allcorn@cyfoethnaturiolcymru.gov.uk>
Sent: 16 September 2022 16:42
To: Kathryn Maye <Kathryn.Maye@canalrivertrust.org.uk>; Adam Comerford <Adam.Comerford@canalrivertrust.org.uk>; Nicholas Saiz <Nicholas.Saiz@canalrivertrust.org.uk>
Cc: WA 2003 New Authorisations <New.Authorisations@canalrivertrust.org.uk>
Subject: PAN-006999 Trosnant Spring Intake – internal consultation feedback

CAUTION: This email originated from an external source. DO NOT CLICK/OPEN links or attachments unless you are certain of their origin.

Hi all

Following our meeting on Monday, please see below details of what we discussed for the Trosnant Spring application. If you could confirm your agreement to the daily volume change by 23/09/22 that would be appreciated. If this deadline causes any problems please let me know.

As discussed, this feedback is following the internal consultation exercise. We have not proceeded through the HRA at this point.

PAN-006999 Trosnant Spring Intake – internal consultation feedback		
Item	Consultation feedback	Further actions/requests for information
Licence expiry date	In line with the catchment common end date and skipping principle, the licence will have an expiry date of 2038.	n/a
Volumes applied for	According to the application, the maximum daily volume evidenced is 5,180 cubic metres. There are concerns this is an anomaly and has not been factored into the modelling work. The modelling work has been based on a maximum daily volume of 2,000 cubic metres. Are CRT	Please could you confirm whether you agree to amend the daily volume to the reduced figure of 2,000 cubic metres.

	<p>happy to accept 2,000 cubic metres as the max daily volume on the licence?</p> <p>We also understand from discussions that it may not even be possible to take 2,000 cubic metres from the spring/pipeline. CRT to confirm whether this is the case.</p>	I understand from our discussion on Monday that you believe the pipe will be able to take 2,000 cubic metres per day.
Fish/eel screening	<p>No screening is required at the intake.</p> <p>Recommendation for the outlet into the canal to have a grill on it will be include in the issue letter.</p>	n/a
Fish/eel passage	Not required.	n/a
Hands off flows/flow splits	To be confirmed	n/a
Means of measurement	<p>To be confirmed</p> <p>We will be including the intake details and pipe size within the licence conditions.</p>	n/a
Recording and reporting	To be confirmed	n/a

If you have any questions or comments regarding the above please do not hesitate to contact me. I will provide further details on the remaining elements when possible.

Kind regards
Emma

Emma Allcorn

Swyddog Arbenigol Arweiniol (Adnoddau Dŵr) / Lead Specialist Officer (Water Resources)

Cyfoeth Naturiol Cymru/ Natural Resources Wales

Ffôn/ Phone: 03000 65 4202

Tŷ Cambria, 29 Heol Casnewydd, Caerdydd, CF24 0TP / Cambria House, 29 Newport Road, Cardiff, CF24 0TP

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Mae Glandŵr Cymru yn gwmni cyfyngedig drwy warant a gofrestrwyd yng Nghymru a Lloegr gyda rhif cwmni 7807276 a rhif elusen gofrestredig 1146792. Swyddfa gofrestredig: National Waterways Museum Ellesmere Port, South Pier Road, Ellesmere Port, Cheshire CH65 4FW.

SPSF 1:

Core guidance

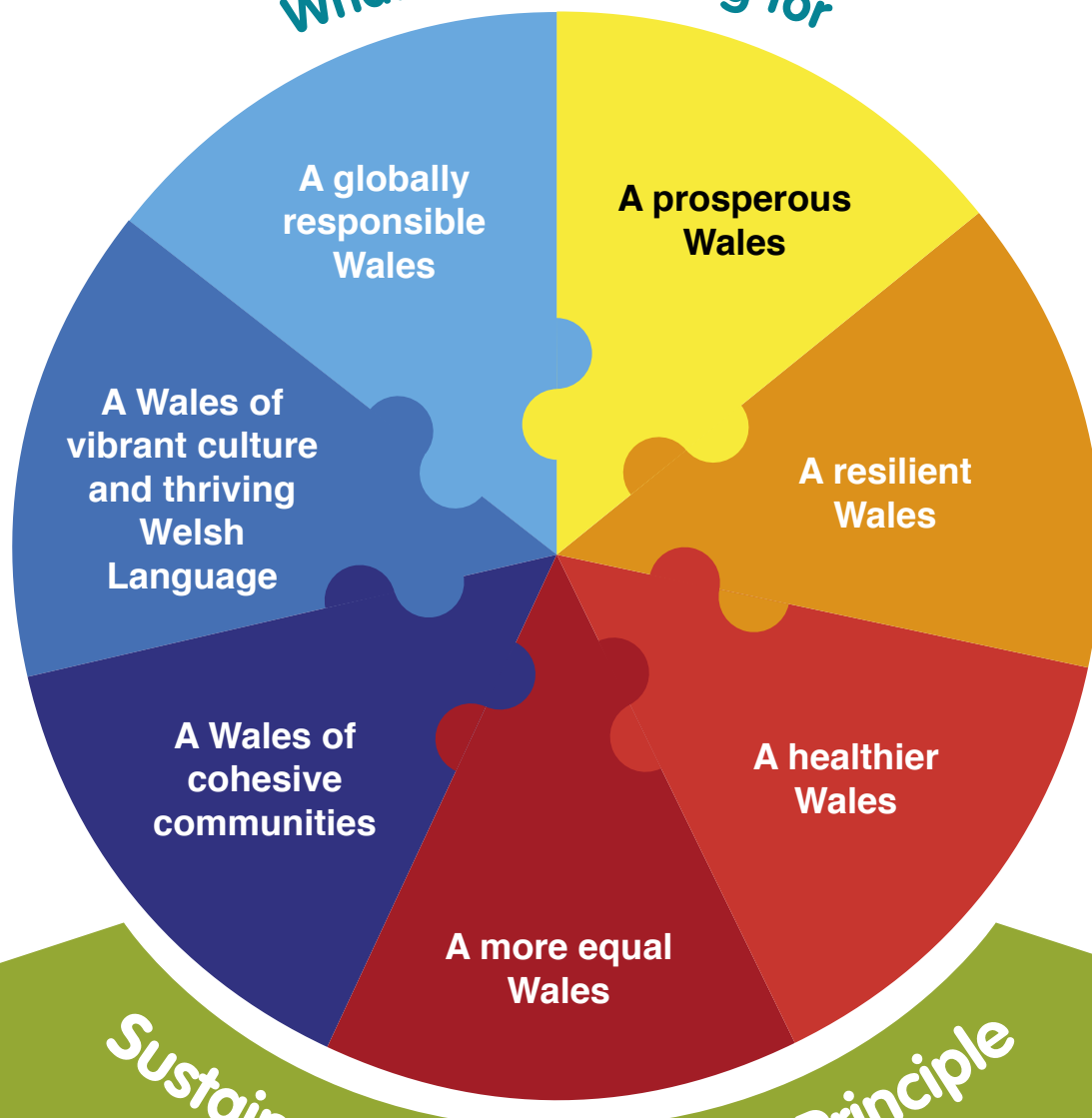


Llywodraeth Cymru
Welsh Government

Shared Purpose: Shared Future

Statutory guidance on the Well-being of
Future Generations (Wales) Act 2015

Well-being Goals What we are aiming for



Sustainable Development Principle How we will deliver



Long Term



Prevention



Integration



Collaboration



Involvement

This guidance is issued under sections 14, 22(2) and 51(1) of the Well-being of Future Generations (Wales) Act 2015.

Mae'r ddogfen yma hefyd ar gael yn Gymraeg.
This document is also available in Welsh.

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1. Introduction

1.1 Shared purpose

1. The Well-being of Future Generations (Wales) Act 2015 ('the Act')¹ gives a legally-binding common purpose – the seven well-being goals – for national government, local government, local health boards and other specified public bodies. It details the ways in which specified public bodies must work, and work together to improve the well-being of Wales.

2. The Act provides for better decision-making by ensuring that those public bodies take account of the long-term, help to prevent problems occurring or getting worse, take an integrated and collaborative approach, and considers and involves people of all ages. This supports existing commitments such as the Welsh language, equalities and the UN Convention on the Rights of the Child.

3. Together, the seven well-being goals and five ways of working provided by the Act are designed to support and deliver a public service that meets the needs of the present without compromising the ability of future generations to meet their own needs.

4. This statutory guidance is for public bodies specified in the Act who must take this guidance into account when fulfilling their legal duties under the Act. This guidance aims to assist you in taking action, and communicating the contribution made to the seven well-being goals whilst also helping to identify innovative and shared solutions to some of the most pressing challenges our communities face. Where you are under a legal requirement to do something the guidance will often use the term 'must', so that you are clear that the action(s) has to be done in order to comply with the Act. The guidance will also highlight areas which are considered best practice, and where actions are encouraged.

5. Achieving the well-being goals needs effective leadership in public bodies to drive action across Wales. To support this we have developed a common set of One Welsh Public Service values and behaviours which were launched at the Public Service Summit in November 2015. The leadership challenge for each of use, regardless of where we sit in

an organisation, is to work in a way that improves economic, social, environmental and cultural well-being to help us create a Wales that we want to live in now and in the future. It is a way of thinking and behaving – developing a shared future where we can all work together with a shared purpose. Further information on the One Welsh Public Service can be found through Academi Wales².

1.2 Who is this guidance for

6. This guidance is part of a package of guidance for those "public bodies" listed in section 6(1) of the Act. The specified public bodies are:

- Local Authorities;
- Local Health Boards;
- Public Health Wales NHS Trust;
- Velindre NHS Trust;
- National Park Authorities;
- Fire and Rescue Authorities;
- Natural Resources Body for Wales (Natural Resources Wales);
- the Higher Education Funding Council for Wales;
- the Arts Council of Wales;
- the Sports Council for Wales (Sport Wales);
- the National Library of Wales;
- the National Museum of Wales (National Museum Wales);
- the Welsh Ministers.

7. Those community councils which meet the criteria under section 40 of the Act are under a separate duty: to take all reasonable steps in their areas towards meeting the local objectives set by public services boards, in the local well-being plans for their areas. Separate guidance has been prepared for the community councils to which the duty in section 40 of the Act applies and can be found at SPSF 4, but they will also find this guidance of use.

8. In order to be user friendly this guidance has been drafted in a way that is designed to assist officials in all public bodies subject to the act.
9. The guidance will help you navigate the key parts of the ‘architecture’ of the Act (see Diagram 1 below), explaining where you fit in and how the parts of the Act work together to drive positive actions for the well-being of the whole of Wales. The package of guidance is made up of the following:

SPSF1 – Core Guidance

This contains guidance to public bodies and public services boards on key definitions, how to carry out sustainable development, understanding the well-being goals, applying the sustainable development principle, an explanation of the individual duties (public bodies and public services boards) and collective duties, how public bodies fit into the architecture of the Act, and where the key changes in organisations are expected to be seen.

SPSF 2 – Guidance on the individual role public bodies have

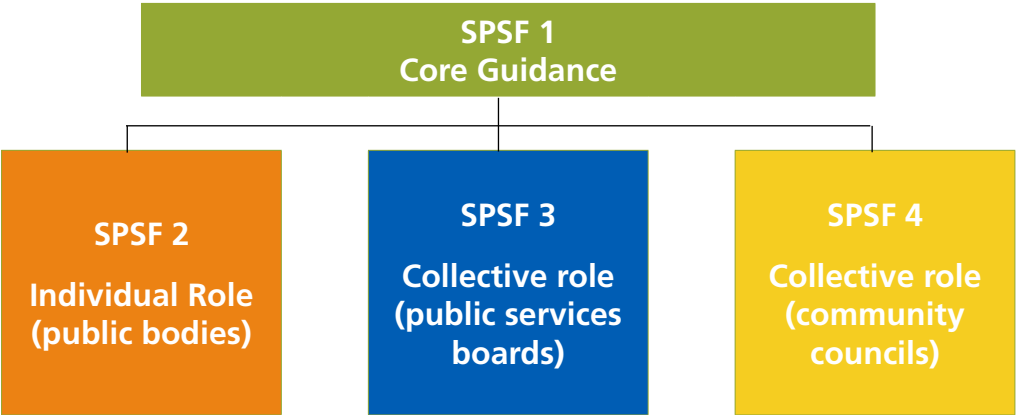
This contains guidance for all public bodies covered by the Act to help public bodies set well-being objectives, publish a well-being statement, review well-being objectives and report on progress.

SPSF 3 – Guidance on the collective role through public services boards

This contains guidance for public services boards about the exercise of their functions, including preparation of an assessment of local well-being and a local well-being plan.

SPS4 – Guidance for community councils on taking reasonable steps to contribute to the local well-being plan

This document contains specific guidance for those community and town councils which meet the criteria set out in the Act to comply with their duty to take all reasonable steps towards meeting the local objectives in the local well-being plan that has effect in its area.



