Aberystwyth Marina: Marine Licence application for maintenance dredging

Habitats Regulations Assessment: Covering Note

This Habitats Regulation Assessment (HRA) Test of Likely Significance was produced in 2015 to support a marine licence application for water injection dredging in Aberystwyth Marina. A three-year licence was granted by Natural Resources Wales on 6th March 2016 (Ref: DML1554).

The Marine Group is applying for a renewal of the above-mentioned marine licence, which expires on 7th March 2019. As there are no changes to the maintenance dredging activity since the previous licence application was made, this 2015 HRA remains valid.

THE MARINE GROUP

Anthony D Bates Partnership LLP
Dredging, Harbour & Coastal Consultants

TEST FOR LIKELY SIGNIFICANCE FOR THE CONSERVATION OF HABITATS AND SPECIES REGULATIONS 2010

In support of

Aberystwyth Marina Maintenance Dredging 2015

October 2015

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Title : Test For Likely Significance For The Conservation Of Habitats And Species Regulations 2010

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Stage 1: Test of Likely Significance

Name of Project or Plan.	Aberystwyth Marina Maintenance Dredging 2015
Brief description of the project or plan.	Aberystwyth Marina is located within the tidal reaches on the River Rheidol. The 160 berth marina opened in 1995, with dredged levels (-2.3mCD) allowing berthed vessels to stay afloat at all states of tide. Steady sedimentation from fluvial and marine material has slowly reduced the available water depths within the marina and its approaches. It is proposed to reinstate the navigation channels and berths within Aberystwyth marina through the use of Water Injection Dredging. Although Water Injection Dredging (WID) is generally described as a method of dredging it does not 'dredge' in the conventional sense. To dredge is defined as; to bring up or clear away, but WID does not 'bring up' and only 'clears away' and that to a rather limited extent. With WID the sediment is mobilised using water jets. A pipe, with water nozzles arranged at small separations perpendicular to the sea bed is lowered close to the seabed (See Figure below). A large flow of water at relatively low pressure is then pumped into the bottom sediment.  Water Jets from Water Injection Dredger (in raised position) The water breaks the cohesion in the seabed sediments and fluidises the material into a dense near-bed suspension. This produces near-seabed layer of higher density than that of the surrounding water. This high density layer of fluidised material can then move down gradient under gravity, local currents, or with a directional flow produced by the advancing WID unit. The potential transport distance of the suspended material depends largely on its grain size, composition and density as well as the local hydrological and morphological conditions. The use of WID for dredging purposes is generally limited to the movement of fine grained loose or low density sediments down gradient to locally deeper areas, where they may settle and consolidate at a level too low to cause significant impact. WID was previously used in the marina for the last maintenance dredge campaign in 2008 to reinstate the required levels of -1.7mCD. A similar campaign is proposed within this application. Operational hours of the dredging will be from about 1hour before high tide to 1 hour before low tide, hence making use of the flood tide to transport the fluidised material out to sea. This process will be repeated on each ebb tide event hence limiting works to approximately 12hrs per day. The works will be undertaken in the winter months to ensure sufficient water depths are in place for the important spring/summer recreational period and aid coastal dispersion characteristics

