



[Sent via email]

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Our ref: SC1807

16 August 2018

Dear Mr Skinner and Mr Griffiths,

SCOPING OPINION UNDER THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2007 (as amended)

Area 531 Marine Aggregate Extraction

I am writing in response to your request for a scoping opinion, request dated 9th of May 2018, made in accordance with the Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended) (Marine Works Regulations).

The purpose of the Environmental Impact Assessment (EIA) scoping procedure is to determine what information should be provided in the Environmental Statement (ES).

In reaching our scoping opinion we have considered the requirements of Schedule 3 of the Marine Works Regulations, consulted with the bodies that we consider to have an interest in the project by reason of their environmental responsibility, as required by the Marine Works Regulations and had regard to their comments, and had regard to the information provided in the Area 531 Scoping Report (North Bristol Deep Extension), dated May 2018.

Screening Opinion

It is our opinion that the works fall within the categories of project listed within Schedule A2, paragraph 10 of the above regulations, and therefore must be considered in terms of its size, nature and location having regard to the relevant criteria listed in Schedule 1 of the above regulations.

We have considered the "Area 531 Scoping Report", dated May 2018, and have determined that the project requires environmental impact assessment. We consider that this decision has been reached in agreement between the developer and NRW Permitting Service, in accordance with Regulation 5 of the Marine Works Regulations.

Therefore, the application required for the proposed works for a marine licence under Part 4 of the Marine and Coastal Access Act 2009 ("the Act") will be accompanied by an Environmental Statement ("ES").

Scoping Opinion

Marine Management Organisation (MMO) also received a scoping opinion request in relation to a consent required for the same works in the cross-border area within English

Waters. MMO consulted organisations on our behalf and have shared all responses. An additional scoping opinion will be issued by MMO (Reference EIA/2018/00031).

The Marine Licensing Team is generally content with the structure for the ES as described in the scoping report. However, Annex 1 of this letter sets out the additional information that we consider necessary to be included and/or assessed in the ES for this project.

Please note our scoping opinion is based on the information available to us at this time. The information provided in Annex 1 is not a definitive list of the ES / EIA requirements and further information may be required following an application for this project, to ensure a full assessment is carried out.

Please also note that our scoping opinion will be provided to all those bodies that were consulted and will be published on our website and on our Public Register.

Yours sincerely

A handwritten signature in black ink, appearing to read 'E. Allen'.

Marine Licensing Team
Natural Resources Wales

The Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended)

Scoping Opinion (SC1807)

1. Summary of the proposal

Tarmac Marine Ltd (TM) and Hanson Aggregate Marine Ltd (HAML) (“The Developers”) are seeking consent from Natural Resources Wales and the Marine Management Organisation (MMO) to establish an option and exploration area in the lower Severn Estuary for aggregate dredging. This area was issued by The Crown Estate (TCE) in 2017 and lies between Newport and Clevedon on the boundary between England and Wales in the Severn Estuary. Area 531 is intended to encompass and replace the current aggregate Area 470; which has a Marine Licence that is due to expire in 2020. The Welsh section of Area 470 has been dredged previously, whereas the English section has not been dredged in the recent past. Area 531 equates to 3.83 km²; 2.15 km² within English waters and 1.68 km² within Welsh waters.

2. Location

The area is located in the lower Severn Estuary and lies between Newport and Clevedon on the boundary between England and Wales, as displayed in Figure 1 below.