1.3 Role of the Welsh Ministers

10. The Welsh Ministers are listed as one of the public bodies subject to the Act. They are therefore under the same well-being duty as the other specified public bodies. They also have other responsibilities under the Act, namely the duty to publish national indicators and milestones, and to publish a periodic Future Trends Report, which will provide evidence of progress and future pressures to assist decision makers.

2. The fundamentals



2.1 Sustainable Development

11. This section will help you familiarise yourself with the fundamentals of the Act and understand the opportunities and responsibilities you have in maximising your contribution to achieving each of the seven well-being goals.

12. The Act requires you to carry out sustainable development. Section 2 of the Act defines this as:

“sustainable development” means the process of improving the economic, social, environmental and cultural well-being of Wales by taking action, in accordance with the sustainable development principle, aimed at achieving the well-being goals.

13. Therefore sustainable development is a way of doing things rather than an end in itself. The Act makes it the core principle that guides how a public body operates. Carrying out sustainable development does not mean that it is an ‘add-on’.

14. You must use sustainable development to shape **what** you already do, **how** you do it, and how you **communicate** (via reporting) the difference you are making to the achievement of the well-being goals. These are the three aspects of what you have to do under the Act.

The What: Well-being of Wales

15. The Act provides for a shared purpose through seven well-being goals for Wales. These well-being goals are indivisible from each other and explain what is meant by the well-being of Wales.

16. Sustainable development is the process of improving well-being. If we do not work to develop sustainably we limit our potential to improve the well-being of Wales and therefore the well-being of individuals.

17. Sustainable development is about acknowledging that there are many things that determine a person’s quality of life (their well-being), and that these all can broadly be categorised as environmental, economic, social and cultural factors. These are captured in the well-being goals. This means that improving the quality of our environment, our economy and society and culture can improve the well-being of individuals and that of Wales as a whole.

18. In this way the Act provides a clear definition of sustainable development and what well-being means for Wales. In doing so, it means that a lack of clarity about these terms can no longer be used as an excuse for inaction.

19. Further guidance on the well-being goals can be found in Section 5 in this guidance.

Well-being of individuals

20. It is important to recognise the difference between the well-being of Wales, and the well-being of individuals. Sustainable development connects the environment in which we live, the economy in which we work, the society in which we enjoy and the cultures that we share, to people and their quality of life.

21. The use of the term ‘well-being’ in the Act and the Social Services and Well-being (Wales) Act 2014³ (‘the SS&WB Act’) are complementary. The meaning of “well-being” in the SS&WB Act applies only for the purpose of that Act. “Well-being” in the SS&WB Act is defined in relation to a ‘person’, whereas “well-being” in the Act is in relation to our economy, society, environment and culture across Wales.

22. The SS&WB Act focuses on one sub-set of the population of Wales, namely people who need care and support, and carers who need support.

The How: The sustainable development principle

23. The sustainable development principle defined by the Act is a fundamental part of how public bodies and public services boards must now operate. You must act in a manner which seeks to ensure that the needs of the present are met without compromising the ability of

future generations to meet their own needs, **by taking account of the sustainable development principle**.

24. The principle is made up of **five ways of working** that public bodies are required to take into account when applying sustainable development. These are:

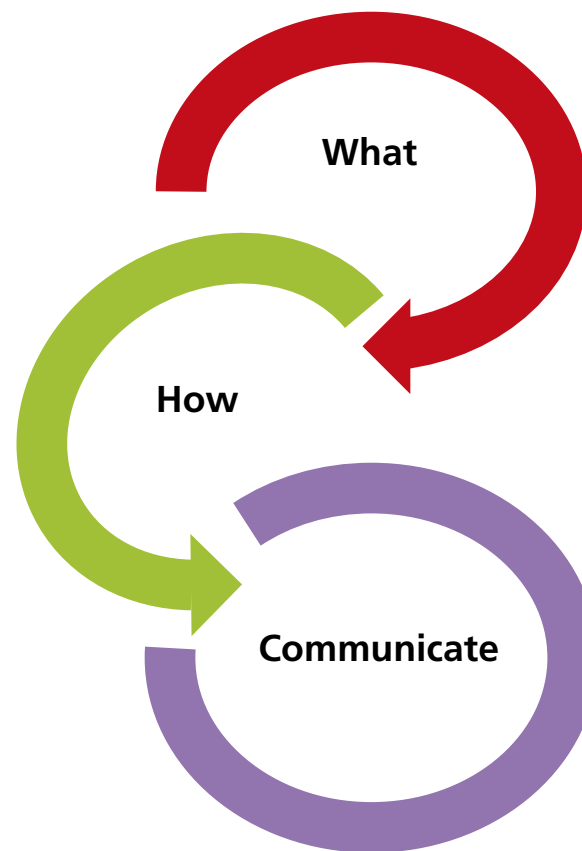
- Looking to the **long term** so that we do not compromise the ability of future generations to meet their own needs;
- Taking an **integrated** approach so that public bodies look at all the well-being goals in deciding on their well-being objectives;
- **Involving** a diversity of the population in the decisions that affect them;
- Working with others in a **collaborative** way to find shared sustainable solutions;
- Understanding the root causes of issues to **prevent** them from occurring.

25. Detailed guidance on these can be found in Section 4.

Communicating: Explaining your proposals and what you have done

26. Communicating what you propose to do and the progress you have made is required by the Act. This will also help to improve transparency and enable the involvement of the population in the decisions that affect them. Detailed guidance on this can be found in Section 8 and in SPSF 2.

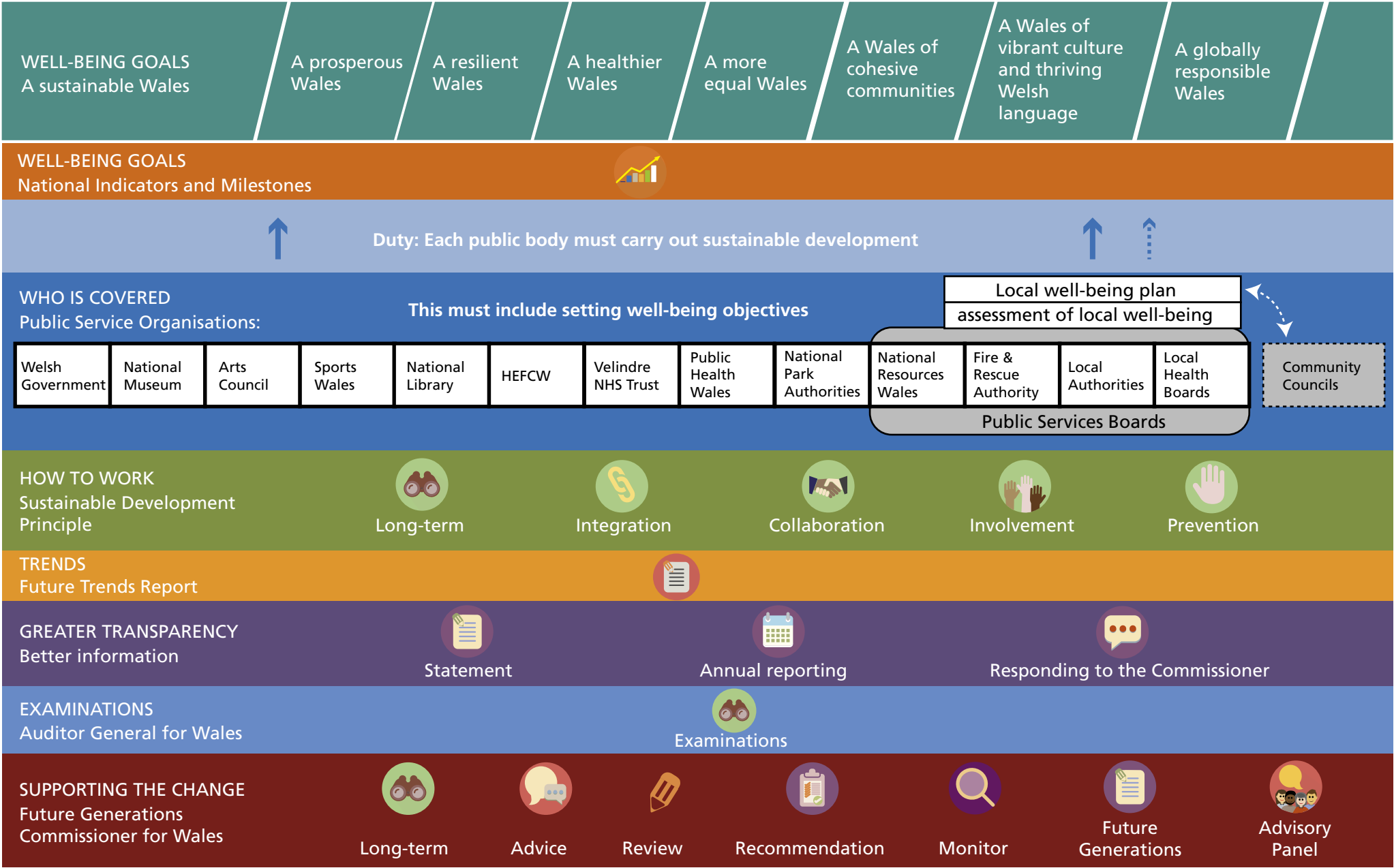
Figure 1 – Central organising principle



2.2 How do you fit?: The architecture of the Act

27. Diagram 1 provides an illustration of the main parts of the Act and how they fit together. This guidance document together with guidance documents SPSF 2, 3 and 4 will help you navigate the provisions of the Act.

Diagram 1 – The architecture of the Act



2.3 Well-being duty



Individual well-being duty on public bodies

28. Part 2 of the Act places a well-being duty on specified public bodies:

- (1) Each public body must carry out sustainable development.
- (2) The action a public body takes in carrying out sustainable development must include –
 - a) setting and publishing objectives (“well-being objectives”) that are designed to maximise its contribution to achieving each of the well-being goals, and
 - b) taking all reasonable steps (in exercising functions) to meet those objectives.

29. This means that for public bodies the core duty in the Act (the well-being duty) is that you must set well-being objectives that maximise your contribution to achieving the well-being goals. In doing so, you must take all reasonable steps to meet those well-being objectives, in accordance with the sustainable development principle.

The distinction between ‘objectives’ and ‘steps’	
Deciding on your well-being objectives – the duty to set well-being objectives.	These should be your objectives for change over the long term.
Meeting your well-being objectives – the duty to take all reasonable steps.	<p>These will be the steps you will take to achieve your well-being objectives. These steps can be short, medium or long term actions for change.</p> <p>These should explain what will be done.</p>

30. The other duties that apply to individual public bodies are outlined in the remainder of this document, with detailed guidance provided in SPSF2.

31. It is fundamentally important that the requirements of the Act are not seen as ‘an additional layer’ to existing activity so that sustainable development is embedded into your organisation. For example, the setting of well-being objectives should be the primary way in which you set well-being objectives; it should not take place in addition to an existing process.

32. In order for public bodies to effectively carry out sustainable development the requirements of the Act should be embedded within existing corporate processes – for example:

- The setting of well-being objectives should take place through a corporate planning process, and be reflected in a corporate plan (or equivalent).
- Reporting on progress toward meeting well-being objectives should take place through a corporate reporting process, and be reflected in an annual report (or equivalent).

Collective well-being duty on public services boards

33. Section 36 of the Act sets out the well-being duty on public services boards.

- (1) Each public services board must improve the economic, social, environmental and cultural well-being of its area by contributing to the achievement of the well-being goals.
- (2) A public services board's contribution to the achievement of the well-being goals must include:
 - a) assessing the state of economic, social, environmental and cultural well-being in its area,
 - b) setting objectives ("local objectives") that are designed to maximise its contribution within its area to achieving those well-being goals, and
 - c) the taking of all reasonable steps by members of the board (in exercising their functions) to meet those objectives.
- (3) Anything a public services board does under this section must be done in accordance with the sustainable development principle.

34. This means that for each public services board the core duty in the Act (the well-being duty) is that it sets well-being objectives in its Local Well-being Plan, and these are designed to maximise the public services board's contribution within its area to achieving the well-being goals; and takes all reasonable steps, by one or more members of the board, to meet the objectives.

35. A local well-being plan can include objectives that are also the well-being objectives of a public body that is a member of the public services board.

36. The other duties that apply to public services boards are outlined in the remainder of this document, with detailed guidance provided in SPSF 3.