	of the relocated material. The duration of works is expected to be approximately 12-14 days to remove a maximum volume of 32,000m³ above the design levels. Due to economic constraints and the presence of coarse grained material within the dredge area it is anticipated that not all of the material will be dredged.
Project reference *(Planning ref. etc.):*	N/A
File number:	
Name and location of Natura 2000 site.	Lleyn Peninsula and the Sarnau Country
Natura 2000 site features: (refer to JNCC website)	Lleyn Peninsula and the Sarnau Country SAC • Site code: UK0013117 • Date Classified: January 1996 • Site is 92.6% marine based Features 1. Sandbanks 2. Estuaries 3. Mud and Sandflats 4. Coastal Lagoons 5. Large shallow inlets and bays 6. Reefs 7. Atlantic salt meadows 8. Sea caves 9. Bottlenose Dolphin 10. European Otter 11. Grey Seal Please refer to Figure 1 presenting the locations of the SAC features in relation to Aberystwyth Marina.
Description of the Project or Plan • **Size and scale;** • **Land-take;** • **Distance from Natura 2000 site or key features of the site;** • **Resource requirements (water abstraction etc);** • **Emission (disposal to land, water or air);** • **Excavation requirements;**	<u>Size and scale</u> The area of Lleyn Peninsula and the Sarnau Country SAC totals 146,023.48 hectares. The proposed dredge area is 1.2 hectares. Maintenance Dredging frequency is irregular; the proposed campaign will dredge a maximum of 32,000m³ <u>Land-take</u> There is no land-take or reduction in extent of the site. There will be no virgin or undisturbed land take as a result of the planned dredging activity, as detailed above. <u>Distance from Natura 2000 site or key features of the site</u> The maintained dredge areas are approximately 2.6km directly (as the crow flies) from the closest boundary of the Lleyn Peninsula and the Sarnau Country SAC's. However, sailing distance for the sediment transport pathway to the SAC from the dredge area is approximately 3.4kms.

• **Transportation requirements;** • **Duration of construction, operation, de-commissioning etc;** • **Other.**	Resource requirements (water abstraction etc) There will be no resource requirements during the dredging apart from the use of seawater as a hydraulic medium to fluidise the material on the seabed. Excavation requirements There will be no physical excavation of material. The dredged material will be relocated by natural forces once fluidised. The dredging that will take place is the relocation of recently deposited fine sediments. Transportation requirements All dredge material will be relocated by natural currents and gradients. There will be no transportation of sediment by road or marine plant during this project. Duration of construction, operation, de-commissioning etc The application is for one off maintenance dredging campaign lasting approximately 12-14 days. Other All dredging will take place below Chart Datum. Noise levels produced by the dredger are not expected to be any higher than already exists within the dredging area due to the presence of recreational and commercial activities.
Is the proposal directly connected with or necessary to management of the site for conservation of N2K features? **If yes proceed no further.**	No
Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the Natura 2000 site.	Impacts that may occur as a result of dredging activities adjacent to designated offshore Natura 2000 site are as follows: • Increase in suspended sediment within the water column; • Increase in suspended sediment deposition; • Possible increase in contaminant availability and loading; • Possible increase in nutrient availability and loading.

Summary Table of Likely Significant Effects Screening.

SAC Conservation or Interest Feature	Likely Significant Effect (Alone)	Likely Significant Effect (In-Combination)	Commentary.
1. Sandbanks	None	None	There are no Sandbanks within the zone of influence of this project, with the closest being over 30kms in distance from the dredge site.
2. Estuaries	None	None	There are no Estuaries within the zone of influence of this project. The nearest estuary within the SAC is approximately 15km away at Aberdovey.
3. Mud and Sandflats	None	None	There are no Mud and Sand flats within the zone of influence of this project. The nearest mud/sand flats within the SAC are approximately 15km away at Aberdovey.
4. Coastal Lagoons	None	None	There are no Coastal Lagoons within the zone of influence of this project. The only lagoon within the SAC is Morfa Gwyllt lagoon, which is located on the south side of the mouth of the Afon Dysynni, over 20kms from the dredge site.
5. Large shallow inlets and bays	None	None	There are no Large shallow inlets and bays within the zone of influence of this project, with the closest being over 40kms in distance from the dredge site.
6. Reefs	*De minimus*	*De minimus*	Intertidal and subtidal reefs are located approxiatmely 4km from the dredge site. While this is a significant distance the longshore drift is from south to north and may transport and dispersed sediment towards these reefs. Potential effects to include consideration of the following: • Increase in Suspended Sediment deposition; • Possible Increase in Contaminant availability and loading; • Possible increase in Nutrient availability and loading.
7. Atlantic salt meadows	None	None	There are no areas of Atlantic Salt Meadow within the zone of influence of this project. The nearest mud/sand flat within the SAC is approximately 15km away at Aberdovey.
8. Sea caves	None	None	There are sea caves designated approxiamtley 4km from the dredge site. However, no potential impacts to this feature from the proposed dredging have been identified.
9. Bottlenose Dolphin	*De minimus*	*De minimus*	Potential effects to include consideration of the following: • Increase in Suspended Sediment and turbidity.
10. European Otter	*De minimus*	*De minimus*	Potential effects to include consideration of the following: • Increase in Suspended Sediment and turbidity.
11. Grey Seal	*De minimus*	*De minimus*	Potential effects to include consideration of the following: • Increase in Suspended Sediment and turbidity.

