Hartley Anderson Limited

Marine Environmental Science and Consultancy

Screening for Appropriate Assessment

Ballycotton Harbour Dredging Foreshore Licence Application

Report to
Department of Housing, Local Government and Heritage

March 2022

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SECTION 1 - INTRODUCTION

1.1 Background

Arup with Hartley Anderson Limited have been commissioned by the Department of Housing, Local Government and Heritage (DHLGH) to conduct a Screening for Appropriate Assessment (AA) (stage 1 screening for the likelihood of significant effects on Natura 2000 sites), from an application by Cork County Council (CCC) for a Foreshore Licence to cover the proposed dredging of Ballycotton Harbour to restore it to navigable depths, and the dumping at sea of uncontaminated dredged material at the previously used dumping site to the south of Power Head, 16km southwest of Ballycotton. Any contaminated dredged material will be disposed of at a licensed landfill facility.

1.2 Application documents submitted

A number of application documents submitted by CCC have informed this AA Screening, including:

- Application form [Applicant: Cork County Council: 30 April 2021]
- Admiralty Chart [Byrne Looby Partners, dated 23/03/2021]
- Foreshore License Map 1 [Byrne Looby Partners, dated 22/03/2021]
- Foreshore License Map 2 [Byrne Looby Partners, dated 22/03/2021]
- Cross Section [Byrne Looby Partners, dated 22/03/2021]
- Existing Bathymetry [Byrne Looby Partners, dated 22/03/2021]
- Overall Site Layout Plan [Byrne Looby Partners, dated 22/03/2021]
- Proposed Dredging Arrangement [Byrne Looby Partners, dated 22/03/2021]
- Natura Impact Statement [MERC Consultants, dated 13/05/2021 and an updated version of 21/01/2022]
- Marine Mammal Risk Assessment [IWDG Consulting, undated]
- Bird Survey Report [EirEco, dated 25/07/2019]
- Foreshore Application Report [Byrne Looby Partners, dated 22/03/2021]
- Prescribed Body Consultation
    - Prescribed Bodies Observations
    - Applicant's response to Prescribed Bodies Observations.

An application (S0032-01[1]) for a Dumping at Sea Licence (required under the Dumping at Sea Act 1996 as amended) for the proposed works is currently with the EPA for consideration.

1.3 Relevant consultation responses

The licence application was open for public consultation between 26th July 2021 to 24th August 2021.

Consultation responses from the prescribed bodies are provided in Table 1.1. Note that most of the responses are not directed at the Habitats Directive aspects of the proposal.

[1] https://epawebapp.epa.ie/terminalfour/DaS/DaS-view.jsp?regno=S0032-01

Table 1.1: Responses from prescribed bodies to the consultation

Statutory Body	Applicant's Response
Marine Advisor of the Department of Housing local Government and Heritage The Marine Advisor noted the findings of his/her inspection of the site took place on 19/10/2021 and that Irish Water have application FS007022 under consideration for a licence to construct a temporary work area which overlaps partially with the proposed dredge area. The Marine Advisor considered that basic sequencing and communications should ensure the works do not conflict. The existing moorings in the harbour are to be lifted and replaced by the mooring holders after the dredging is complete. Leisure users and fishers will have to accept the disruption caused by the dredging by either removing the vessel for the period of dredging or tying up to the pier when weather allows and seeking shelter in Cork Harbour when poor weather is forecast. However, accommodation will have to be made for the lifeboat, as in certain poor weather it cannot remain alongside the pier and it cannot be relocated to Cork Harbour and remain on service. A mooring within the harbour will have to be provided at all times throughout the works to the RNLI's specification and requirements to ensure the lifeboat's lifesaving service is maintained at all times. The Marine Advisor noted there are no known or established claims of private ownership of the foreshore at Ballycotton Harbour or off Power Head. Therefore, the foreshore the subject of the application is currently presumed state owned and proposed development does not conflict with the existing overlapping licences, nor does it significantly injure the public use of, access to and enjoyment of the foreshore. Total area of foreshore the subject of the application: Dredge area: 1.13 ha, Dump site: 377.8ha. The proposed works are to ensure the safe operation of the harbour and safe navigation and mooring of vessels within the harbour. Harbours such as Ballycotton are the gateway to the sea and are fundamental infrastructure that supports public access, marine leisure, tourism, sea fishing, communications and the associated local community and economy.	The Applicant had no objection to the conditions proposed by the Marine Advisor.