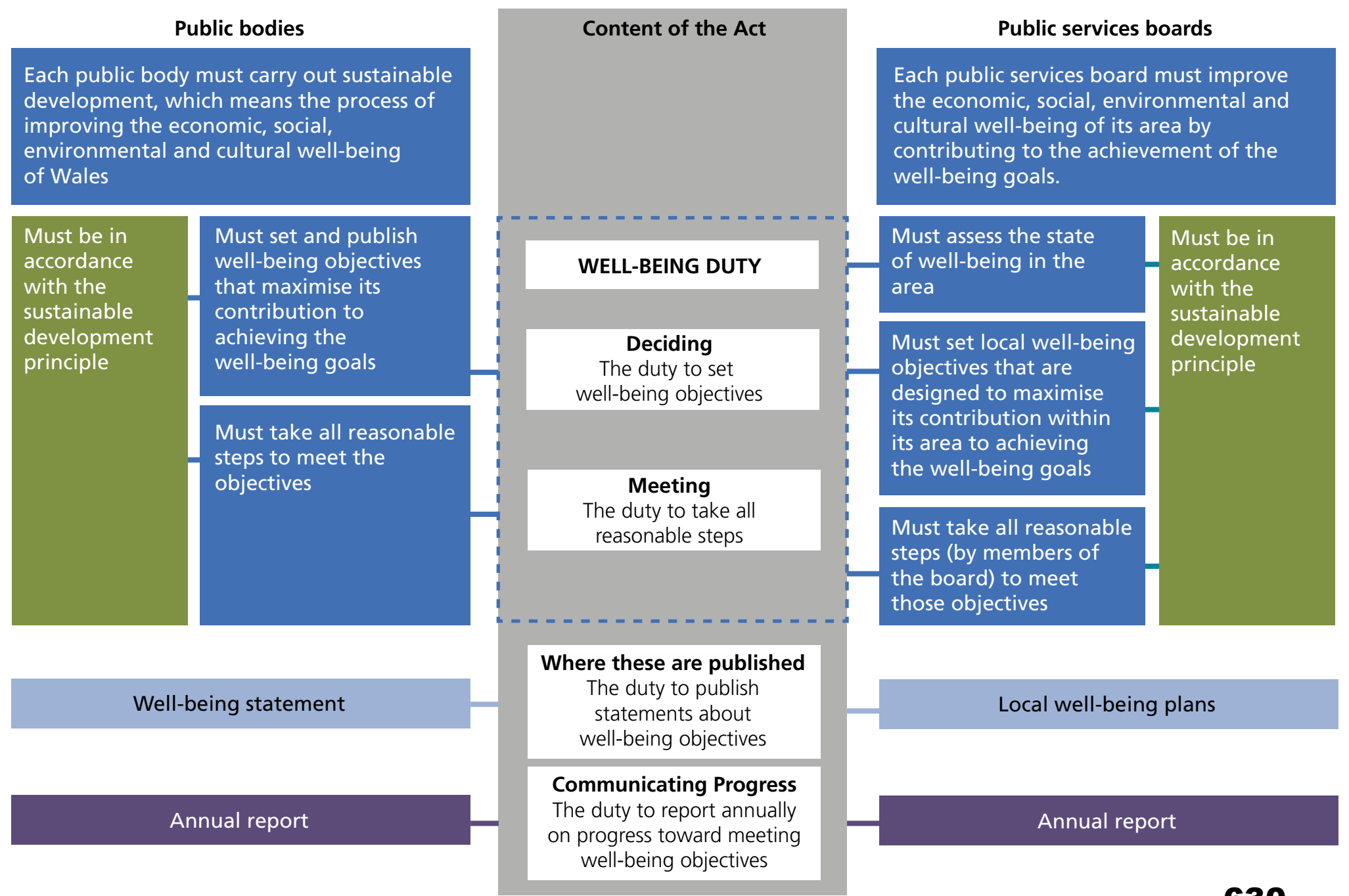
37. Diagram 2 (below) explains the main parts of the well-being duty for public bodies and for public services boards. Each of the elements of the duty is then explained in further detail in SPSF 2 (Individual role – public bodies) and SPSF 3 (Collective role – PSBs).

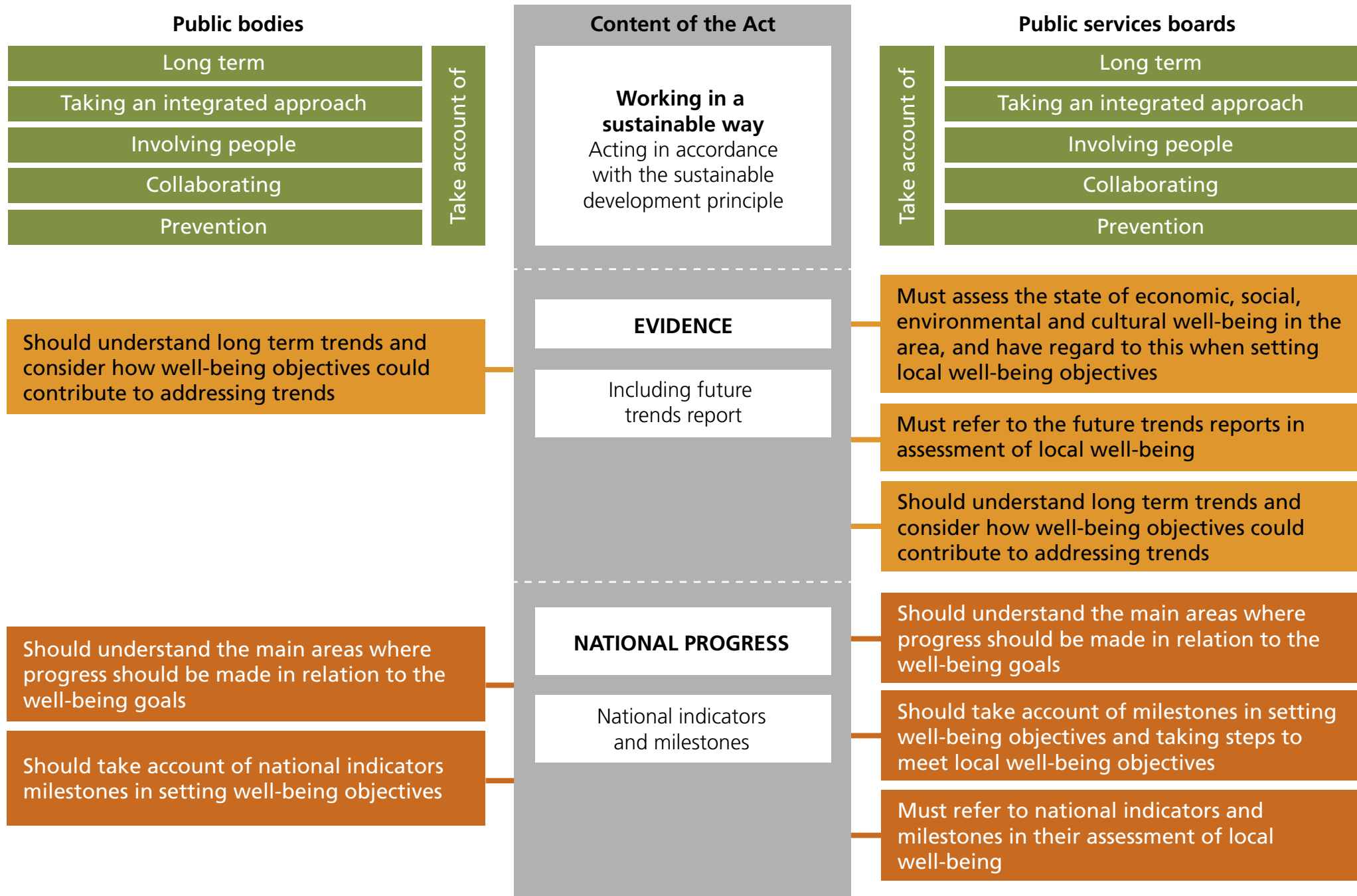
38. It also explains how the other parts of the Act relate to public bodies and to public services boards. Each of these are explained in further detail in this document and, where relevant, in in SPSF 2 (Individual role – public bodies) and SPSF 3 (Collective role – PSBs).

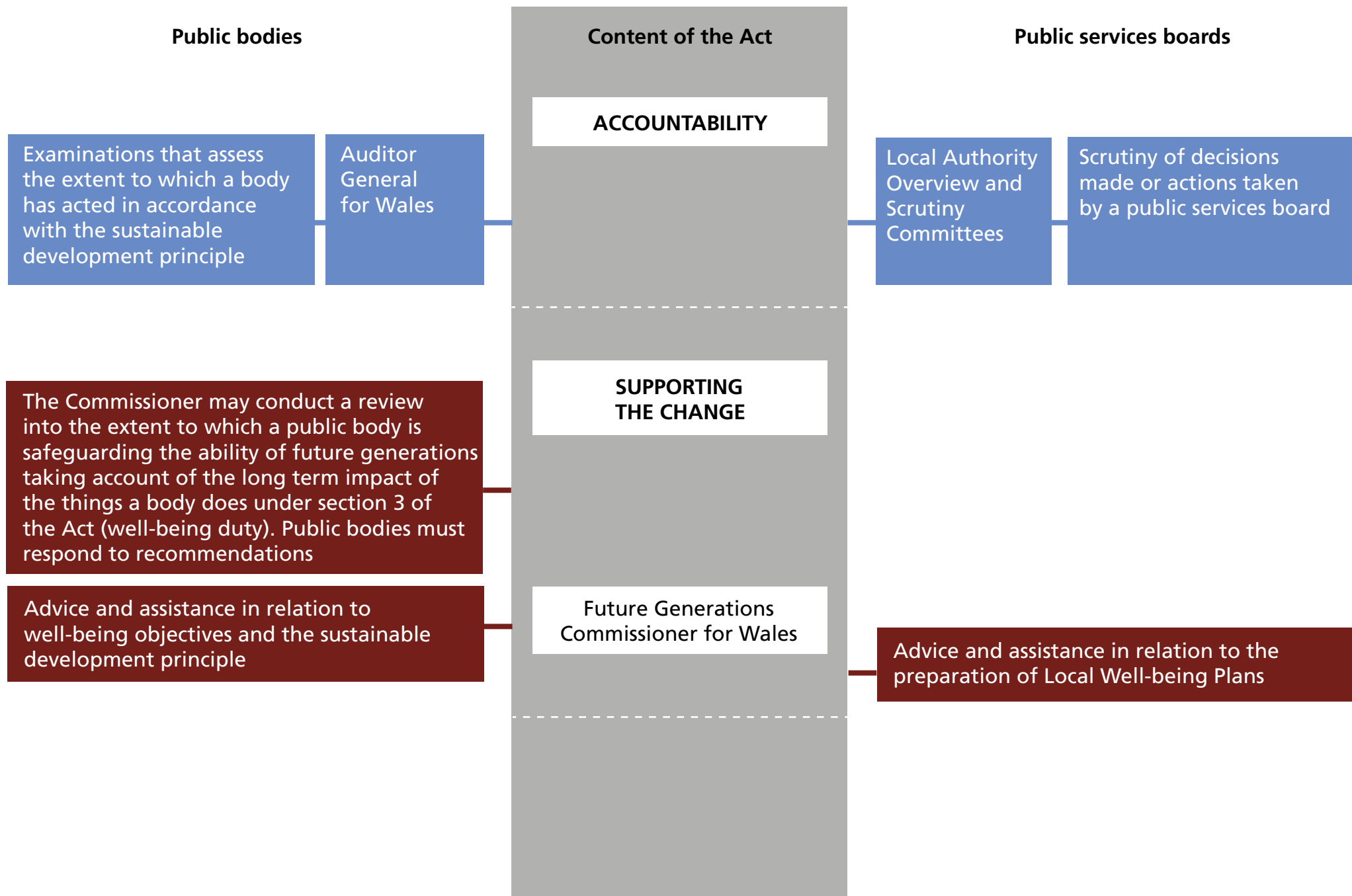
Duty on Community Councils

39. The Act places a duty on certain community and town councils to take all reasonable steps towards meeting the local objectives included in the local well-being plan that has effect in their areas. If a community or town council is subject to the duty, it must publish a report annually detailing its progress in meeting the objectives contained in the public services board's local well-being plan.

Diagram 2 – The key parts of the well-being duty for public bodies and for public services boards







2.4 How the individual and collective duties work together

40. Some public bodies will be under both the individual well-being duty to set well-being objectives and a duty to set local well-being objectives in their role as part of a public services board. They are distinct, but complementary duties, which mean that public bodies are required to think both about what they can achieve themselves and what the collective well-being objectives for their area, together with the steps they can take to contribute to them.

41. These individual and shared well-being objectives, and the steps which are proposed to be taken, do not need to be different – a public services board's plan may include well-being objectives which are also well-being objectives published under Part 2 by a member of the board.

Timing

- Public bodies set their individual well-being objectives no later than the beginning of the financial year following commencement of section 9(2) (a) of the Act, namely no later than 1 April 2017.
- Public services boards publish local well-being plans setting out their local objectives and steps no later than one year after an ordinary local government election, the next one being in May 2017.

42. The Act does not prescribe the nature and type of the well-being objectives set and there may be instances where some well-being objectives set by public bodies may be included in the local well-being plan for the board they are part of, if all the statutory members of that board agree.

43. Whether the objectives are set out in corporate plans or a local well-being plan public bodies must be clear about the steps they intend to take, and to be accountable for their action.

44. The intention of both the individual and collective well-being duties is not that:

- public bodies or public services boards set the well-being objectives that are the easiest for them to meet;
- public bodies or public services boards “retrofit” their existing well-being objectives to meet the requirements of the Act.