Describe any potential effects on the Natura 2000 site as a whole in terms of: interference with the key relationships that define the structure or function of the site	**Increase in Suspended Sediment Deposition** The proposed dredging activity, Water Injection Dredging (WID), will result in the suspension of sediments, which will subsequently disperse, and be re-deposited on the sea bed according to the behaviour of the resulting sediment plume. It should be noted that although WID suspends the sediment the fluid density layer created remains in close proximity to the seabed during transport. Due to this the transport distance is deemed to be localised. However, when the material reaches open waters it is likely that, due to the very dynamic marine environment present on the Welsh coastline that dispersion will be widespread, minimising the layer thickness of any deposition. Any risk of smothering is considered more likely to occur within 400m of the dredging location. This area remains a distance of 3km from the boundary of the SAC. The degree of sedimentation experienced by organisms within this area is considered as being no more than would occur as a result of natural storm events. The degree of mortality resulting from any smothering, if it occurred, is expected to be lower. Following the dredging works, the rapid re-colonisation of any area in which mortality of benthic organisms had occurred as a result of smothering, is anticipated. **Elevation of Suspended Sediments and Turbidity** The impact of elevated suspended solids and turbidity from dredging relates solely to the water column, as impacts of sediment re-deposition have been considered in the paragraph above. Site features potentially affected by changes in water quality are the bottlenose dolphin, grey seal and European otter. As highly mobile species, the presence of each of these within the affected area is always possible. However, by the same token, the dependence of highly mobile species on any given area is low (species are dispersed and at low densities in the marine environment, as opposed to rivers which have been designated for the species where spawning adults and resultant juveniles are aggregated). The capacity of these species to avoid adverse environmental conditions in the area is also high. Dolphins, seals and otters are similarly potentially present in the vicinity of the impacted area, but are not strongly dependant on the area concerned. They also have a high capacity to avoid unfvourable environmental conditions. Most importantly, as mammals, dolphin, seals and otters are not impacted by water quality in the same manner as obligatory aquatic animals, the likelihood of impact is further reduced. The

	short timescale of the maintenance dredging activity further reduces the potential for any impacts. Unlike the establishment of a road, the temporary, reversible, and small scale nature of the potential impacts render concerns over effective loss (or disturbance) of habitat as comparatively reduced significance. Furthermore, the levels of suspended sediments generated as a result of dredging are considered to be no greater than those resulting from natural events. Given the transient impacts from elevated suspended solids and turbidity, and the ability of the species potentially affected to avoid the area, impacts of elevated suspended sediments and turbidity on site integrity can be determined as having no consequence. **Possible Increase in Contaminant Availability and Loading** As detailed above the dredging process will inevitably result in the dispersion of disturbed sediments. There is therefore the potential that any contamination contained within the sediments could be released into the local environment. For this reason the material to be dredged have been analysed by an independent laboratory to test for contamination levels. The results were assessed in relation to the CEFAS action levels for marine licensing. The results of this testing showed that the sediments to be dredged are all within permissible thresholds. The results of the analysis are included within the Appendices of the accompanying Water Framework Directive assessment. **Possible Increase in Nutrient Availability and Loading** Dredging has the potential to make nutrients, which are present in the sediment, available for algae, which can grow in the water column or over benthic substrate. Excessive growth of algae, particularly algal mats, can result in the ecological deterioration of marine and estuarine habitats and harm dependant species. Conservation objectives potentially compromised by changes in nutrient levels are those relating to water and sediment chemistry, habitat structure, and conservation status of typical species. However, eutrophication within the tidal dredge area is unlikely due to the common occurrence of suspended sediments in estuaries with resulting turbidity often means that light limits algal growth. The fact that the local estuary is largely tidally drying also restricts any excessive marine algae growth and aquatic impact from eutrophication. Critically, although the works and activities associated with this project could temporarily change the dynamics of nutrients between sediments and the water column,