Statutory Body	Applicant's Response
Considering this, the Marine Advisor was satisfied that the proposed dredging and disposal at sea are in the public interest. The Marine Advisor noted that there are no conflicts with existing leases or licences and the works as proposed are in the public interest. The works, if completed as proposed and in accordance with conditions as set out below, will not have significant adverse impacts on the public use of, access to and enjoyment of the foreshore, navigation, fisheries or the environment (subject to MLVC confirmation). **Recommendation** The Marine Advisor had no objection to the granting of Foreshore Licence under Section 3 of the Foreshore Act for this application subject to the following conditions. 1. The licensee shall use that part of the foreshore, the subject matter of this licence for the purposes as outlined in the application and for no other purposes whatsoever. 2. The following drawings shall be attached to and referenced in the licence document. Foreshore Licence Map 1, Drawing Number: CM1123-BLP-ZZ-DR-C-00004, Date: 22/03/21, Rev: 03, 06/2021, Foreshore Licence Map 2, Drawing Number: CM1123-BLP-ZZ-DR-C-00005, Date: 22/03/21, Rev: 03, 06/2021, 3. A valid Dumping At Sea Permit shall be in place and a copy of the permit shall be submitted to the Marine Planning and Foreshore Section of the Department of Housing, Local Government and Heritage prior to the works proceeding. 4. Irish Water have application ref. FS007022 under consideration for a licence to construct a temporary work area which overlaps partially with the proposed dredge area. If approved the licensee shall coordinate with Irish Water in terms of sequencing to ensure both set of works do not conflict.	

Statutory Body	Applicant's Response
5. A fore and aft mooring within the Harbour shall be available at all times throughout the duration of the dredging for the RNLI Trent Class Lifeboat. This shall require coordination and agreement of the RNLI to relocate their mooring as the dredging works proceed or as otherwise agreed with the RNLI. 6. The licensee shall notify the Marine Planning and Foreshore Section of the Department of Housing, Local Government and Heritage at least 14 days in advance of the commencement of any works on the foreshore. This notification shall include an up to date Programme of Works for the completion of the project.	
Marine Institute Chemical analysis of sediments to be loaded was carried out and presented with the application. The results of sediment analysis indicated approximately 1,500 tonnes* are contaminated and it is proposed that these sediments will be separately removed to land and disposed in a suitably licenced facility. The remaining material, (which is considered clean and suitable for disposal at sea) will be dredged and loaded for disposal at a site South of Power Head, 16km southwest of Ballycotton. It should be noted that the assessment guidelines for Dumping at Sea are not used for bringing the sediment on land. The sediment to be brought up on land will need to be assessed using the Waste Assessment Criteria. It is the understanding of the Marine Institute that the EPA issues waste licences for this activity. The Marine Institute noted that the risk to conservation features associated with the proposed activity was communicated in the NIS report. The Marine Institute considered that the interactions identified are appropriate and assuming the mitigation measures proposed are implemented in full, the likely interactions are not considered significant to conservation features. The Marine Institute agrees with the conclusions communicated in the NIS. **Interaction with Fisheries and Aquaculture operations:** The Marine Institute noted that the closest licenced aquaculture sites to the proposed development are in Cork Harbour (approx. 16km line of sight) or	The Applicant had no objection to the conditions proposed by the Marine Institute.