45. In both instances the well-being duty should be seen as an opportunity to review and re-think priorities to maximise the contribution towards the achievement of the well-being goals.

46. Public bodies are reminded that under the Act they are required to review their well-being objectives when preparing their annual report (Section 13) and. This opportunity to review well-being objectives will enable public bodies to align their well-being objectives with those of the public services board, if a public body so wishes. In addition they have the power (under section 9(5)) to review and revise their well-being objectives at any point. Further guidance on reviewing well-being objectives can be found in SPSF2 and SPSF3.

3. The change needed

3.1 Where the change needs to happen

47. Applying the five ways of working (the sustainable development principle) and considering how you can contribute to all seven of the well-being goals will require action across your organisation.

48. Taking an outcome based approach is one of the ways that public bodies can adapt their business processes in line with the Act. It is about how you plan and track delivery, in the context of population level outcomes rather than organisational (performance) level outputs.

49. Listed below is a core set of activities that are common to the corporate governance of public bodies. Applying the requirements of the Act to these activities is likely to most effectively secure the type of change required.

Corporate planning

50. Public bodies should ensure that corporate planning (and corporate plans where relevant) become the mechanism for the setting of well-being objectives. Well-being objectives must not be an 'add-on' to what drives your organisation.

51. It may be helpful for you to consider where you are in the 'cycle' of your corporate planning processes (including the implementation phase). The right balance should be struck between dealing with short term pressures in the context of your priorities for the long term.

52. Depending on the role of your organisation in relation to public services boards, it may be helpful to consider how your corporate planning process links to the process of developing local well-being plans.

Financial planning

53. Section 7 of the Act requires (amongst other things) the publication of a statement detailing how a public body proposes to ensure that resources are allocated annually for the purpose of taking such steps to meet the well-being objectives. Further information on this is available in SPSF2.

54. Applying the five ways of working to your financial planning will address the tendency for short-term priorities and administrative process to overtake long-term interests. It is expected that financial planning will take account of the five ways of working within the sustainable development principle, particularly in terms of delivering for the long term and facilitating preventative actions.

Workforce planning (people)

55. The cultural change envisaged by the Act, will be supported by a workforce with the right skills and support, who will be instrumental for the transformation expected.

56. Ensuring your workforce is fully engaged in this change, in order to adapt to the changing needs of our society, will be a critical success factor. It may be helpful for you to consider how your approaches to leadership and learning and development take account of the five ways of working.

57. It is important for people throughout public bodies to be aware of the well-being goals, the ways of working and the well-being duty so that it becomes part of how they deliver their work. This may include:

- Board members – in how they set the long term priorities for the organisation, review performance and ensure good governance of the organisation.
- Senior managers – in how they oversee the design, delivery, quality and effectiveness of the organisation's functions.
- Equality and diversity champions – in how they raise awareness and build capacity.

- Human resources staff – in how they build the ways of working into employment policies and procedures.
- Policy makers – in how they use the well-being goals to frame their thinking and the ways of working to guide the policy making process.
- Communications staff – in how they ensure that the well-being goals and the actions of the public body are communicated.
- Procurement staff – in how they build the well-being goals and ways of working into the organisation's relationship with suppliers.

Procurement

58. The role of procurement will be an important part of how a public body allocates resources under the Act. It is expected that public bodies comply with their existing legal obligations in relation to procurement and that they also apply the Wales Procurement Policy Statement⁴. This policy adopts the Sustainable Procurement Task Force's definition of sustainable procurement:

“the process whereby organisations meet their needs for good, services, works and utilities in a way that achieves value for money on a whole life basis in terms of generation benefits to the organisation, but also to society and the economy, whilst minimising damage to the environment”.

59. This sets out the procurement practices and the specific actions expected of every public sector organisation in Wales.

60. Your approach to procurement could also be an opportunity to encourage other organisations to contribute to the well-being goals.

Assets

61. The Act will enable public bodies to strengthen arrangements for the effective management of their assets. In terms of the management of physical assets and facilities this should mean that that they can be used for the benefit of our communities; enabling them to be used over the long-term with safeguards in place for their retention at the community level.

62. There should also be consideration of developing your other assets including the skills and experience of the people in your organisation (see above).

Risk management

63. There will be long term risks that will affect both the delivery of your services but also the communities you are enabling to improve. Use the well-being goals and five ways of working to frame what risks you may be subject to in the short, medium and long term, and together with the steps you will take to ensure they are well managed.

Performance management

64. The well-being objectives should frame the ways that a public body contributes to the well-being goals and the role of performance management is to enable progress to be tracked, analysed, and communicated (via reporting). Tools and frameworks will need to be adapted by public bodies to measure the extent that this is happening.

Summary

65. You could apply each of the five ways of working to these seven core organisational activities, to ensure that the sustainable development principle frames how you work. You may wish to look at these as part of any ongoing review, or carry out a new review to see if these are 'fit for purpose'. The learning from the Welsh Local Government Association's Early Adopters programme has shown how the use of a 'diagnostic' tool has enabled Local Authorities to identify the opportunities for corporate change.

4. Working in a sustainable way



4.1 Looking to the long term

What is the requirement?

66. Section 5 of the Act states:

A public body must take account of ...

- (a) The importance of balancing short term needs with the need to safeguard the ability to meet long term needs, especially where things done to meet short term needs may have detrimental long term effect.

Why we need to work in this way

67. The intended effect of the long term requirement is that you are aware of, and address, the well-being of current and future generations whilst addressing the needs of the people you currently serve.

68. The Act does not prescribe the time period meant by long term because this will depend on the context within which a decision is being made. A useful reference point is that a generation is considered to be about 25 years. It is therefore expected that public bodies and public services boards will look at least 10 years ahead, although best practice would be to look 25 years ahead. In some contexts it will be longer.

69. It is worth noting that there are different understandings of long term in relation to different issues. For example, in relation to the sustainable management of natural resources taking account of the short, medium and long term consequences of action needs to consider time lags and feedback times for ecosystems to respond to any interventions⁵.

70. There may have been some weaknesses in how organisations have taken account of the long term in the past, including:

- Priority setting that only focuses on the short term (3-5 years ahead);
- Consideration of issues that only relate to immediate (short term) risks;
- Reluctance to consider the long term due to uncertainty about organisational resources and/or future trends.

How it can be done

How to take account of the long term

Approaches that public bodies and public services boards should take as part of responding to the Act include:

✓ Corporate planning

Whilst you will still need to take action in the short term, ensure that these also take account of the medium and long term.

A key challenge may be uncertainty about financial resources available in the long term. Consider taking account of your likely financial resources when considering your priorities for the long term.

✓ Evidence and understanding

Ensure that you understand the potential long term effects of your decisions (positive effects and detrimental effects).

The Future Trends Report will be a useful source of information to help you understand the long term drivers affecting the well-being of Wales and the communities you serve.

✓ Risk management and preparing for the future

In looking to the future public bodies have to deal with uncertainty. This involves understanding present needs, considering future needs and how these will change what you do. Ensure that your approach to risk management includes long term risks and challenges.

You could use the well-being goals to frame discussion of what risks you could face in the short, medium and long term.

✓ Service planning

Consider the long term role of the services you provide as well as what they deliver for your current service users.

4.2 Taking an integrated approach



What is the requirement?

71. Section 5 of the Act states:

A public body must take account of ...

- (b) The need to take an integrated approach, by considering how –
 - i. The body's well-being objectives may impact upon each of the well-being goals.
 - ii. The body's well-being objectives may impact upon each other or upon other public bodies' objectives, in particular where steps taken by the body may contribute to meeting one objective but may be detrimental to meeting another.

72. You will need to be able to demonstrate that you have considered the three distinct parts to an integrated approach.

- Impact on ALL the well-being goals – The first concerns how the well-being objectives you set impact upon each of the well-being goals. Section 5 provides further guidance on this, but you must show that all the seven well-being goals have been considered.
- The second concerns whether you can show that the well-being objectives you are setting make sense as a complete set. If potential conflicts are identified, you should seek to resolve, manage and mitigate them.
- The third part of taking an integrated approach concerns how the well-being objectives you set and steps you then take may impact upon the well-being objectives of another organisation.

73. It will be for you to decide how to justify that the above parts of this way of working have been dealt with.

Why we need to work in this way

74. The purpose of taking an integrated approach is to ensure that you recognise the interdependence that exists between the seven well-being goals and on your well-being objectives. Only an approach that makes the connections between, and effectively integrates economic, social, environmental and cultural challenges, will maximise each public body's contribution to achieving the well-being goals. This can also identify opportunities to simplify arrangements.

75. There may have been some weaknesses in how organisations have failed to take an integrated approach to date which can result in:

- Silo working – focusing on specific issues without awareness of their connections with other issues.
- One part of an organisation making decisions which considers the impacts that negatively impact on another area of the organisation or wider public sector.
- Looking at impacts separately and at different times (in particular when carrying out impact assessments).

76. Integrated thinking will support an integrated approach to impacts and reporting (see section 8 below).

How it can be done

Approaches that public bodies and public services boards should take as part of responding to the Act include:

✓ Evidence and understanding

Undertake the exercise outlined in Table 1 in Section 5.2 to understand your current and potential contribution to the seven well-being goals.

✓ Corporate planning

Consider how your well-being objectives impact on one another and on the well-being objectives of other organisations.

✓ Governance

Ensure that your governance structures enable different parts of the organisation to work together on setting well-being objectives and taking all reasonable steps to meet well-being objectives.

✓ Impact assessments

If you are required to undertake any impact assessments (either statutory or non-statutory) you should look to integrate these with consideration of your contribution to the well-being goals. This will be particularly important in understanding whether the steps you are going to take to deliver your well-being objectives do not conflict with one another and therefore limit the achievement of your objectives.

✓ Performance management

Consider how performance management could reflect the contribution being made to all of the well-being goals.

✓ Integrated reporting

The Act provides opportunities to find better ways to communicate the steps you have taken and your contribution to the well-being goals.

Integration + Collaboration

Having arrangements in place so that bodies are able to discuss and assess whether there is an implication, or opportunities arising from your prioritisation process (objective setting). Having this in place at the earliest opportunity is encouraged. This does not necessarily have to be new arrangements if discussions between public bodies are already in place.

4.3 Involving people



What is the requirement?

77. Section 5 of the Act states:

A public body must take account of ...

- (b) the importance of involving other persons with an interest in achieving the well-being goals and of ensuring those persons reflect the diversity of the population of –
 - i. Wales (where the body exercises functions in relation to the whole of Wales), or;
 - ii. The part of Wales in relation to which the body exercises functions.

Why we need to work in this way

78. Effective involvement of people and communities is at the heart of improving well-being currently and in the future. It recognises the importance of involving people in decisions that affect them. This builds on the Citizen-Centred Governance Principles, National Principles for Public engagement and the National Participation Standards for Children and Young People. Within the existing legislative context, for the most part, there are already specific provisions for community and citizen engagement and consultation on certain activities carried out by organisations.

79. The Act is clear that you must ensure that the people you involve reflect the diversity of the population that you serve. This entails involving the people and communities whose well-being you are seeking to improve. The sustainable development principle recognises both the needs of current and future generations. Future generations should not be interpreted as covering one part of the population from the outset; it means the people born and living at the same time and includes Children and Young People, and Older People. Data on demography,

population and protected characteristics will enable you to understand the diversity of the population, as well as other related data.

How it can be done

80. It is vital to factor people's needs, ensuring the engagement is meaningful and effective. As a result there is considerable variety in how public bodies work with communities across Wales. It would therefore be unhelpful to prescribe one particular model of involvement. Whilst it is not a requirement under the Act, the Welsh Ministers would strongly encourage public bodies to apply:

- A. The National Principles for Public Engagement⁶.
- B. The National Participation Standards for Children and Young People⁷.

Approaches that public bodies and public services boards should take as part of responding to the Act include:

✓ Evidence and understanding

Understand the diversity of the population you serve. At the local level this could be addressed through the assessment of local well-being, please see SPSF 3.

✓ Corporate planning

Provide opportunities for a diverse range of people and communities to influence decisions about priorities (well-being objectives).

✓ Service planning and delivery

Involve people and communities in decisions which may change the services you provide to them.

✓ Management of assets

Involve people and communities in decisions about the management of assets, so they can be used for the benefit of communities.

81. Setting and achieving your well-being objectives can be a multi-stakeholder process, involving civil society, business, and representatives from academia and science. An inclusive approach to achieving the well-being goals is strongly encouraged, in particular by involving children, young people and older people. Structured stakeholder discussions can assist in the development of the well-being objectives and decisions on what steps to take so that there is an iterative dialogue and consensus building with stakeholders.

Civil society organisations	Non-governmental organisations, volunteer organisations, faith-based organisations, social movements and community-based organisations.
Business	Business leaders, chambers of commerce and industry, cooperatives and unions.
Academic institutions	Universities, technical institutions, research centres etc.
Public bodies	Bodies subject to the Act, other public bodies, including 'invited participants'
People	Children and young people, and older people. Persons with protected characteristics Protected groups.