	they will not constitute a net gain of nutrients to the immediate area. Furthermore, the relocation of significant volumes of sediment over the 3km to the boundary of the SAC is unlikely. Thus, any eutrophication effects will not be of a magnitude which will further erode the conservation objectives. For this reason, impacts of changes in nutrient levels as a consequence of the project on site integrity can be considered as having no consequence. **Conclusion** Due to the significant distances involved, the dynamic dispersive nature of the coastline, the infrequent and short term nature of the proposed works, the minor size of the dredging plant and the fact that dredging has been undertaken previously using the same methodology with no recorded impacts, it is determined that the dredging activities within Aberystwyth Marina will not negatively impact on the conservation objectives of the designated features of the adjacent Natura 2000 site.

Provide details of any other projects or plans that together with the project or plan being assessed could (directly or indirectly) affect the site.	Fishing activities, yachting, pleasure boating, dog walkers, bait collectors, seaweed collectors, recreational walkers, sewage discharges, scientific research.

Is the potential scale or magnitude of any effect likely to be significant?	
Alone?	**Yes**☐ **No**☒
In-combination with other projects of plans?	**Yes**☐ **No**☒

List of Agencies Consulted: Provide contact name and telephone or email address.	None to Date
Above consultee response.	

Conclusion: Is the proposal likely to have a significant effect on an N2K site?	**Yes**☐ **No**☒
IF IT HAS BEEN DETERMINED THAT THE PROPOSAL WILL NOT HAVE A SIGNIFICANT EFFECT THEN ASSESSMENT IS COMPLETED. **IF ANY PART OF THE PROPOSAL IS LIKELY TO HAVE A SIGNIFICANT EFFECT AN APPROPRIATE ASSESSMENT WILL BE REQUIRED – STAGE 2 AA.**	

<u>Data collected to carry out the assessment</u>

Who carried out the assessment?	Anthony D Bates Partnership LLP
Level of assessment completed	Stage 1 Screening
Where can the full results of the assessment be accessed and viewed?	All documents can be viewed the consultants offices: Laburnham Farm Upper Weare, Axbridge

	Somerset, UK BS26 2LE

Figure 1 – SAC Features Location Map

Cyngor Cefn Gwlad Cymru
Countryside Council for Wales

Pen Llŷn a'r Sarnau / Lleyn Peninsula and the Sarnau

Map Mynegol* o Gynefinoedd Atodiad 1
(* Mae'r map hwn yn seiliedig ar yr wybodaeth orau a oedd ar gael adeg llunio'r map [Mai 2005], ac fe all newid wrth i wybodaeth arolygu newydd ddod i'r fei.)

Indicative Map* of the Annex 1 Habitats

(* This map is based on best available knowledge at time of production [May 2005] and may change as new survey information becomes available.)

Map 3

Côd Safle y GE / **EC Site Code** **UK0013117**

Ardal Cadwraeth Arbennig (ACA)
Special Area of Conservation (SAC)

Aberoedd
Estuaries

Dolydd heli yr Atlantig, yn cynnwys Salicornia
Atlantic salt meadows including Salicornia

Gwastadeddau llaid a gwastadeddau tywod rhynglanwol
Intertidal mudflats and sandflats

Cilfachau a baeau bas mawr
Large shallow inlets and bays

Ponciau tywod islanwol
Subtidal sandbanks

Riffiau islanwol yn bosibl yn y lleoliad yma *
Possible subtidal reefs *

Riffiau islanwol
Subtidal reefs

Riffiau rhynglanwol
Intertidal reefs

Ardaloedd ble mae ogofâu môr i'w gweld
Areas where sea caves occur

Lagynau hallt
Coastal lagoons

* Mae'r llecynnau sydd wedi eu mapio fel riffiau 'posibl' yn cael eu hystyried fel riffiau, ond mae angen mwy o ddata i gadarnhau a yw'r llecynnau hyn yn riffiau mewn gwirionedd.