Statutory Body	Applicant's Response
Ballymacoda Bay (approx. 11 km line of sight). The closest shellfish growing water is Ballymacoda Bay at approx. 11km. On the basis of the information provided in the application and supporting documents the Marine Institute concluded that the proposed development is unlikely to impact on any licenced aquaculture activities or shellfish growing waters. Interactions with fisheries interests are likely in the harbour. The Marine Institute recommended full engagement with users of the pier and suggests it is carried out on an ongoing basis until the works are completed. On this basis, and considering the information above, the Marine Institute concluded that impacts on aquaculture and sea fishing from the proposed activity are not considered likely. *Arup notes that the quantity to be separately removed to land and disposed in a suitably licenced facility is 1500m^3.	
Inland Fisheries Ireland Inland Fisheries Ireland noted that the proposed works are not within known proximity of sensitive fisheries location or fish spawning grounds. The nearest significant river, in terms of potential use by anadromous fish species to the proposed dredge site is the Munster Blackwater, approximately 18km (hydrologically) from Ballycotton harbour. This river is designated for *Salmo salar* (Salmon), *Petromyzon marinus* (Sea lamprey), *Lampetra fluviatilis* (River Lamprey) and *Alosa fallax* (Twaite Shad) as habitat for Annex II migratory fish species. The proposed works have the potential to affect these species as they migrate along the coast by way of suspended sediment, pollution via drift of contaminated sediment or by accidental oil/fuel spills during works. Inland Fisheries Ireland pointed out that the mitigation measures and guidance of NPWS in regard to marine mammals are not transferrable to fish species. The fish remain invisible to any shore- or boat-based observer.	The Applicant had no objection to the conditions proposed by Inland Fisheries Ireland.

Statutory Body	Applicant's Response
Mitigation measures should aim to reduce the sound generated, in intensity and duration for the fish species present. The use of soft-start and ramp-up procedures for any sound-generating surveys undertaken – both on a day-to-day basis and on re-start after any stoppages within any day should be undertaken. This measure should be a condition of the foreshore licence. The estimated zone of influence (ZOI) extending from the dredging works is approximately 3km and is a relatively small distance that migratory species may avoid if suspended sediment levels are inhospitable during works. Inland Fisheries Ireland noted that the Marine Institute was consulted in relation to environmental testing of proposed dredge material within the harbour and provided sediment site-specific sampling and disposal recommendations for the contaminated and non-contaminated sediment, which should limit any impact from contaminated dredged material to the environment. The application has a detailed methods statement with mitigation measures outlined for various risks highlighted. To avoid the possibility of accidental spillage of oil/fuel associated with machinery or inshore shallow water vessels, a series of mitigation measures are to be implemented, as described in the Natura Impact Statement. These mitigation measures should be a condition of the Foreshore licence. Inland Fisheries Ireland concluded that, given the localised nature of the project, including the ZOI and notwithstanding the past history of the dumping site, southwest of Ballycotton, the proposed works are not considered deleterious to migratory fish species in the long term. The local IFI office in Macroom should be informed in advance of works starting.	
Underwater Archaeology Unit of the Department of Housing, Local government and Heritage – Observation No 1 The Underwater Archaeology Unit noted that archaeological monitoring is to be carried out during dredging works and for the works at the pier. The pier is a Protected Structure, registered on the Local Authority's List of Protected Structures (RPS Reg. No. 20824038). Similarly, Ballycotton has a substantial record of shipwrecking events, with the potential being high for	The Applicant respectfully requested that Underwater Archaeology Unit review the proposed condition: "*As part of the Finds Retrieval Strategy in the methodology, if the material is being brought ashore, 25% of the dredged material removed is to be spread and metal detected to assess the artefacts-bearing potential. If large quantities of artefacts are present, then the percentage of material being assessed may be increased. Similarly, if, after an agreed period of time, there is minimal artefactual evidence, the archaeological assessment of the*