Diversity of the population

82. You are required to take account of the importance of involving persons with an interest in achieving the well-being goals and importance of ensuring those persons reflect the diversity of the population in the area in which you exercise your functions.
83. You should consider the profile of the people you serve (at whichever level is appropriate), identifying relevant sections and representative groups. To do this, you should be able to collect or draw on diversity data to analyse whether the people you involve reflect the area.

Persons with protected characteristics

84. Under the Equality Act 2010 there are 9 protected groups. These are:

Age

Gender reassignment

Disability

Pregnancy and maternity

Sexual orientation

Religion or belief

Race

Sex

Marriage and Civil Partnership

85. Under the Equality Act 2010 (Statutory Duties) (Wales) Regulations 2011, specified authorities are required to involve people who it considers represent the interests of one or more of the protected groups. It may also involve or consult other people as it considered appropriate.
86. In your well-being statement and annual report you may outline how these groups have been involved in the setting of, and achievement of well-being objectives. Consideration can be given to addressing the barriers that people may experience. You are encouraged to build on your actions under these duties when taking into account the importance of involving people.

Planning your involvement (well-being statement)

87. An important success factor for sustainable development is to obtain greater consensus and strengthen community involvement in both deciding on priorities, and on delivery. The Act therefore provides the opportunity to rethink how people are involved.

88. Within the well-being statement, you are required to explain how you propose to involve other persons with an interest in achieving the well-being goals and ensure that those persons reflect the diversity of the population. The content of the statement should include the following:

- A. How and when will people be involved?
- B. What will they be involved in?
- C. Who will be involved?
- D. What resources are needed to deliver the involvement?
- E. How will feedback be given to people who were involved?

89. There is no single right answer to these questions. Your approach must reflect your local circumstances (including Welsh Language), the limits of the resources you have, and what action to involve people can achieve. It will be important to manage expectations. When explaining how you will involve people consideration should be given to how this information can assist people and communities to be involved. It should be clear to people how and when they can be involved.

90. Establishing stakeholder groups, panels or other forums for discussions can be one way of achieving structured discussions, as well as opportunities to engage directly with the people affected by decisions. Use of a control group to test public views can provide a more representative view.

4.4 Collaborating with others



What is the requirement?

91. Section 5 of the Act states:

A public body must take account of ...

- (d) How acting in collaboration with any other person (or how different parts of the body acting together) could assist the body to meet its well-being objectives, or assist another body to meet its objectives.

Why we need to work in this way

92. No single organisation is accountable for improving the economic, social, environmental and cultural well-being of Wales.

93. The purpose of taking a collaborative approach is to recognise the different roles that public bodies play in tackling long-term challenges, and to ensure actions by public bodies are complimentary therefore maximising their collective impact.

94. Whilst the Act establishes public services boards as a statutory mechanism for collaboration on a local authority level, public bodies are also expected to find opportunities to collaborate directly with one another, in addition to any involvement with public services boards.

95. Collaboration with other organisations (particularly in the private and third sectors) may also help you contribute to the well-being goals. You should consider how the arrangements you put in place with these organisations could encourage them to contribute to the goals and take account of the five ways of working. For example, if you are procuring a service from another organisation, there could be opportunities to build in consideration of the well-being goals or ways of working into specifications and contracts.

96. There may have been some weaknesses in how organisations have collaborated in the past, including:

- Making decisions to address challenges, without consideration of whether any other organisation faces the same challenges.
- Missed opportunities to work with others for greater effect.
- Decisions being made in different parts of a single organisation that independently try to address the same challenges.
- Collaborating with single sectors.

How it can be done

Approaches that public bodies and PSBs should take as part of responding to the Act include:

✓ Evidence and understanding

Understand the roles of other public bodies in contributing to the achievement of the well-being goals (their well-being objectives).

Use this knowledge to ensure that collaboration takes place when there is a clear need to address the same challenge or prevent well-being objectives acting against one another.

✓ Service planning and delivery

Consider when services could be delivered in collaboration with another public body, in order to address a shared challenge.

✓ Workforce planning and governance

Consider how your organisation could be structured and governed in order to enable different parts of the organisation to work together on setting well-being objectives and taking all reasonable steps to meet well-being objectives.

Collaboration + Involvement =

There is a particularly strong link between working collaboratively and involving people. It may be helpful to consider this link when planning opportunities to collaborate with or involve organisations, communities and people.

4.5 Prevention



What is the requirement?

97. Section 5 of the Act states:

A public body must take account of ...

- (e) How deploying resources to prevent problems occurring, or getting worse may contribute to meeting the body's well-being objectives, or another body's objectives.

Why we need to work in this way

98. Understanding the underlying causes of the problems people and communities face can help us find different solutions, intervene early and prevent problems from getting worse or arising in the future. But this is not just about addressing problems – it is about finding enabling solutions and early interventions at the right time to make progress in achieving the well-being goals.

99. Through seeking to take action earlier, rather than wait for crisis trigger points to be reached, public bodies can for example support people to prevent a significant deterioration in their well-being.

100. Weaknesses in how decisions have been made in the past include:

- Decisions only react to problems and challenges that currently exist, and do not consider the causes of these problems.
- Problems and challenges have been viewed in isolation.
- Governance structures may have not enabled innovative or new approaches to be taken, including preventative approaches.

How it can be done

Approaches that public bodies and public services boards should take as part of responding to the Act include:

✓ Evidence and understanding

Understand the 'cause and effect' of problems and challenges that your organisations faces, and how these link to the roles of other public bodies.

✓ Corporate planning

Through the process of setting your well-being objectives consider how your well-being objectives can be focused on preventing problems from occurring or getting worse, as well as reacting to problems.

This may mean you have to think about what to stop doing in order to move from a reactive to a preventative approach.

✓ Financial planning

Ensure that financial planning includes consideration of when investment could support preventative action ('preventative spend').

✓ Governance

Ensure that governance structures enable and support new, innovative approaches such as the piloting of preventative approaches.

Prevention + Integration =

Collaboration and sharing of resources across sectors can enable joint preventative approaches to be taken. Your understanding of the 'cause and effect' of problems is clearly linked to taking an integrated approach.

5. Understanding the well-being goals

5.1 Aiming for the well-being goals

101. Section 4 of the Act sets out the seven well-being goals that you are expected to maximise your contribution to achieving. For ease of reference we have repeated the well-being goals below.

102. They provide clarity about the shared purpose of public bodies and provide a focus for the work of public bodies on outcomes and delivery for the long term well-being of Wales.

Goal	Description of the goal
A prosperous Wales	An innovative, productive and low carbon society which recognises the limits of the global environment and therefore uses resources efficiently and proportionately (including acting on climate change); and which develops a skilled and well-educated population in an economy which generates wealth and provides employment opportunities, allowing people to take advantage of the wealth generated through securing decent work.
A resilient Wales	A nation which maintains and enhances a biodiverse natural environment with healthy functioning ecosystems that support social, economic and ecological resilience and the capacity to adapt to change (for example climate change).
A healthier Wales	A society in which people's physical and mental well-being is maximised and in which choices and behaviours that benefit future health are understood.

A more equal Wales

A society that enables people to fulfil their potential no matter what their background or circumstances (including their socio economic background and circumstances).

A Wales of cohesive communities

Attractive, viable, safe and well-connected communities.

A Wales of vibrant culture and thriving Welsh language

A society that promotes and protects culture, heritage and the Welsh language, and which encourages people to participate in the arts, and sports and recreation.

A globally responsible Wales

A nation which, when doing anything to improve the economic, social, environmental and cultural well-being of Wales, takes account of whether doing such a thing may make a positive contribution to global well-being.

103. Progress towards the achievement of the well-being goals will be measured through the publication of national indicators and milestones. These are not indicators to measure the performance of individual public bodies, but progress towards achieving the well-being goals at a national level.

5.2 Understanding your contribution to the well-being goals

What do the well-being goals mean?

104. Public bodies subject to the provisions of the Act do not exist in isolation. You are part of the wider economic, social, environmental and cultural fabric of Wales and through the Act have a shared purpose to contribute to the well-being goals.
105. Collectively, the well-being goals provide for a national set of well-being outcomes for public bodies to contribute to achieving. Under the Act you are required to maximise your contribution to achieving each of the well-being goals through the setting of well-being objectives.
106. There is no single public body that is accountable for the achievement of all the well-being goals. This is about collective accountability of each public bodies (and public services boards) contribution to the achievement of the well-being goals. Further advice on accountability can be found in section 9.
107. In many cases the well-being goals and the descriptions under them have existing mechanisms for action, for example under existing legislation such as the Climate Change Act 2008, which requires public bodies to look at climate change resilience, or the Equality Act 2010. In addition, there are policy approaches such as tackling poverty, health in all policies or the natural resource management approach which also help to explain further what the descriptions mean in practice. This guidance does not seek to repeat or re-interpret these explanations but show how they are drawn together by the well-being goals and the requirements in the Act.
108. Within the public service the use of outcome based working has been promoted so that public bodies focus more on outcomes and the quality of delivery, rather than just the amount of activity being delivered.

Contributing to the well-being goals

109. The Act does not define what contribution you should make. This is for you to determine.
110. The process of setting of well-being objectives will be the primary means by which an individual public body understands what that contribution is. You are best placed to understand your contribution to making Wales and the communities you serve more sustainable.
111. You will be expected to demonstrate that you have understood your contribution. The well-being statement will be the means by which you communicate how you have designed these well-being objectives to maximise your contribution. The table below provides guidance on how this can be done.

Table 1: Understanding your contribution	
Public bodies and public services boards are expected to show that you have:	
A	Identified the functions that you exercise that can best contribute to all of the seven well-being goals What is our purpose and what are our current functions and duties?
B	Understood your current contribution Where do we currently make a contribution? Are there well-being goals that we contribute more to, than others?
C	Understood your potential contribution What more could we do? What could we do differently to make a better contribution? Are there things we should do less of, or stop doing?
D	Identified the opportunities for maximising your contribution (making a greater contribution) How do we turn our potential contribution into action through the well-being objectives we set and the steps we take? What could we do that would enable others to contribute more?

How the well-being goals work together

112. The well-being goals must be considered as an integrated set of seven. This ensures that the fundamental relationship between improving the economic, social, environmental and cultural well-being of Wales is recognised. Where there are perceived conflicts between the well-being goals, the application of the sustainable development principle will be taken into account and thereby help you find the most appropriate solution.

113. For practical purposes public bodies may consider looking at each well-being goal in turn to identify how their well-being objectives can contribute. This does not mean looking at the well-being goals in isolation.

114. Bodies may use different techniques or existing tools to understand how the well-being goals work together. A useful way of understanding the integrated nature of the well-being goals is to look at the well-being goals through a particular lens to see what the connections are, and identify the contribution that can be made. This could include:

- **(A) Public bodies** – All public bodies subject to the Act can contribute to the well-being goals in different ways.
- **(B) Places** – Taking a place-based or community-based approach to the well-being goals can help understand where the opportunities are and where well-being objectives or actions focus on a particular community. Each place/community will have different economic, social, environmental and cultural aspects to them that are captured through the well-being goals.