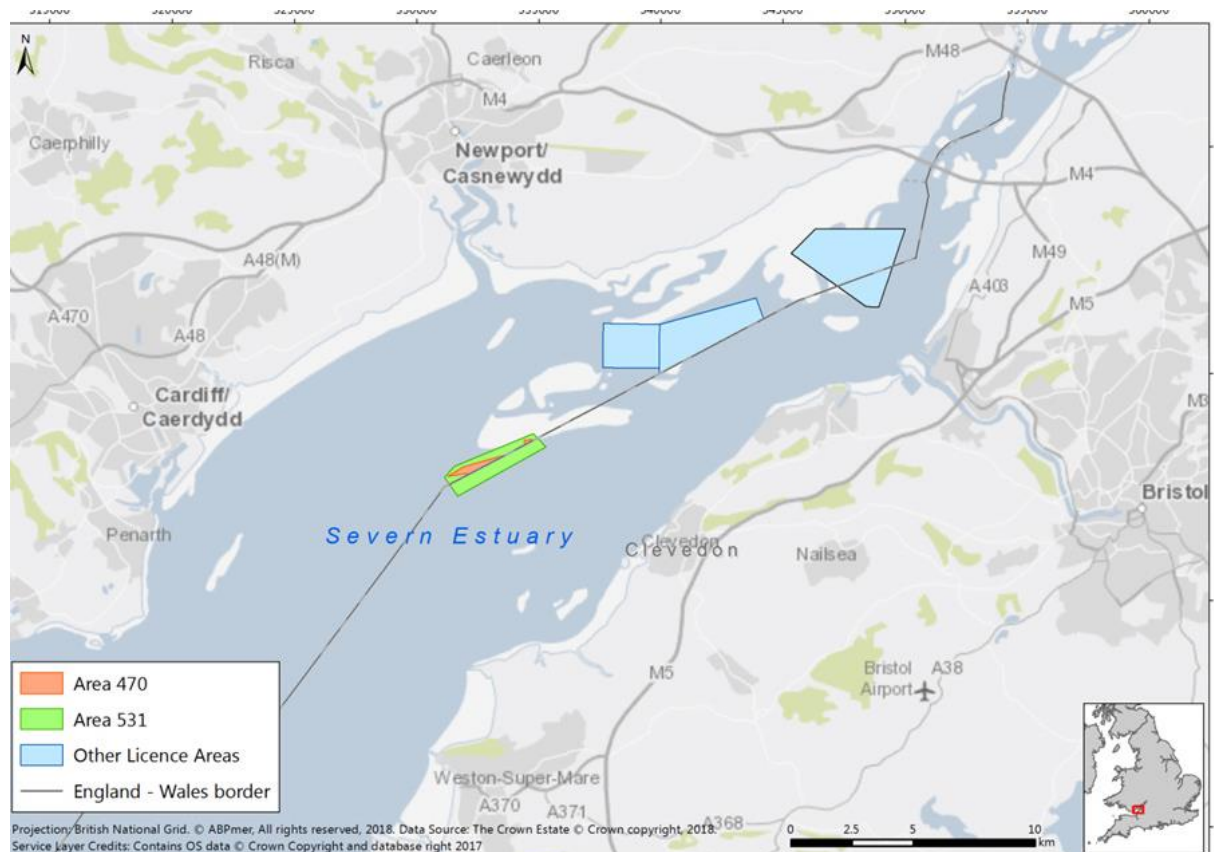


Figure 1: Marine Aggregate Areas 470 and 531

3. Issues for consideration

3.1. General Comments

- 3.1.1 The ES must include an assessment of the proposal's compliance with all relevant plans and policies. Further information regarding Marine Plans in English waters can be found here: <http://mis.marinemanagement.org.uk/south-west> and <https://www.gov.uk/government/collections/marine-planning-in-england>.
- 3.1.2 As there is currently no English Marine Plan in place covering the proposed development, the Marine Policy Statement 2011 which sets the direction for decisions in such marine areas must be used within any associated marine licence application, with particular reference to each relevant section.
- 3.1.3 We advise that Welsh Government has recently consulted upon a draft Welsh National Marine Plan (WNMP), and as part of this the withdrawal of the interim Marine Aggregates Dredging Policy. Welsh Government is now working to finalise and adopt the plan. In preparation for the adoption of the plan, we recommend that any EIA undertaken reviews the contents of the draft Welsh National Marine Plan, and the Environmental Statement considers how the project complies with the draft Policies, or the final policies once the plan is adopted
- 3.1.4 The ES must include analysis of the activity that has occurred during the current licence period for Area 470, including resource depth assessment accompanied by maps showing the location and intensity of dredging operations over the same time period, as well as any monitoring information that is available (summary of the monitoring results for Area 470).
- 3.1.5 Statements and conclusions included in the ES should be supported by recent empirical evidence or scientific publications. We welcome the use of the studies mentioned in the scoping report. If it is necessary to make conclusions based on expert judgements this must be clearly described and discussed in the text. Furthermore, the level of uncertainty/confidence associated with each significance assessment must clearly present the type of evidence used and state how it was incorporated into the assessment.
- 3.1.6 Standards from the BMAPA Good Practice Guidance should be taken in consideration, including the use of Active Dredge Zones (ADZs) within any licensed dredging footprint, in order to minimise environmental impacts. This management process ensures that dredging activity is spatially delimited which results in various benefits such as limiting the spatial extent of potential impacts and restricting interactions with other users of the sea and seabed. By limiting the area of licensed seabed to be worked at any one time, the exact location and extent of dredging can be communicated clearly and regularly.
- 3.1.7 The ES must expand on the consideration of other marine sources as an alternative; the ES must include adequate justification for the additional tonnage proposed to be extracted, given the additional capacity recently licensed at Culver. The ES must include adequate justification for the proposed operation and for the proposed extraction rate in the context of current operations in the Bristol Channel area and the aggregate demands in the South West and South Wales regions.

- 3.1.8 The “Legislative Framework and Requirements for EIA” section of the ES must include the relevant legislation relating to bio-security, for example Schedule 9 Section 14 of the Wildlife and Countryside Act 1981 (as amended) and the EU Invasive Alien Species Regulation.
- 3.1.9 The ES must make clear the relationship of the proposal with current marine aggregate dredging in Area 470, specifically making clear if the intention is that the proposed work will replace the current dredge activity under Area 470.
- 3.1.10 The ES must include a non-technical summary.
- 3.1.11 Further data may be available from Swansea Bay Tidal Lagoon which could benefit the ES.