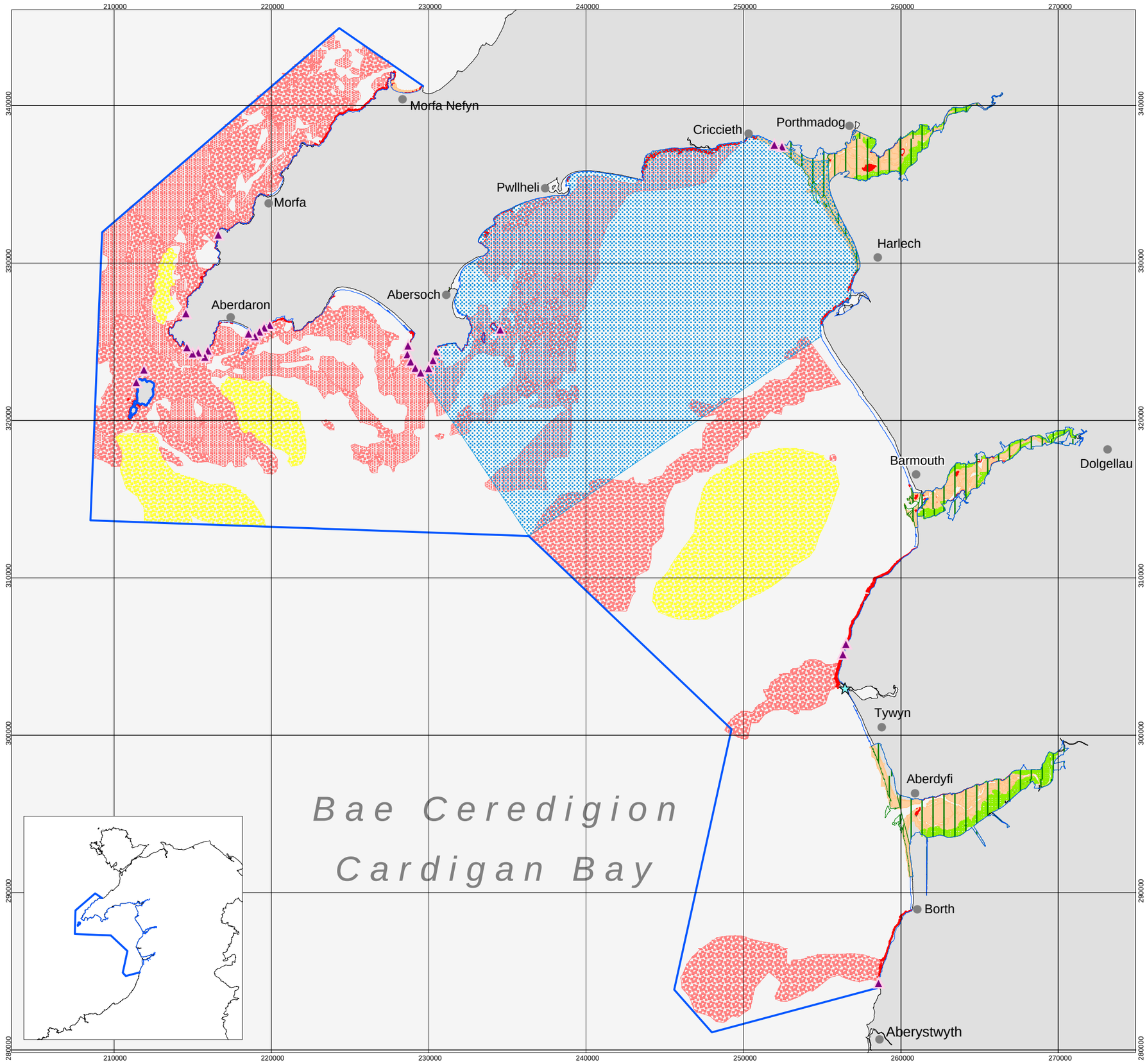
*** The areas mapped as 'possible' reefs are considered to be reef but further data is required to confirm these areas as actual reef.**