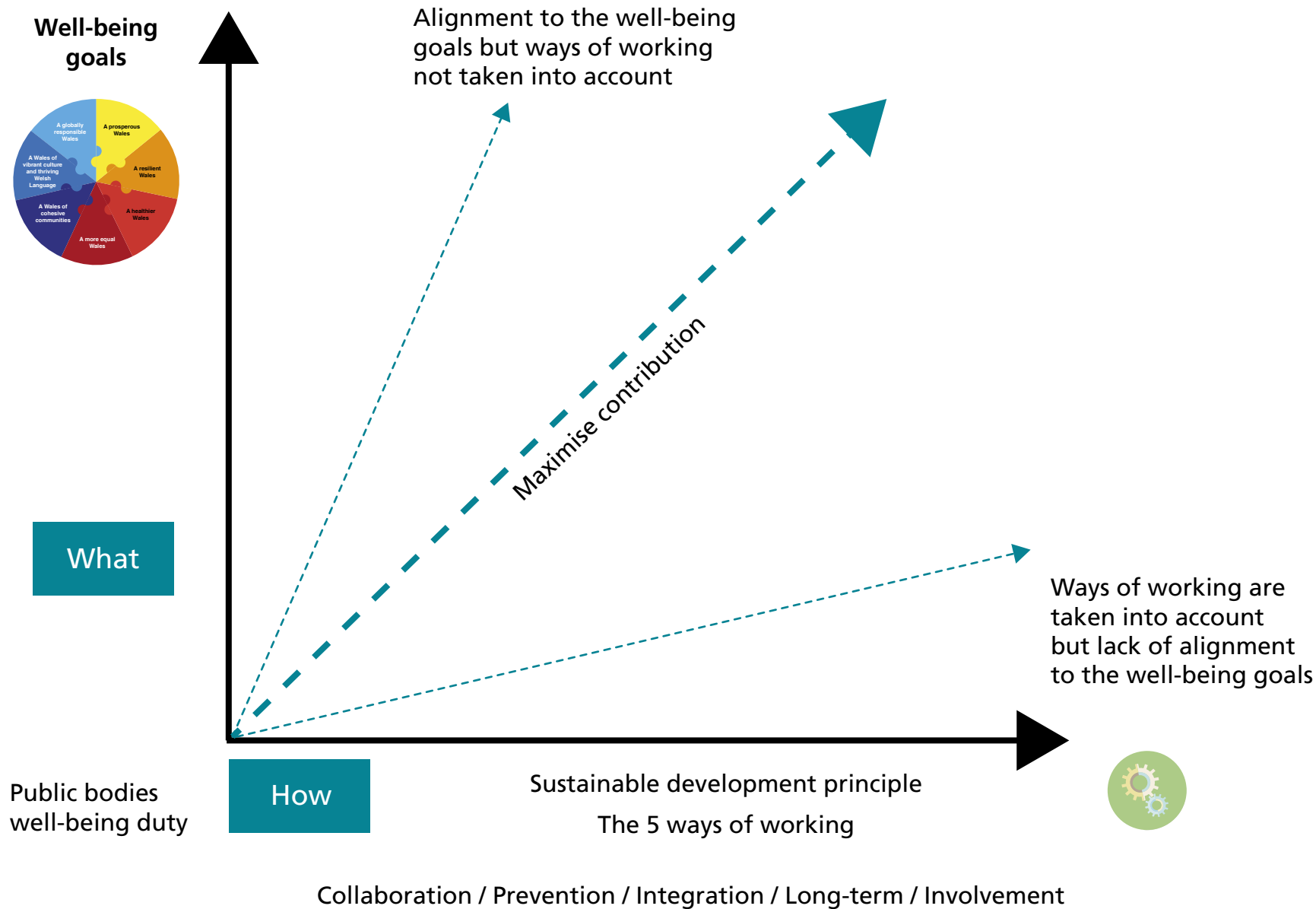
- **(C) People** – Taking a people-based approach can help understand how populations and sub-populations can contribute to the well-being goals, this can mean an inclusive approach looking at the support a person needs, or a group of people need and the economic, social, environmental and cultural factors that will affect their individual well-being. The overall aim of this approach is good planning leading to positive changes in people's lives, now and in the future.
- **(D) Challenges** – The overarching challenges Wales faces will have to be tackled in order to work towards achieving the well-being goals. For example:
 - **Poverty** – Applying the well-being goals can help tackle poverty as it helps you identify where the main determinants of poverty exist, how they work together and what opportunities there might be.
 - **Health inequalities** – There are many determinants of health that derive from our environment, society and economy. This includes poor air quality, nutrition, access to green space and income. The well-being goals can be used to understand these connections and find sustainable solutions.
 - **Climate change** – To contribute to the achievement of the well-being goals, tackling the causes of, and dealing with the effects of climate change must be considered⁸. Reporting authorities under the Climate Change Act for example are required to have regard to guidance issued by Welsh Ministers, which can help organisations build climate resilience across their organisation.

How to maximise your contribution

115. Public bodies must apply the five ways of working in the sustainable development principle to maximise their contribution to the achievement of the well-being goals. This is illustrated in Diagram 3.

116. Public bodies that make every effort to take into account all the five ways of working will be able to confidently communicate through their well-being statement. They will also be able to report on how they have complied with the duty and the contribution they are making.

Diagram 3 – A guide to maximising your contribution



Making a positive contribution to global well-being

117. One of the new responsibilities the Act provides is to help Wales become more globally responsible. This is important in the context of the new United Nations Sustainable Development Goals and the emphasis on national and sub-national action. The 'Transforming our World: The 2030 agenda for sustainable development' that was agreed at the UN Summit in September 2015 sets out 17 goals and 169 targets for action for "people, planet, prosperity, peace and partnership"⁹.

118. The Welsh Government and public bodies subject to the well-being duty operate within a UK, EU and international context, and therefore have a direct and indirect role in supporting and contributing to international obligations.

119. Goal 7 recognises that in an inter-connected world what we do in Wales can have positive and adverse impacts outside of Wales. Collectively Wales can also make a positive contribution to the achievement of the United Nations Sustainable Development Goals particularly in delivering the obligations between now and 2015-2030.

120. Taking an integrated approach to the well-being goals will also recognise that there will be actions taken by public bodies to contribute to the well-being goals that also have a positive contribution outside of Wales. Mapping these through the process of setting well-being objectives is advised.

121. The integrated nature of the well-being goals is also important as for many of the well-being goals there will inevitably be indirect benefits for global well-being. Action on climate change benefits both people and communities in Wales, whilst also contributing to the wider global effort to tackle the causes of climate change and reduce its effects.

What are the positive impacts on global efforts?

122. To provide clarity on the key matters that public bodies should take account of it is suggested that bodies may wish to focus their attention on two areas:

- **Decarbonisation** – This means reducing energy demand, increasing energy efficiency and the use of clean energy. Opportunities include sources deriving from the assets and infrastructure of public bodies.
Support is available through Resource Efficient Wales on using Resources (energy, materials and water) more efficiently.
- **Sustainable consumption and production** – Through the procurement of products and services. This means looking at the way in which you procure goods and services to reduce global impact, whilst also increasing the local benefits. This includes areas such as waste, food, and the sustainable management of natural resources.

6. The role of evidence



123. Dealing effectively with the challenges of the 21st century and maximising the opportunities this brings means having robust and reliable evidence available to guide policies, actions and interventions. Collaborative work to gather and share evidence is an important part of the change needed.

124. You are encouraged to look at your evidence capacity and capability, and to collaborate with other organisations to share relevant data and evidence.

125. The Act provides for new national and local evidence, which public bodies are strongly encouraged to consider. These are:

A. Understanding the future – The Future Trends Report

126. This evidence will present of likely future trends in the economic, social, environmental and cultural well-being of Wales. The Welsh Ministers are required to publish this report within the 12 months following a National Assembly for Wales election. The Future Trends Report will be available on the Welsh Government website when published.

127. Public bodies are encouraged to use this to assist in discharging their well-being duty. Public services boards must refer to the Future Trends Report when preparing their local well-being assessment to the extent it is relevant to the assessment of well-being in their areas (See SPSF3).

B. Tracking the progress of Wales – National indicators

National Indicators

128. The national indicators have an important role in helping to measure the progress made towards achieving the well-being goals by Wales as a whole. There will be a report published every year by the Welsh Ministers on progress made in Wales in achieving the seven well-being

goals, using the national indicators. This is called the 'Annual Well-being Report'.

129. The annual well-being report will not only present our progress towards achieving the well-being goals for the whole population, but by including additional analysis it will measure progress, where appropriate for some indicators, for different groups. This will help us to better understand how outcomes differ for different groups of the population.

130. The national indicators will also have a specific role as they must be referred to by public services boards in Wales when they are analysing the state of economic, social, environmental and cultural well-being in their areas.

131. The annual well-being report must also be taken into account by the Future Generations Commissioner for Wales when they prepare and publish their 'Future Generations Report'.

132. The national indicators and milestones once published can help public bodies understand further the nature of the change expected in achieving the well-being goals. National indicators may be measured qualitatively or quantitatively against a particular outcome and may also be collected in a way that allows for them to be disaggregated to any part of Wales.

133. The national indicators will not measure the performance of individual public bodies or public services boards. There are other arrangements by which the performance of public bodies is assessed.

134. The national indicators should be considered as useful evidence to assist public bodies in understanding the main areas where progress should be made in relation to the well-being goals. However the national indicators are not the only source of evidence that public bodies should use and they should also consider a range of other evidence, including local or national data sources.

Milestones

135. Milestones are set within the context of the agreed national indicators. They are designed to assist in measuring whether progress is being made. They will be accompanied by criteria in order to determine whether the milestone has been achieved, and the date by which the milestone is to be achieved.

136. Where milestones have been set by Welsh Ministers public bodies and public services boards are encouraged to consider in particular whether their objectives and steps can contribute to the achievement of the milestone.

137. As with the national indicators the milestones will be set at the population level to relate to the whole of Wales. They will not be milestones for a specific public body. Information on the national indicators and milestones can be found here www.gov.wales.

C. Assessments of local well-being

138. Each public services board is required to prepare and publish an assessment of the state of economic, social, environmental and cultural well-being in its area. Each assessment must refer to the national indicators and milestones.

139. Further guidance on these assessments is provided in SPSF3: Collective role – public services boards. Whilst there is no duty on public bodies to refer to the assessments of local well-being, the evidence contained in the assessment will be valuable for public bodies in setting and achieving their well-being objectives.

D. Other evidence

140. Other sources of evidence should be drawn on where possible. This includes:

- Those assessments a public services board must take into account when preparing their assessment (see SPSF4).
- **The Welsh Report of the Climate Change Risk Assessment** – It is important to build the evidence base around climate change, to help ensure that Wales builds resilience and takes a planned response to the impacts of climate change that we cannot avoid. The Welsh Report presents a national assessment of potential risks and opportunities from climate change facing Wales from now until the rest of this century. It has been produced as part of the UK Climate Change Risk Assessment (CCRA) pursuant to the Climate Change Act 2008. The threats and opportunities for Wales cover key themes such as Buildings and infrastructure; health and Well-being; business; agriculture and forestry; and the natural environment. The findings are presented in terms of the range of potential magnitude of the risk, how magnitude varies over time and the overall confidence in the findings of the assessment. The CCRA is updated every 5 years to reflect the update in evidence and changes in risks.
- **Planning Survey** – Under S.61 of the Planning and Compulsory Purchase Act 2004 requires the local planning authority to keep under review the matters which may be expected to affect the development of their area or the planning of its development. These matters include areas such as economic, social and environmental characteristics, population, transport, and communications.

- **Strategic Equality Plan** – Under the Equality Act 2010 (Statutory Duties) (Wales) Regulations 2011 duties are placed on listed public bodies to review and publish Strategic Equality Plans and Equality Objectives. In doing so due regard must be given to relevant information which may come from a variety of sources including engagement and the outcomes of equality impact assessments. This information should be drawn on by public bodies in fulfilling their requirements under the Act where relevant.

141. The above is not an exhaustive list and public bodies should draw on any relevant information they think would assist in identifying well-being objectives, and taking reasonable steps.

How to use evidence

Approaches that public bodies and public services boards should take as part of responding to the Act include:

✓ Long term trends

You should consider evidence of the long term trends for Wales and for your communities in planning priorities and making decisions.

You could use techniques that generate future scenarios or plausible descriptions of the risks, challenges and opportunities the area or population may face in the future.

✓ Collaboration

Public bodies should collaborate to share evidence on long term trends, including through developing agreements on data sharing.

✓ Financial planning

Ensure that financial planning includes consideration of when investment could support preventative action ('preventative spend').

✓ Integration

Ensure that the data and evidence you gather reflects the relationships and interdependencies between economic, social, environmental and cultural well-being (i.e. that it does not focus too much on a single area).

You should consider how linking different data sets together might help highlight evidence about the inter-relationships between interventions or the impact on particular groups of people. Where there are gaps in the evidence available to you, you should look at opportunities for identifying new data.

✓ Prevention

Ensure that you collect evidence that understands the root causes of issues and where efficiency gains can be realised.

✓ Involvement

You should use the views of people as part of your involvement to get a better understanding of what is needed, and what may work.

7. Common pitfalls and shared opportunities

142. Successful 'sustainable' public bodies will embrace the opportunities afforded by the Act and will avoid the following common pitfalls in understanding the Act.

Common pitfalls

- **"There is a hierarchy of well-being goals"** – Only looking at one or two of the well-being goals, or interpreting a single goal as being of greater significance. This must be avoided. Public bodies must consider all seven of the well-being goals [See section 5 of this guidance to help you understand the contribution you can make]. It is important to understand that this is not about balancing impacts; it is working towards about win-win solutions and identifying the multiple benefits where they exist.
- **"I only contribute to one of the well-being goals"** – Each public body has been identified because they contribute to all of the well-being goals. All public bodies under the Act are well-placed to take forward action on the social, economic, environmental and cultural determinants of individual health and well-being.
- **"I can justify current action using the five ways of working"** – The most effective public bodies will use the five ways of working to shape what you do, rather than justify what you have decided in the past. This means a focus up front and throughout the policy or decision cycle. Many public bodies will have experience of policy related impact assessments which you can draw on and integrate with this process. This must not be a 'tick-box' approach.
- **"We added sustainable development on to our list of impact assessments"** – Public bodies that view sustainable development as an 'add-on' will fail to demonstrate how they have complied with the duty to 'carry out sustainable development'. Taking this view will lead to a tick box approach and add additional burden to the body.

- **"This is about the environment"** – Public bodies that understand that this is not just about the environment, or just the economy or society, and that it is about understanding the often complex, but real world interconnections between our environment, our economy, our society and culture.

Shared opportunities

143. The Act provides opportunities for you to bring together actions and commitments from other legislation and programmes.

144. It provides an opportunity for public bodies to consider how other supporting duties can be discharged in a more integrated way. It does not remove or amend existing statutory duties and in exercising your functions under the Act public bodies will have to ensure that you are meeting your respective duties.