3.2. Habitats Directive / Wild Birds Directive

- 3.2.1 The potential impact of the proposal upon features of nature conservation interest and opportunities for habitat creation/enhancement must be included within this assessment in accordance with appropriate guidance on such matters. Guidelines for Ecological Impact Assessment (EcIA) have been developed by the Institute of Ecology and Environmental Management (IEEM) and are available on their website. EcIA is in the process of identifying, quantifying and evaluating the potential impacts of defined actions on ecosystems or their components. EcIA may be carried out as part of the EIA process or to support other forms of environmental assessment or appraisal.
- 3.2.2 The potential impact of the proposal upon features of nature conservation interest and opportunities for habitat creation/enhancement must be included within this assessment in accordance with appropriate guidance on such matters. Guidelines for Ecological Impact Assessment (EcIA) have been developed by the Institute of Ecology and Environmental Management (IEEM) and are available on their website. EcIA is in the process of identifying, quantifying and evaluating the potential impacts of defined actions on ecosystems or their components. EcIA may be carried out as part of the EIA process or to support other forms of environmental assessment or appraisal.
- 3.2.3 We consider that this proposal is not directly connected with or necessary to the conservation management of the site and has the potential to significantly affect features of the sites listed below. A Habitats Regulations Assessment will therefore be required to determine whether there will be a likely significant effect on the European sites listed below. Given the limited information available at this stage on the operational impacts, we are of the view that, at present, it cannot be excluded, on the basis of the objective information supplied in the Scoping Report, that the application will have a likely significant effect on the internationally designated sites listed below.
- 3.2.4 We recommend the inclusion of a separate section of the ES to address impacts upon European and Ramsar sites entitled ‘Information for Habitats Regulations Assessment’ as this will assist the Marine Management Organisation and Natural Resources Wales to determine whether the proposal is likely to have a significant effect on the European sites and to undertake an appropriate assessment if required.

Special Protection Areas (SPA)

3.2.5 The works, as set out in the information supplied in the Scoping Report, are near to the following designated SPA:

- Severn Estuary SPA

3.2.6 The ES must thoroughly assess the potential for the proposal to affect the designated site listed above and must identify such mitigation measures, as may be required in order to avoid, minimise or reduce any adverse significant effects.

3.2.7 We note the northern edges of Area 531 are located on the designated Intertidal Mudflats and Sandflats which are used by SPA birds as supporting habitat at low tide. Intertidal mudflats and sandflats are important feeding grounds for water birds in the Severn Estuary, therefore, potential impacts on the qualifying features of the SPA must be assessed.

3.2.8 A capping layer as described in the BMAPA Good Practice Guidance should be applied with resource exclusion zones applied to areas of resource thickness either below or reaching 0.5m depth. This 'capping layer', where sediments are not to be dredged completely but allowing a layer of at least 0.5m material to remain, should aid re-colonisation.

3.2.9 Further information regarding the designated site can be found at the following website: <https://designatedsites.naturalengland.org.uk/SiteSearch.aspx>.
<https://naturalresources.wales/guidance-and-advice/environmental-topics/wildlife-and-biodiversity/find-protected-areas-of-land-and-seas/designated-sites/?lang=en>

Special Areas of Conservation (SAC)

3.2.10 The works, as set out in the information supplied in the Scoping Report, are near to the following designated Special Area of Conservation:

- Severn Estuary SAC

3.2.11 The ES must thoroughly assess the potential for the proposal to affect the designated site listed above and must identify such mitigation measures, as may be required in order to avoid, minimise or reduce any adverse significant effects.

3.2.12 The proposed extraction area lies entirely within the Severn Estuary SAC, which includes subtidal sandbanks and intertidal sand and mud as features. There are two other licensed dredging areas within the SAC, North Middle Ground (Area 455/459) and Bedwyn Sands, both extracting up to 250,000 tonnes annually. In addition to this, dredging at North Bristol Deep (Area 470) has been extended until 2020. In the Scoping Meeting on 31 July 2018 with the MMO it was confirmed that Area 470 will be merged into Area 531, with the maximum tonnage dredged being the tonnage permitted under Area 531. An assessment on the impact of the combined removal of material from the extraction area on the SAC features must be provided in the ES. The sediment budget and potential seabed morphology changes should be clearly defined in the ES.

3.2.13 A capping layer as described in the Good Practice Guidance should be applied with resource exclusion zones applied to areas of resource thickness either below or reaching 0.5m depth. This 'capping layer', where sediments are not to be dredged completely but allowing a layer of at least 0.5m material to remain, should aid re-colonisation.

3.2.14 Further information regarding the designated site can be found at the following website: <https://designatedsites.naturalengland.org.uk/SiteSearch.aspx>.

Ramsar Sites

3.2.15 The works, as set out in the information supplied in the Scoping Report, are near to the following designated Ramsar Sites:

- Severn Estuary Ramsar Site

3.2.16 The ES must thoroughly assess the potential for the proposal to affect the designated sites listed above and must identify such mitigation measures, as may be required in order to avoid, minimise or reduce any adverse significant effects.

3.2.17 Further information regarding the designated sites can be found at the following website: <https://designatedsites.naturalengland.org.uk/SiteSearch.aspx>.

3.3. Other Designated Sites

Sites of Special Scientific Interest (SSSI)

3.3.1. We can confirm that the proposed works are located within the vicinity of the following Sites of Special Scientific Interest:

- Severn Estuary SSSI

3.3.2. The ES must include a full assessment of the direct and indirect effects of the proposal on the features of special interest within this site and must identify such mitigation measures, as may be required in order to avoid, minimise or reduce any adverse significant effects.