Tafluniad map: Y Grid Cenedlaethol Prydeinig
Projection: British National Grid

G/N

Rhif diweddaraf / **Version number** **1** **29/08/2006**

Graddfa / **Scale** **1 : 250,000**



Appendix A - Lleyn Peninsula and the Sarnau SAC Data Form

NATURA 2000

STANDARD DATA FORM

FOR SPECIAL PROTECTION AREAS (SPA)
FOR SITES ELIGIBLE FOR IDENTIFICATION AS SITES OF COMMUNITY IMPORTANCE (SCI)
AND
FOR SPECIAL AREAS OF CONSERVATION (SAC)

1. Site identification:

1.1 Type K

1.2 Site code UK0013117

1.3 Compilation date 199601

1.4 Update 200301

1.5 Relationship with other Natura 2000 sites

U	K	9	0	1	3	1	2	1
U	K	9	0	2	0	2	8	2
U	K	9	0	2	0	2	8	4

1.6 Respondent(s) International Designations, JNCC, Peterborough

1.7 Site name **Pen Llyn a`r Sarnau/ Lleyn Peninsula and the Sarnau**

1.8 Site indication and designation classification dates

date site proposed as eligible as SCI	199601
date confirmed as SCI	200412
date site classified as SPA	
date site designated as SAC	200412

2. Site location:

2.1 Site centre location

longitude	**latitude**
04 21 59 W	52 41 29 N

2.2 Site area (ha) 146023.48

2.3 Site length (km)

2.5 Administrative region

NUTS code	Region name	% cover
0	Marine	95.54%
UK914	Powys	0.06%
UK912	Dyfed	1.06%
UK913	Gwynedd	3.34%

2.6 Biogeographic region

Alpine	Atlantic	Boreal	Continental	Macaronesia	Mediterranean
	X				

3. Ecological information:

3.1 Annex I habitats

Habitat types present on the site and the site assessment for them:

Annex I habitat	% cover	Representativity	Relative surface	Conservation status	Global assessment
Sandbanks which are slightly covered by sea water all the time	7.3	B	C	A	**B**
Estuaries	3.1	B	C	A	**B**
Mudflats and sandflats not covered by seawater at low tide	2.3	C	C	B	**C**
Coastal lagoons	0.05	C	C	B	**B**
Large shallow inlets and bays	28.3	B	B	A	**B**
Reefs	22.9	B	B	A	**B**
Salicornia and other annuals colonising mud and sand	0.1	C	B	C	**C**
Spartina swards (*Spartinion maritimae*)	0.6	D			
Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)	0.5	B	B	B	**C**
Submerged or partially submerged sea caves	0.1	C	C	A	**C**

3.2 Annex II species

		Population			Site assessment			
	Resident	Migratory						
Species name		Breed	Winter	Stage	Population	Conservation	Isolation	Global
Petromyzon marinus	Present	-	-	-	D			
Lampetra fluviatilis	Present	-	-	-	D			
Alosa alosa	Present	-	-	-	D			
Alosa fallax	Present	-	-	-	D			
Tursiops truncatus	Present	-	-	-	C	B	C	**C**
Phocoena phocoena	Present	-	-	-	D			
Lutra lutra	Present	-	-	-	C	B	C	**C**
Halichoerus grypus	101-250	-	-	-	C	B	B	**C**

4. Site description

4.1 General site character

Habitat classes	% cover
Marine areas. Sea inlets	92.6
Tidal rivers. Estuaries. Mud flats. Sand flats. Lagoons (including saltwork basins)	5.4
Salt marshes. Salt pastures. Salt steppes	1.2
Coastal sand dunes. Sand beaches. Machair	0.5
Shingle. Sea cliffs. Islets	0.2
Inland water bodies (standing water, running water)	
Bogs. Marshes. Water fringed vegetation. Fens	0.1
Heath. Scrub. Maquis and garrigue. Phygrana	
Dry grassland. Steppes	
Humid grassland. Mesophile grassland	
Alpine and sub-alpine grassland	
Improved grassland	
Other arable land	
Broad-leaved deciduous woodland	
Coniferous woodland	
Evergreen woodland	
Mixed woodland	
Non-forest areas cultivated with woody plants (including orchards, groves, vineyards, dehesas)	
Inland rocks. Screes. Sands. Permanent snow and ice	