8. Transparency



145. Effective transparency is one key part of improving the delivery of public bodies. The Act changes the nature of transparency by requiring you to communicate and explain:

- how and why your well-being objectives are chosen (well-being objectives);
- why decisions were taken (taking all reasonable steps to meet objectives);
- what difference this has made (reporting).

Communicating individual public bodies' well-being objectives (Well-being Statement)

146. Section 7 of the Act requires that when publishing well-being objectives, a public body must also publish a well-being statement. This should explain why you consider that meeting the well-being objectives will contribute to the achievement of the well-being goals and how the sustainable development principle has been applied amongst other matters. Further guidance is available in SPSF 2 for public bodies.

147. The purpose of the well-being statement is to clearly set out what well-being objectives have been set by a public body and how the body will meet them.

148. The Act does not prescribe the format of the well-being statement. It is important that the requirements of the Act are not seen as 'an additional layer' to existing activity. Therefore the well-being statement should not be a stand-alone document; it could be incorporated into a core planning document such as a corporate plan. You are encouraged to look for opportunities to integrate this with other statutory or non-statutory arrangements. Further guidance is available in SPSF 2.

Communicating collective priorities (Local well-being plan)

149. Each public services board must prepare and publish a local well-being plan setting out its local objectives and the steps it proposes to take to meet them.

150. The local well-being plan will set out how the board intends to improve the economic, social, environmental and cultural well-being of its area by setting local objectives which will maximise the contribution made by the board to achieving the well-being goals in its area. Further guidance is available in SPSF 3 for public services boards.

Communicating progress (Annual reporting)

151. Section 13 of the Act requires individual public bodies to publish an annual report of the progress you have made in meeting your well-being objectives.

152. It is important for this reporting requirement not to be undertaken in isolation from other reporting activities. Therefore it should be part of an existing annual report, and/or include financial and non-financial information.

153. Integrated Reporting is an approach that can help public bodies to discharge the duty to report annually on progress. As an approach it encourages organisations to report and communicate how their strategy, governance and performance lead to the creation of value over the short, medium and long term. The Welsh Government and other public bodies are participating in an Integrated Reporting pilot in Wales to understand the opportunities from reporting in a more integrated way.

154. Also in taking an integrated approach public bodies should look at opportunities to integrate the way in which they report existing duties.

155. Section 45 of the Act requires public services boards to prepare and publish an annual report of the steps they have taken since the publication of the board's most recent local well-being plan to meet the objectives set out in the plan.

156. Annual reports include both the progress being made and also a vehicle for organisations to communicate how decisions have been made that deliver on the well-being objectives. Further advice on this is contained in SPSF2 and SPSF3.

9. Accountability

157. Accountability for the delivery of the shared purpose and requirements of the Act rests with those public bodies subject to the Act. In addition, the Act strengthens accountability through new arrangements and changes to existing methods of review or scrutiny. The accountability arrangements ensure that there will be consequences for non-compliance by public bodies.

158. As shown by Diagram 2 there are three key elements of the accountability arrangements set out in the Act: The accountability arrangements set out above ensure that there will be consequences for non-compliance by public bodies.

159. In relation to public bodies, the accountability arrangements are focused on the Future Generations Commissioner for Wales and the Auditor General for Wales.

160. In relation to public services boards, the accountability arrangements are focused on Local Authority Overview and Scrutiny Committees.

The role of the Future Generations Commissioner for Wales ('the Commissioner')

161. The general duty of the Future Generations Commissioner for Wales is to promote the sustainable development principle (the five ways of working), in particular to act as a guardian of the ability of future generations to meet their needs, and encourage public bodies to take greater account of the long-term impact of the things that they do. To do this the Commissioner can monitor and assess the extent to which well-being objectives set by public bodies are being met. Details of how the Commissioner will work with public services boards can be found in SPSF3.

162. The Commissioner may also provide advice or assistance to a public body, encourage best practice, promote awareness and encourage public bodies to work with each other and other persons if this could assist them to meet their well-being objectives.

Reviews by the Future Generations Commissioner for Wales

163. Section 20 of the Act gives the Future Generations Commissioner the power to conduct a review into how public bodies are safeguarding the ability of future generations to meet their needs through the well-being duty.

164. In conducting a review, the Commissioner may review:

- the steps the body has taken or proposes to take to meet its well-being objectives;
- the extent to which the body is meeting its well-being objectives;
- whether a body has set well-being objectives and taken steps to meet them in accordance with the sustainable development principle.

165. Following a review the Commissioner can make recommendations to the public body about:

- The steps the body has taken or proposes to take to meet its well-being objectives;
- How to set well-being objectives or take steps to meet them in accordance with the sustainable development principle.

166. Public bodies must take all reasonable steps to follow the course of action set out in a recommendation made to it by the Commissioner. However further detail on responding to the Commissioner is included in SPSF2.

Examinations by the Auditor General for Wales

167. Section 15 of the Act gives the Auditor General for Wales the power to examine public bodies, to assess the extent to which a body has acted in accordance with the Sustainable Development Principle when:

- Setting well-being objectives;
- Taking steps to meet those well-being objectives.

168. The Auditor General for Wales also has a duty to examine each public body at least once in a five year period (term of Government). It is up to the Auditor General for Wales as to when he/she undertake an examination in this regard, provided that he/she presents their reports on the examinations to the National Assembly for Wales a year and a day before each ordinary Assembly election.

169. It is not the role of the Welsh Ministers or this guidance to set out how the Auditor General should use and apply his powers and duties.

170. The Auditor General does not have a statutory role in relation to the accountability of public services boards.

Local Authority Overview and Scrutiny Committees

171. Section 35 of the Act requires local authorities to ensure that their Overview and Scrutiny Committees have the power to scrutinise decisions made, or other action taken, by the public services board for the local authority area in the exercise of its functions.

172. The Overview and Scrutiny Committees will not have a role in relation to the accountability of individual public bodies (apart from the Local Authority itself). The role of the Overview and Scrutiny Committees designated to scrutinise decisions made or actions taken by the public services board, will be focused on the shared well-being objectives included in public services boards' Local Well-being Plans, rather than the individual well-being objectives of a public body.

173. Further information on the role of the Overview and Scrutiny Committee is provided in SPSF3.

10. References and useful links

Useful links

The Well-being of Future Generations (Wales) Act 2015

www.legislation.gov.uk/anaw/2015/2/contents

Welsh Government pages on the Act

www.gov.wales/topics/people-and-communities/people/future-generations-act/?lang=en

Future Generations Commissioner for Wales

www.futuregenerations.wales/

The Wales We Want

www.thewaleswewant.co.uk

United Nations Sustainable Development Goals

www.sustainabledevelopment.un.org/post2015

Auditor General for Wales

www.audit.wales/about-us/auditor-general-wales

References

¹ Well-being of Future Generations (Wales) Act 2015
www.legislation.gov.uk/anaw/2015/2/contents

² Academi Wales
www.academiwales.org.uk/

³ The Social Services and Well-being (Wales) Act 2014
www.legislation.gov.uk/anaw/2014/4/contents

⁴ Natural Resources Policy Statement, Welsh Government, 2015
www.gov.wales/docs/desh/publications/150914-natural-resources-policy-statement-en.pdf

⁵ Transforming our world: the 2030 Agenda for Sustainable Development”, adopted by the General Assembly of the United Nations by resolution A/Res/70/1 of 25 September 2015.
www.sustainabledevelopment.un.org/post2015/transformingourworld

⁶ National Principles for Public Engagement
www.participationcymru.org.uk/national-principles

⁷ The National Participation Standards for Children and Young People
www.gov.wales/topics/people-and-communities/people/children-and-young-people

⁸ UK Climate Change Risk Assessment
www.gov.uk/government/publications/uk-climate-change-risk-assessment-government-report

⁹ Equality Act 2010 (Statutory Duties) (Wales) Regulations 2011
www.legislation.gov.uk/wsi/2011/1064/contents/made

Allcorn, Emma

From: Allcorn, Emma
Sent: 05 December 2022 17:29
To: WA 2003 New Authorisations; Nicholas Saiz; Adam Comerford; Kathryn Maye
Subject: PAN-006999 Draft Trosnant Spring Abstraction Licence
Attachments: Draft Trosnant Licence.doc

Dear all,

Following our meeting this afternoon, I am pleased to attach a draft copy of the licence for the above application. Should you have any comments on the draft, please provide them by **Monday 12/12/2022**. I appreciate this is a tight turnaround but it is necessary to meet the determination timeline of 16/12/22 which was set for these licences and has been included in the work programme discussions to date. Whilst we are not able to reconsider technical issues such as screening or flow restrictions at this stage, this is an opportunity to check for any administrative issues.

Following our discussion this afternoon I am aware of your concerns regarding the inclusion of an annual volume on this licence. This is something I will look into this week to check whether NA policy allows any flexibility and I will aim to provide a response on this point before the end of the week. I have already reviewed the Ystalyfera licence you referenced during the meeting and can confirm there is no inconsistency with that licence. The licence for Ystalyfera licence does not contain quantity conditions, the only flow restriction is the means of abstraction has been limited to the existing operation. Therefore it not a relevant consideration to the inclusion of an annual volume on this licence.

Should you have any queries or concerns, please do not hesitate to contact me.

Kind Regards,
Emma

Emma Allcorn

Swyddog Arbenigol Arweiniol (Adnoddau Dŵr) / Lead Specialist Officer (Water Resources)

Cyfoeth Naturiol Cymru/ Natural Resources Wales

Ffôn/ Phone: 03000 65 4202

Tŷ Cambria, 29 Heol Casnewydd, Caerdydd, CF24 0TP / Cambria House, 29 Newport Road, Cardiff, CF24 0TP

We are reviewing our regulatory fees and charges, please find more information on our consultation here:

[Consultation on our regulatory fees and charges for 2023/2024 - Natural Resources Wales Citizen Space - Citizen Space \(cyfoethnaturiol.cymru\)](#)

Rydym yn adolygu ein ffioedd rheoleiddio, mae rhagor o wybodaeth am ein hymgyngoriad ar gael yma:

[Ymgynghoriad ar ein ffioedd a thaliadau rheoleiddio ar gyfer 2023/2024 - Natural Resources Wales Citizen Space - Citizen Space \(cyfoethnaturiol.cymru\)](#)

Yn falch o arwain y ffordd at ddyfodol gwell i Gymru trwy reoli'r amgylchedd ac adnoddau naturiol yn gynaliadwy.

Proud to be leading the way to a better future for Wales by managing the environment and natural resources sustainably.

[cyfoethnaturiol.cymru](#) / [naturalresources.wales](#)

[Twitter](#) | [Facebook](#) | [LinkedIn](#) | [Instagram](#)

Croesewir gohebiaeth yn Gymraeg a byddwn yn ymateb yn Gymraeg, heb i hynny arwain at oedi. Correspondence in Welsh is welcomed, and we will respond in Welsh without it leading to a delay.



Water Resources LICENCE TO

ABSTRACT

WATER

DRAFT

Environment Act 1995
Water Resources Act 1991 as amended
by the Water Act 2003
Water Resources (Abstraction and
Impounding) Regulations 2006
Natural Resources Body for Wales (Functions)
Order 2012
Water Abstraction (Transitional Provisions)
Regulations 2017

IMPORTANT NOTES

Need for safekeeping

This licence is an important document. The permission or right to abstract water may be valuable to your landholding. So -

- **Keep the licence safe, preferably with your deeds etc.**
- **Take careful note of the comments below about "transfer and apportionment" and "death and bankruptcy".**

This is to ensure that the permission and any rights granted by the licence continue if you need to pass it on to someone else.

If you want to:

- **revoke (cancel) the licence;**
- **vary (change/amend) the licence in any way or**
- **change your contact address (but you continue to hold the licence).**

Please write to us at your local Natural Resources Wales office.

Details of this licence are placed on a register, kept by Natural Resources Wales and open for inspection by the public. The public may also obtain further details about it by virtue of the Environmental Information Regulations 2004 (see also Disclosure of Information) except in special cases (for advice please contact us at the address shown on the front page of the licence).

Transfer and apportionment

If you need to pass this licence or any part of it to someone else, you must contact Natural Resources Wales and obtain the appropriate application forms. Temporary licences cannot be transferred or apportioned. The licence holder remains responsible for compliance with the terms of the licence and any charges payable until the licence has been transferred or apportioned.

Death or bankruptcy of the licence holder

If a licence has been 'vested' in you, as a result of the death or bankruptcy of the licence holder, please contact Natural Resources Wales in writing, telling us the licence number(s) and the date that the licence vested in you as a personal representative or trustee of the licence holder. This is necessary in order to enable you to subsequently transfer the licence.

'Vesting' is the transfer of responsibility and ownership of a licence when an existing licence holder is no longer able to hold the licence either through death or bankruptcy.

You do not have to complete a form, but you must notify us in writing within 15 months of the date of vesting, giving the full names of all personal representatives or trustees and a contact address.

Time limits

Your licence may be subject to a time limit (stated on the front of your licence). All new abstraction licences are legally required to include a time limit. For variations to licences, time limits are added in accordance with our policy.