3.3.3. Further information on the above listed SSSI and its special interest features can be found at: <https://designatedsites.naturalengland.org.uk/SiteSearch.aspx>.
<https://naturalresources.wales/guidance-and-advice/environmental-topics/wildlife-and-biodiversity/find-protected-areas-of-land-and-seas/designated-sites/?lang=en>

3.4. Other Nature Conservation

3.4.1. The ES must thoroughly assess the impact of the proposals on habitats and/or species listed as 'Habitats and Species of Principal Importance' within the England Biodiversity List, published under the requirements of S41 of the Natural Environment and Rural Communities (NERC) Act 2006. Section 40 of the NERC

Act 2006 places a general duty on all public authorities to conserve and enhance biodiversity. Further information on Habitats and Species of Principal Importance is available via the following link:

<http://publications.naturalengland.org.uk/publication/4958719460769792>

In line with point 3.4.1 Environment Act (Wales) Section 6 and 7 replaces the Natural Environment and Rural Communities (NERC) Act 2006 within Wales. Section 7 – list of the living organisms of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales. This interim list, is exactly the same as the previous list under Section 42 of the NERC.

- 3.4.2. The ES must demonstrate that the proposal will avoid adversely impacting the most important wildlife areas within the area of the project, and if possible provide opportunities for overall wildlife gain.
- 3.4.3. We advise that the report's invasive and non-native species list is incomplete. The ES should undertake a data pull of all available Invasive Non-Native Species (INNS) data to ensure adequate biosecurity is employed.
- 3.4.4. We note the applicant is seeking consent to undertake hopper washing. The activity can act as a pathway for the introduction of invasive non-native species from residues present in the hopper, particularly if washing is carried out in a different region to where the cargo originally derived. As indicated in the Biosecurity Plan Guidance notes¹, the ES must include a biosecurity risk assessment/management plan that includes measures to address the issues of hopper water and ballast water exchange. The assessment must also include an indication of specific hopper washing areas and origin regions allowed.
- 3.4.5. Section 4.4.3 of the Scoping Report states the following: “*No dedicated marine ecology surveys are proposed for the EIA phase for Area 531, nor is it thought necessary to review geophysical data for the presence of reefs. Rather, it is considered that sufficient data is available for a high level classification of the area (assuming that pre-dredge sediment characterisation surveys will be undertaken and aligned with the Cefas methodology in relation to Regional Seabed Monitoring Programmes (Cooper and Koch, 2013))*”. The ES should include acknowledgement that *Sabellaria alveolata* reefs are highly mobile. In a Scoping meeting on 31 July 2018 it was confirmed that recent side scan data would be able to identify the presence of reef features, along with future RSMP grab samples. This data must be included in the ES. Should the recent sidescan sonar data identifies the presence of reefs, exclusion zones should be implemented as a precaution prior to the RSMP grab samples analysis.
- 3.4.6. Grab samples data from an Environment Agency survey carried out in 2016 suggests presence of *Sabellaria* in close proximity to the proposed dredging area, particularly between Newport and Clevedon on the southern edge of the Middle Grounds. Location point data can be requested from the Environment Agency data services.
- 3.4.7. Intertidal habitats and saltmarsh are listed in the ES but there is no further discussion of these features. All impacts on these receptors must be stated in the

¹ British Marine Aggregate Producers Association (BMAPA) (2018a). Biosecurity Plan Guidance Note (Draft, March 2018). Produced for BMAPA by ABPmer. ABPmer, Southampton, 39p.

ES, including any indirect impacts, and which arise from changes in coastal processes.

- 3.4.8. There is no specific mention in the ES of the potential for the proposal to reduce the extent of habitat feature if the morphology of the sandbank is altered; this must be assessed in appropriate detail in the ES

3.5. Marine Mammals and Elasmobranchs

- 3.5.1. During dredging operations, marine mammals (including pinnipeds (seals), cetaceans (whales, dolphins and porpoises)), and elasmobranchs (sharks and rays), may exhibit avoidance behaviour leading to potential exclusion from important areas for feeding, breeding or migration. This combined with longer term changes to the seabed and associated food resources may have an impact on marine mammal and elasmobranch populations. The ES must refer to the latest research into potential noise disturbance effects associated with dredger operations. There have been two Marine Aggregate Levy Sustainability funded (MALSF) projects associated with noise disturbance which can be found at <http://webarchive.nationalarchives.gov.uk/20140108014407/http://www.cefas.defra.gov.uk/alsf.aspx>
- 3.5.2. For characterisations purposes we recommend referring to the following publications to describe the potential distribution of marine mammals in the two application areas:
- SMRU (2006). Small Cetaceans in the European Atlantic and North Sea (SCANS-II). Life Project Number: LIFE04Nat/GB/000245. <http://biology.st-andrews.ac.uk/scans2/inner-finalReport.html>
 - Reid, J.B., Evans, P.G.H. and Northridge, S.P. (2003). Atlas of Cetacean distribution in north-west European waters. <http://www.incc.gov.uk/page-2713>
 - Data from site specific surveys conducted as part of the EIA procedure for offshore developments in the vicinity of the application areas (e.g. offshore wind farms such as Atlantic Array).

3.6. Benthic Ecology

- 3.6.1. We recommend the inclusion of monitoring the benthic ecology receptors within the Regional Seabed Monitoring Programme (RSMP).
- 3.6.2. The scoping report lists the possible source of data that the applicant will be consulting in order to characterise the ecological receptors that should be considered for the Environmental Impact Assessment (EIA). The applicant must provide the site-specific data (macrofauna and sediment particle size) arising from the monitoring in the Area 470 to Cefas (keith.cooper@cefas.co.uk) so they can be incorporated into the wider Regional Seabed Monitoring Plan (RSMP) dataset and displayed in the Marine Aggregates App (https://www.benthosapps.net/ma_tool/). If a licence is determined, this will allow the developer to produce a RSMP baseline report which would be beneficial to place the fauna and sediment characteristics found within the boundaries of the Area 531 in a regional context.