Habitat classes	% cover
Other land (including towns, villages, roads, waste places, mines, industrial sites)	
Total habitat cover	**100%**

4.1 Other site characteristics

Soil & geology:

Biogenic reef, Boulder, Clay, Cobble, Gravel, Igneous, Maerl, Metamorphic, Mud, Peat, Pebble, Sand, Sedimentary, Shingle, Slate/shale

Geomorphology & landscape:

Basins, Cave/tunnel, Caves, Cliffs, Coastal, Estuary, Floodplain, Intertidal rock, Intertidal sediments (including sandflat/mudflat), Island, Islands, Lagoon, Open coast (including bay), Sound/strait, Subtidal rock (including rocky reefs), Subtidal sediments (including sandbank/mudbank), Surge gullies

4.2 Quality and importance

Sandbanks which are slightly covered by sea water all the time
- for which this is considered to be one of the best areas in the United Kingdom.

Estuaries
- for which this is considered to be one of the best areas in the United Kingdom.

Mudflats and sandflats not covered by seawater at low tide
- for which the area is considered to support a significant presence.

Coastal lagoons
- for which this is considered to be one of the best areas in the United Kingdom.

Large shallow inlets and bays
- for which this is considered to be one of the best areas in the United Kingdom.

Reefs
- for which this is considered to be one of the best areas in the United Kingdom.

Salicornia and other annuals colonising mud and sand
- for which the area is considered to support a significant presence.

Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
- for which the area is considered to support a significant presence.

Submerged or partially submerged sea caves
- for which the area is considered to support a significant presence.

Tursiops truncatus
- for which the area is considered to support a significant presence.

Lutra lutra
- for which the area is considered to support a significant presence.

Halichoerus grypus
- for which the area is considered to support a significant presence.

4.3 Vulnerability

The relevant authorities for the site have prepared a management plan and action plan addressing management issues relating to the reefs and estuaries. The additional site features are due to be incorporated into the plans by the end of 2004.
Construction, e.g. of slipways, coastal defence and marinas/harbours could cause disturbance to the estuarine, intertidal mudflat and sandflat, and reef habitats and disrupt physical processes essential for maintenance of these habitats. CCW is consulted by the local planning authorities and other statutory bodies over such developments. There is an increasing demand for additional facilities and/or upgrading existing facilities, and CCW will need to work with the other relevant authorities to assess the implications of all proposed developments of this sort for the SAC features.
Certain reef communities are vulnerable to disturbance from specific fishing methods, in particular heavy bottom-fishing gear. CCW will liaise with the relevant Sea Fisheries Committee to identify ways of minimising impact on habitats as well as keeping a watching brief on the levels of such fishing activity. The potential impacts of heavy bottom-fishing gear on the subtidal sandbank and shallow inlet and bay habitats will need to be assessed.
There is the possibility of future drilling for oil and gas in Cardigan Bay and the Irish Sea as well as the possibility of offshore wind power developments – CCW is advising the Department of Trade and Industry on potential impacts and possible ways of minimising these.
Many of the marine wildlife communities in the cSAC are sensitive to oil pollution. The development of oil-wells and boat traffic in the Irish Sea present potential pollution sources. CCW is working with the oil companies and with other statutory organisations so that adequate safety measures are in place to try and prevent pollution incidents. Also, CCW is a member of the North Wales Standing Environment Group which is preparing a regional contingency plan to help coordinate response to try and minimise environmental impacts in the event of a pollution incident.

5. Site protection status and relation with CORINE biotopes:

5.1 Designation types at national and regional level

Code	% cover
UK01 (NNR)	1.6
UK00 (N/A)	95.4
UK04 (SSSI/ASSI)	4.6