The duration of a time limit is determined in accordance with our time limiting policy. The time limit is linked to the next or subsequent review of water resources within a Catchment Abstraction Management Strategy (CAMS).

There will be a presumption of renewal providing three tests are met: environmental sustainability is not in question; there is continued justification of need; and water is being used efficiently. Any application for renewal will still be subject to the normal statutory considerations.

If your licence is time limited and you wish to renew it when it expires, you will need to apply for a new licence to replace the existing one. You are advised to submit this application at least three months before it expires. To allow you to give early consideration to this, we will send you a reminder approximately 18 months before the expiry date.

If your licence cannot be renewed, we will endeavour to give at least six years notice. We will also endeavour to give at least six years notice where the licence is likely to be renewed on different terms and will significantly impact upon the use of the licence.

In exceptional circumstances, for example where there are other overriding statutory duties such as the Habitats Regulations, it may not be possible to provide six years notice.

Charges

Unless specifically exempted, we may levy an annual CHARGE for water AUTHORISED to be abstracted by this licence, in accordance with our abstraction charges scheme in force at the time.

The licence may be revoked if charges are not paid.

Quantity and quality of water

You must not abstract more than the quantity specified in the licence.

Natural Resources Wales does not, by issue of this licence or otherwise, in any way guarantee that the source of supply will produce the quantity of water authorised to be abstracted by this licence, nor that the water is fit for its intended use.

The quantity of water authorised for abstraction is given in cubic metres. One cubic metre is approximately 220 gallons.

(The precise conversion is 1 cubic metres = 219.969 gallons).

Source of supply and authorised point of abstraction

You may abstract from the point(s) specified in the licence and from no other points. If you want to add or change the authorised point(s) of abstraction, you must apply to us to vary the licence.

Land on which water is authorised to be used

Where this condition applies, you may only use the water you abstract on the area specified in the licence. You must apply to us to vary the licence if you wish to extend or alter this area or remove it.

Purpose for which water is authorised to be used

You may only use the water for the purpose(s) specified in the licence. You must apply to us to vary the licence if you wish to add to or change the purpose(s).

Offences

Under the Water Resources Act 1991 it is an offence:-

- to abstract water, or cause or permit any other person to abstract water, unless the abstraction is authorised by and in accordance with an abstraction licence, or is subject to an exemption;
- to do anything to enable abstraction, or to increase abstraction, except in accordance with an abstraction licence or exemption;
- to fail to comply with the conditions of an abstraction licence.
Note in particular that it may be a condition of the licence to maintain the meter or other measuring device etc. and failure to do so will be an offence;
- to interfere with a meter or other device which measures quantities of water abstracted so as to prevent it from measuring correctly;
- to fail to provide information which we have reasonably required for the purpose of carrying out any of the Natural Resources Wales water resources functions;
- to knowingly make false statements for the purpose of obtaining a licence or consent or in giving required information.

The requirement for a licence is subject to some exemptions, set out in the Water Resources Act 1991 as amended. If in any doubt as to whether you need a licence, contact us at the address shown at the bottom of the front page of the licence.

Right of appeal

If you are dissatisfied with our decision on your licence application, you may appeal.

If you are in England, you should write to the Secretary of State for the Environment, Food and Rural Affairs, care of The Planning Inspectorate at: Room 4/19 Eagle Wing, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6PN.

If you are in Wales, you should write to Welsh Government care of The Planning Inspectorate at: Crown Buildings, Cathays Park, Cardiff, CF10 3NQ.

You must serve notice of appeal within 28 days of the date of receipt of this licence (although the Secretary of State and The Welsh Government have power to allow a longer period for serving notice of appeal). See Water Resources Act 1991, section 43.

Disclosure of information

Information about this licence is available in the public Register held by Natural Resources Wales. Members of the public are also entitled to ask us for other "environmental information" it holds, including any activities likely to affect "the state of any water" or any "activities or other measures designed to protect it". That would include the information additional to the licence document e.g. any related agreement or abstraction returns. In certain restricted circumstances it is possible to claim that information should be kept confidential. If you require more information about keeping this information off the public register because it is confidential, please contact us by writing to the address shown on the front page of the licence within 28 days of receiving this licence.



TRANSFER LICENCE TO ABSTRACT WATER

The Natural Resources Body for Wales (hereafter referred to as "NRW") grants this licence to:-

Canal & River Trust ("the Licence Holder")
National Waterways Museum Ellesmere Port
South Pier Road
Ellesmere Port
Cheshire
England
CH65 4FW

Company Registration Number: 07807276

This licence authorises the Licence Holder to abstract water from the source of supply described in the Schedule of Conditions to this licence and subject to the provisions of that Schedule. The licence commences from the effective date shown below and shall remain in force until the date of expiry shown below.

Signed:

Permitting Team Leader
Permitting Service
Natural Resources Wales
Cambria House
29 Newport Road
Cardiff
CF24 0TP

Date of issue.....dd/month/yyyy

Date effective.....dd/month/yyyy

Date of expiry.....31 March 2029

This licence should be kept safe and its existence disclosed on any sale of the property to which it relates. Please read the 'important notes' on the cover to this licence.

Note: References to "the map" are to the map which forms part of this licence.
References to "NRW" are to the Natural Resources Body for Wales or any successor body.

SCHEDULE OF CONDITIONS

1. SOURCE OF SUPPLY

- 1.1 Inland water (spring) known as Trosnant Spring at Pontypool.

2. POINT OF ABSTRACTION

- 2.1 At National Grid Reference SO 28420 00498 marked 'Point A' on the map.

3. MEANS OF ABSTRACTION

- 3.1 A chamber and gravity feed pipe of an internal diameter not exceeding 153 millimeters.

4. PURPOSE OF ABSTRACTION

- 4.1 Transfer for the purpose of operations in the course of carrying out functions as a navigation authority.

5. PERIOD OF ABSTRACTION

- 5.1 All year.

6. MAXIMUM QUANTITIES OF WATER TO BE ABSTRACTED

- 6.1 2,000 cubic metres per day
87,230 cubic metres per year

A day means any period of 24 consecutive hours and a year means the 12 month period beginning on 1 April and ending on 31 March.

7. MEANS OF MEASUREMENT OF WATER ABSTRACTED

- 7.1 (i) No abstraction shall take place unless the Licence Holder has installed a measuring device to measure quantities of water abstracted.
- (ii) The Licence Holder shall position and install the measuring device in accordance with any written directions given by NRW.
- (iii) The Licence Holder shall maintain, repair or replace the measuring device to ensure that accurate measurements are recorded at all times.
- (iv) The Licence Holder shall keep all records of measuring device repair or replacement including evidence of current certification for a period of 6 years.

8. RECORDS

- 8.1 The Licence Holder shall take and record readings of the measuring device specified in condition 7.1 at the same time each day during the whole of the period during which abstraction is authorised or as otherwise approved in

writing by NRW.

8.2 The Licence Holder shall send to NRW a copy of the record required by condition 8.1 or summary data to NRW within 28 days after 31 March in each year and also within 28 days of being so requested in writing by NRW.

8.3 Each record shall be kept and be made available during all reasonable hours for inspection by NRW for at least 6 years.

9. FURTHER CONDITIONS

9.1 No abstraction shall take place when the flow in the River Ebbw as gauged by NRW at its flow gauging station at Rhiwderin is equal to or less than 220,000 cubic metres per day.

9.2 The Licence Holder shall discharge all of the water abstracted in pursuance of this licence to the Monmouthshire and Brecon Canal at National Grid Reference SO 29405 00307 marked 'Point Q' on the map.

ADDITIONAL INFORMATION

Note: the following information is provided for information only. It does not form part of the licence.

REASONS FOR CONDITIONS

The licence is time-limited to a date to reflect the timing of a future review of the catchment resources availability.

Conditions 7 and 8: The abstraction is required to be measured to demonstrate compliance with the terms of the licence and to provide information on actual water usage for water planning purposes.

Conditions 9.1: The licence includes a hands off flow condition to ensure no adverse impact on the River Usk and Severn Estuary Special Area's of Conservation in accordance with the Habitats Regulations 2017.

Condition 9.2: To ensure the abstraction can be classed as a transfer of water from one source of supply to another.

IMPORTANT NOTES

This licence has been issued under the Water Abstraction (Transitional Provisions) Regulations 2017, which requires previously exempt abstractions to become regulated.

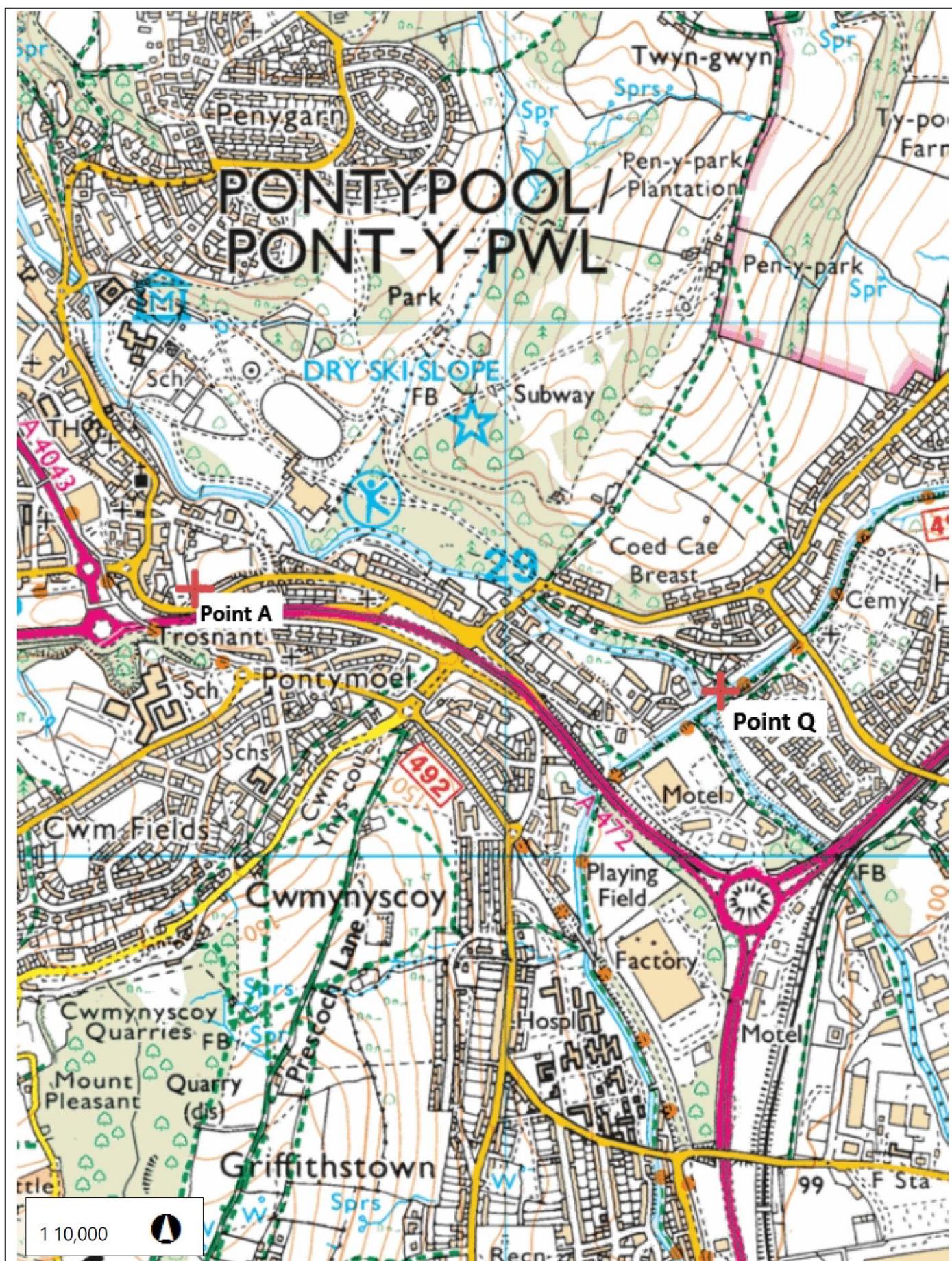
Abstraction licence serial numbers XX, XX, XX have also been issued authorising the transfer of water into the Monmouthshire and Brecon canal.

Water efficiency note

The Licence Holder should use water abstracted under the terms of this licence in an efficient manner. NRW may refer to its guidance on water efficiency (or equivalent guidance) in determining whether water is being used efficiently and may offer advice on any measures considered necessary to meet particular recommendations.

Metering

NRW will have regard to its Abstraction Metering Good Practice Manual (or equivalent guidance) in directing any of the following: where the meter should be located or how it should be installed; whether the meter measures accurately, and/or is properly maintained; whether it is necessary to require repair or replacement of the meter.



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Resources
Wales**

MAP ACCOMPANYING LICENCE NUMBER / MAP I GYFEILIO TRWYDDDED RHIF

Licence_Number

Scale I Graddfa 1:10,000



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