- 3.6.3. No receptors were selected in the Scoping Report, only data sources. Provided that the relevant information is used (see 3.6.2 above), we are confident that the appropriate receptors will be scoped in. Any decision to scope receptors or impacts out of the assessment will have to be fully justified in the EIA.

3.7. Coastal Processes

- 3.7.1. The Scoping Report states that the EIA will consider evidence, including:
- a) Baseline characterisation of the local hydrodynamics;
 - b) Impact assessment for two wave scenarios (10 in 1 and 1 in 200 year return interval);
 - c) Impact assessment of tidal current impacts;
 - d) Impact assessment of sediment mobility, and;
 - e) Cumulative effects of dredging in the Severn Estuary.
- 3.7.2. We consider that all the potential coastal processes impacts of extracting sediment in this area are adequately scoped in by points a-e above.
- 3.7.3. The ES has scoped out plume modelling due to the low fine content of the sediment and the high turbidity of the Severn Estuary, however the Scoping Report does not define 'fine' and 'medium' sand. The ES must state the scale used and clarify this.
- 3.7.4. With reference to the Coast Protection and Flood Defence cell (Section 4.8 of the Scoping Report) the summary appears to have omitted a vital stage between Bullet points 2 and 3. The missing stage must include site specific impacts along the coast, before considering the potential for coastal change on current policies from the Shoreline Management Plan (SMP and other strategies (Bullet 3)). This apparent omission may potentially be addressed in the coastal process assessment however, the applicant must clarify this.
- 3.7.5. We note that the applicants have requested permission to carry out anchor dredging, which may create conical depressions. The ES must provide robust evidence to show this dredging method will not have a significant impact on marine hydrodynamic processes (e.g. currents, waves).
- 3.7.6. We understand that existing data will be used to inform the ES as much as possible, but the ES must be informed by studies of hydrodynamic and sedimentary regimes which consider Area 531 specifically and potential cumulative effects with the other licences within the Severn Estuary.
- 3.7.7. Where existing data is used, this must be the most up to date available data. The numerical outputs of any models must be discussed with respect to significance in terms of impact for each environmental receptor. For example, if the model predicts a 5% change in wave height at a location, a discussion of the significance of the modelled change to sediment stability, particle size distribution and morphology must be presented. In addition, a detailed analysis of the potential impact of the material extracted must be included.
- 3.7.8. The Severn Estuary is characterised by extensive sedimentary features which play key biological and physical roles in both the littoral and sub-littoral domains. The strong tidal currents and high mobility of sediments in this region suggest

that there is likely to be a degree of connectivity between features. As a consequence it is possible that dredging may result in environmental impacts at considerable distance from the active dredge zone. The ES must take into account the linkages between aggregate dredging and marine geomorphology. Consequently it is important that the spatial scale of the assessment takes this in consideration and incorporates all areas potentially impacted.

- 3.7.9. It is noted that the 2018 Welsh Grounds survey is to cover the full extent of Area 531; the increased survey area must include a buffer zone around the south west and southern borders in line with other dredge site surveys. The NRW annual bathymetry surveys are single beam surveys. As these were required due to a condition in the NRW licence, data will mostly be for the welsh side of the sandbank. We would like to see this data presented in the ES.
- 3.7.10. The area without data to the south west of Area 531 in Figure 3 of the ES appears to have less resource thickness than areas to the north and east; and it is noted from Figure 2 that there is no vibrocore data for this area. The ES must state how the resource thickness and type will be defined.
- 3.7.11. The proposed modelling refers to modelling of baseline, post dredging and with a future climate change scenario. The ES must include an assessment on the future climate change scenario both with and without dredging applied.
- 3.7.12. The main concern with respect to the morphology of Middle and Welsh Grounds (and the associated knock-on effects on coastal processes) is the cumulative effect of aggregate extraction arising from all current licences and applications. The ES must include the post-dredge scenario that includes all extraction.
- 3.7.13. The ES must clearly describe the assumptions that have been made regarding sandbank morphology post dredging; for example, will the volume dredged be distributed evenly across the licence area and/or evenly across the Middle and Welsh Grounds? Any other scenarios must be stated in the ES.
- 3.7.14. We note in Section 4.8.2 of the ES that the potential supply of aggregates for beach nourishment has been scoped in as a positive impact pathway. However it is not clear how this will be assessed in the ES and balanced in terms of overall impact unless specific tonnages are assigned for this purpose and recipient locations are identified. The ES must therefore include specific tonnages and proposed locations for beach nourishment.
- 3.7.15. Section 4.8.3 of the ES states that further work is to include a review of the potential net lowering of the seabed as a consequence of the aggregate extraction from Area 531. The assessment must include the whole of the Middle and Welsh Grounds and the inclusion of dredging activity at Bedwyn Sands and North Middle Grounds, in order that cumulative effects can be assessed.

3.8. Fish Ecology

- 3.8.1. The Scoping Report cites various site-specific reports (Henderson and Bird, 2010; HR Wallingford, 2003; Emu, 2001) to characterise the surrounding environment in terms of fish abundance and diversity. It is stated that *“Dedicated herring and sandeel assessments will be included; these will apply the*

assessment methodology developed by the Marine Aggregate EIA Working Group in 2013". The Anglian regional assessment is currently being updated with a 2018 baseline and once this is finalised and agreed with the MMO, Cefas, Natural England (NE) and Joint Nature Conservation Committee (JNCC), then all the other aggregate regional assessments will be updated. We recommend that if the Bristol Channel assessment is updated with the 2018 baseline and completed in time for the Environmental Impact Assessment (EIA) then it is included within the EIA.

- 3.8.2. The ES must clearly define the survey sampling methodology including the timings, gear type, sampling duration etc. and acknowledge the limitations and selectivity of the survey methodologies as well as any data sets used to support the application.
- 3.8.3. Sampling methodology and gear selectivity can influence survey results and associated determination and analysis of fish assemblages present in the sampling location and wider vicinity, therefore any such data used or interpreted to inform the EIA should be sufficiently explained.
- 3.8.4. Additional sampling must be considered to fill knowledge gaps, if the evidence base is determined to not be sufficient to characterise the fish ecology at the site. Any proposed monitoring should be considered when undertaking any sampling to inform the characterisation and setting the baseline for fish ecology, as this may influence data collection techniques. The applicant has stated that they will seek stakeholder engagement with fishermen and Devon and Severn IFCA, and some of this liaison may help to fill some of the knowledge gaps.
- 3.8.5. It is noted that the following sources intend to be used within the ES; MMO, Devon and Severn Inshore Fisheries Conservation Agency (IFCA) and Environment Agency (EA)/ Natural Resources Wales (NRW) transitional and coastal waters (TraC) fish surveys, Vessel Monitoring System (VMS) and other vessel surveillance data, the Area 470 Environmental Statement (ES), and Severn Tidal Power SEA and Hinkley Point C and consultation with fishermen. These sources are considered appropriate.
- 3.8.6. If a licence is determined, an RSMP-compliant pre-dredge survey must be undertaken to provide a baseline for future monitoring and assessment. Analysis of particle size from grab samples in this type of survey could inform the site-specific assessment on habitat suitability for sandeel and herring spawning habitats.
- 3.8.7. Section 4.14 of the ES states: *"Given the distance from receptors and the existing level of aggregate extraction in the area, there will be no significant lighting effects due to the dredger activity. Therefore, this issue has been scoped out."* The applicant must clarify whether this refers to impacts upon human populations as indicated by its location in the report. There is no mention in section 4.4.2 concerning the potential impact of artificial light on fish receptors, so the applicant must clarify their assessment concerning this. Whilst resident fish species may be somewhat sensitised to artificial light from existing and previous dredging activities, conversely, the consideration of cumulative impact and increased vulnerability should be made, particularly concerning migratory fish species which may be especially sensitive. The ES must include at least an

assessment of the potential impact and sufficient justification as to the scoping decision.

- 3.8.8. The primary concern for spawning, nursery, foraging and overwintering grounds is related to seabed removal and resuspension of sediments, particularly for the benthic spawning species herring. They can be considered to be very sensitive to such impacts given that their eggs are deposited in situ on the seabed and require specific substrate for spawning. Consequently maintaining spawning habitat integrity could be a concern. Changes in water quality are likely to arise given the increased sediment suspension in the water column. This potentially could disrupt any migratory activity within the estuary undertaken by anadromous and catadromous fish. Anadromous fish of conservation and ecological importance which would be affected by this include; Atlantic salmon, sea trout, seabass; twaite shad, allis shad, river lamprey, sea lamprey and European eel (*Anguilla anguilla*). The Scoping Report has accurately identified these receptors and must ensure that they will be appropriately assessed.
- 3.8.9. The ES must consider the increased vulnerability of seabass in the EIA, as fishing restrictions are still in place for the UK given the current health of the stock. This is particularly relevant when considering the assessment of any cumulative stress. Seabass have been placed under special protection measures as scientific advice has clearly identified the need to drastically reduce catches of this species, following an increase in the fishing pressure and a reduction in reproduction (Marine Management Organisation, 2018).

3.9. Commercial Fisheries

- 3.9.1. There is an oyster fishery in Porlock Bay. Concerns were raised by Porlock fishers previously regarding the potential impacts from dredging at Area 526 near Steep Holm. We advise that the applicant must consult with the Porlock Bay Oyster fishers. The ES must include an assessment of any impacts on Porlock Bay Oyster fishery, including an assessment of in combination effects of existing and planned marine aggregate dredging in the Severn Estuary.
- 3.9.2. We note that the Scoping Report proposes to use MMO landings statistics (incorrectly labelled 'catch data' in the report), IFCA, Welsh Government and VMS data. The report will also make use of the Area 470 ES, Severn tidal power SEA, and Hinkley Point C ES.
- 3.9.3. The ES must include an assessment of the impact of the proposal on commercial fisheries, including any navigational impacts.

3.10. Archaeology / Cultural Heritage

- 3.10.1. We consider that this project has the potential to impact the marine historic environment. The impacts are likely to be direct, which would result in permanent physical changes to the historic environment, and potentially indirect, through changes to localised environment.

- 3.10.2. The ES must include a common approach to the analysis of potential impact on historic environment assets and any necessary mitigation north and south of the boundary between English and Welsh waters.
- 3.10.3. We are content with the outline methodology set out in section 4.7.1. The methodology must combine a desk-based review with new marine geophysical survey data gathered specifically for this environmental impact assessment.
- 3.10.4. In section 4.7.3 there appears to be confusion with regard to the sources of historic environment information for Wales. We advise that information on the following website defines the records on historic assets maintained in Wales (<http://cadw.gov.wales/historicenvironment/recordsv1/?lang=en>).
- 3.10.5. Please also note the following information sources which must be used to inform the EIA:
- The National Record of the Historic Environment is the record maintained by Historic England. The correct name for the Welsh equivalent which should also appear here is the National Monuments Record of Wales (<https://rcahmw.gov.uk/about-us/>).
 - The correct form of reference to the records maintained by the Welsh Archaeological Trusts should, in this instance referring to a marine aggregates areas in the upper Severn estuary , be the Regional Historic Environment Record maintained by Glamorgan Gwent Archaeological Trust (<http://www.ggat.org.uk/her/her.html>)
 - Online access to the Regional Historic Environment Record maintained by Glamorgan Gwent Archaeological Trust is facilitated by Archwilio (<https://www.archwilio.org.uk/arch/>). Online access to the National Monuments Record of Wales is facilitated by Coflein (<http://www.coflein.gov.uk/>). Neither of these online datasets are designed to be used for commercial or development management purposes and doing so puts commercial organisations in breach of the access agreements and terms of use. Glamorgan Gwent Archaeological Trust and the Royal Commission on Ancient and Historic Monuments of Wales must be contacted directly to obtain up to date and fully referenced data to support the development of the EIA.
 - Access to Cadw's records on scheduled monuments, listed buildings, registered landscapes of historic interest, protected wrecks and World Heritage Sites is facilitated by Cof Cymru (<http://cadw.gov.wales/historicenvironment/recordsv1/cof-cymru/?lang=en>). The information provide online is also covered by Terms and Conditions including attribution under Open Government License.
- 3.10.6. Any ES submitted in support of this licence application must address the requirements of Environmental Impact Assessment (EIA), which includes the historic environment. In brief outline, the historic environment comprises features that may be affected by the proposed developments include the remains of wreckage from vessels and aircraft, and the archaeological evidence of human activity on relic land surfaces now submerged by marine transgression. As such, submerged prehistoric landscapes may contain palaeo-environmental deposits, and evidence of occupation in the form of artefacts and associated buried archaeology.

- 3.10.7. An archaeological desk based assessment must be commissioned from a specialist marine archaeological contractor working to recognised professional standards, such as those defined by the Chartered Institute for Archaeologists. This is essential to qualify any material or features of historic environment interest revealed by geophysical or geotechnical surveys, and create a comprehensive baseline for the proposed licence area. As such, the MMO welcomes the inclusion of Section 4.7.3 'Further work required for EIA', which details the standards to which the archaeological desk based assessment will be conducted.
- 3.10.8. The desk-based archaeological assessment must draw on a range of information sources in order to adequately inform the EIA. It is essential that the archaeological analysis reviews historic environment information held by adjacent local authorities (via Historic Environment Records), the National Record of the Historic Environment maintained by Historic England and the wrecks database of the UK Hydrographic Office and The National Monuments Record of Wales. Other sources of data, including those held by the Receiver of Wreck, must be utilised where appropriate.
- 3.10.9. In addition to desk based sources, as a standard approach, we expect existing up to date and relevant site specific geophysical and geotechnical survey data to be made available for archaeological assessment, in order to place Area 531 within the regional palaeo-environmental context. This is necessary to further characterise and assess the palaeo-environmental and prehistoric archaeological interest of the areas. Should such surveys be planned, archaeological advice must be sought to maximise its potential to enable archaeological questions to be answered and impacts to be understood.
- 3.10.10. For historic wreck sites and aircraft crash sites, side scan sonar and bathymetric data (and magnetometer where possible) must be made available to qualified archaeologists to categorise potential features of historic environment interest, and help develop mitigation and monitoring strategies. Side scan sonar data must be made available to archaeologists to identify any wreck or aircraft crash sites of archaeological interest. Bathymetric data should be made available to aid archaeological interpretation of side scan sonar data, and most importantly to allow an on-going assessment of the stability of the seabed in and around any known sites of archaeological interest.
- 3.10.11. Any ES must also include detail on the required mitigation and monitoring strategies to be adopted, with particular reference to the procedures detailed in the guidance published by the British Marine Aggregate Producers Association and English Heritage (2003), and to the 'Marine Aggregate Industry Protocol for the Discovery of Finds of Archaeological Interest' (2005), to ensure that they are in line with current industry standards. Such strategies must also include full consideration of the requirements for archaeological review of geophysical and geotechnical data during any operational monitoring works to allow the archaeological curator to fully assess any potential impacts of dredging on the historic environment over the course of the licence term. In order for this to be effectively achieved it is imperative that the archaeological baseline is determined prior to any change in the environment due to the proposed activity.
- 3.10.12. Any archaeological reports produced as a part of this proposed development must be recorded via OASIS (Online Access to the Index of archaeological InvestigationS).

3.11. Navigation / Other Users of the Sea

- 3.11.1. We note that the Scoping Report states an assessment on the effects of dredging on the identified navigational impact pathways will be carried out. We advise that that a Navigational Risk Assessment (NRA) must be undertaken as part of the EIA. The NRA must include a baseline study, which summarises the available background navigation data and focuses on any key shipping routes and / or anchoring areas and fishing activity in the vicinity of the proposed dredging area.
- 3.11.2. The NRA must also include appropriate risk mitigation measures and a detailed methodology, to ensure the risk remains reduced to 'As Low As Reasonably Practicable' (ALARP). This must include assessments on collision risk, emergency response, marking and lighting during dredging activities and the promulgation of Notices to Mariners.

3.12. Water Quality

- 3.12.1. If the sediment sampling shows high contamination levels, the applicant must establish whether or not modelling the dispersal of contaminated sediments is required.
- 3.12.2. Additionally, the report references a maximum secondary impact zone of 500m as being scientifically justifiable for all plume and bedform effects for Area 531, due to the high tidal flows and natural turbidity observed in the Severn Estuary / Bristol Channel region. There does not appear to be any specific reference in Section 4.2 that proves 500m is reasonable and justifiable however, it is acknowledged that this issue may be defined in the MarineSpace, 2015 paper. Clarification regarding this point must be provided.
- 3.12.3. The proposal will require a Water Framework Directive (WFD) Compliance Assessment following the process set out in:
<https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters>
Data for Welsh Waters you will require to complete a WFD assessments is available on the Water Watch Wales website:
<http://waterwatchwales.naturalresourceswales.gov.uk/en/>

3.14 Cumulative Impact and In-combination Assessment

- 3.14.1. The ES must identify, describe and evaluate the effects that are likely to result from the project in combination with other projects and activities that are being, have been or will be carried out. To conduct the assessment of cumulative and in combination effects, the following types of projects must be included (subject to the availability of information):
- Existing completed projects;
 - Approved but uncompleted projects;
 - Ongoing activities;

- Plans or projects for which an application has been made and which are under consideration by the consenting authorities; and
- Plans or projects which are reasonably foreseeable, i.e. projects for which an application has not yet been submitted, but which are likely to progress before completion of the development and for which sufficient information is available to assess the likelihood of cumulative and in-combination effects.

- 3.14.2. All potential pathways linking this proposal with other plans or projects to designated features or sensitive receptors within the surrounding sites must be assessed.
- 3.14.3. Information on transboundary impacts and effects on the environment must be provided in the potential cumulative effects assessment.
- 3.14.4. Should any other projects come to light during the EIA process, these must also be included in the cumulative and in combination assessment of the EIA.
- 3.14.5. Further information regarding other projects within the general vicinity of the proposal can be found at the MMO Public Register: https://marinelicensing.marinemanagement.org.uk/mmofox5/fox/live/MMO_PUBLIC_REGISTER . Information can also be found on the MMO Marine Information System: <http://mis.marinemanagement.org.uk/> Information on projects in Welsh waters can be obtained from the Welsh Government Marine Planning Portal (<http://lle.gov.wales/apps/marineportal>) or GIS data on marine licences in Welsh waters can be obtained from Lle (<http://lle.gov.wales/home>)
- 3.14.6. We note that a number of aggregate extraction areas are operational within the Estuary and without the results of the hydrodynamic and physical modelling studies it is difficult to interpret how extraction at these spatially separated sites affects the overall movement and supply of sediment in the estuary. We advise that all other extractive activities in the Severn Estuary must be considered within a cumulative impact assessment. The degree to which each cumulative operation is considered within the assessment will depend upon the outputs of the modelling study.
- 3.14.7. The In-combination assessment must include any tidal barrier/lagoon projects, including the Bridgwater tidal barrier.
- 3.14.8. We note from Section 3.4 'Cumulative and In-combination Assessment' of the Scoping report, that a cumulative assessment will be conducted to address known and planned developments occurring in the wider regional context to assess the potential for in-combination impacts upon the historic environment. We welcome this, as it is vital to ensure any future extraction of marine minerals in the region are only undertaken with full consideration of the potential for cumulative effects from dredging activities on the survival of archaeological sites and features.
- 3.14.9. The proposed extraction area lies entirely within the Severn Estuary SAC, which includes subtidal sandbanks and intertidal sand and mud as features. There are two other licensed dredging areas within the SAC, North Middle Ground (Area 455/459) and Bedwyn Sands, both extracting up to 250,000 tonnes annually. An assessment on the impact of the combined removal of material from the extraction area on the conservation features must be provided, including

features which are indirectly associated with sandbank features. The sediment budget and potential seabed morphology changes should be clearly defined in the ES.

- 3.14.10. Area 526 should be included in cumulative aggregate area assessments. If it is not included justification for why extraction at Area 526 will not change modelled results should be provided. It should be noted that part of Area 526 is within the Severn Estuary SAC and therefore the cumulative impact on the SAC should be considered.

4. Conclusion

The topics highlighted in this scoping opinion must be assessed during the EIA process and the outcome of these assessments **must** be documented in the ES in support of the marine licence application and any associated planning application(s). It is recommended that a table is provided in the ES summarising the scoping opinion and how the comments have been addressed in the ES. This statement, however, should not necessarily be seen as a definitive list of all EIA requirements. Given the scale and programme of these planned works other work may prove necessary.