Statutory Body	Applicant's Response
the remains of wrecks or artefactual material associated with such events still extant in the near harbour area awaiting discovery. The Underwater and Archaeology Unit proposed that monitoring shall take the following format to ensure the continued preservation (either in situ or by record) of our underwater cultural heritage and all associated features, objects and structures: The services of a suitably qualified and suitably experienced underwater archaeologist (with experience in the archaeological monitoring of marine dredging operations) shall be engaged to carry out the archaeological monitoring of all works. The archaeological monitoring shall be licensed by this Department and a detailed method statement is to accompany the licence. The method statement shall set out the monitoring strategy for the dredging works. A communication strategy is to form part of the monitoring strategy to ensure full communication is in place between the monitoring archaeologist and the plant operators at all times during works. The archaeological personnel undertaking the monitoring will be in a position to monitor directly all elements of the dredging works, to ensure they have unobstructed views of the dredging plant head, and the plant and machinery operators shall be prepared to facilitate the archaeological personnel in the undertaking of their monitoring work. No works at the pier should damage the existing protected structure and all provisions shall be made to ensure that the historic pier structure is protected from all potential impacts. This to include the pier itself and any pier furniture, features, etc. The archaeological monitoring strategy shall include the plan for the protection of the historic pier.	*dredged spoil may be scaled down. The methodology should seek to have a representative percentage assessed from all areas*." The material which is proposed to be disposed of at Sea will be loaded directly into a barge and towed to the proposed disposal site, south of Power Head. It is proposed to dispose the material which has been identified as contaminated in a suitably licensed landfill facility. There is insufficient space available on Ballycotton pier to spread the dredge material in order to assess the artefact bearing potential while also ensuring the pier remains operational for fishing vessels. Sufficient archaeological personnel shall be in place to monitor all aspects of the proposed dredge works including the loading of contaminated dredge material directly into covered tipper trucks on the pier.

Statutory Body	Applicant's Response
As part of the Finds Retrieval Strategy in the methodology, if the material is being brought ashore, 25% of the dredged material removed is to be spread and metal detected to assess the artefacts-bearing potential. If large quantities of artefacts are present, then the percentage of material being assessed may be increased. Similarly, if, after an agreed period of time, there is minimal artefactual evidence, the archaeological assessment of the dredged spoil may be scaled down. The methodology should seek to have a representative percentage assessed from all areas. Sufficient archaeological personnel will be in place to cover all aspects of the monitoring and assessment of the dredging and pier works. Should potential archaeology be identified during the dredging or pier works, then the dredging is to be suspended in that location pending full resolution of the archaeology, which may include archaeological assessment, testing, avoidance/preservation in situ or full excavation. In the event that potential archaeology is identified and dredging works have to be suspended, the Underwater Archaeology Unit shall be contacted immediately to ensure the least delays to works are incurred.	
Underwater Archaeology Unit – Observation No 2 The Underwater Archaeology Unit noted that the applicant's proposals re. disposal of dredged material, are acceptable to them and they await submission of the archaeological licence application. The services of a suitably qualified and suitably experienced underwater archaeologist (with experience in the archaeological monitoring of marine dredging operations) shall be engaged to carry out the archaeological monitoring of all works. The archaeological monitoring shall be licensed by their Department and a detailed method statement is to accompany the licence application. The method statement shall set out the monitoring strategy for the dredging works.	The Applicant had no objection to the conditions proposed by the Underwater Archaeology Unit.
National Parks and Wildlife Service The National Parks and Wildlife Service noted that the proposed dredging application for Ballycotton Harbour had been evaluated by a Natura Impact	The Applicant had no objection to the conditions proposed by the National Parks and Wildlife Service.

Statutory Body	Applicant's Response
Statement (NIS) and other documents. The conclusion of the Natura Impact Statement document is that the proposed works are unlikely to pose a significant likely risk to nature conservation interests in the vicinity. It is noted that potential interaction with marine mammals can be ameliorated by the application of "Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters". National Parks and Wildlife Service concurred with this conclusion and requested that mitigation outlined in Section 7.1 of the NIS document is implemented in full.	
Department of Agriculture, Food and Marine The department propose that the following should be included in any licence that issues: The Marine Institute recommends full engagement with users of the pier and suggests it is carried out on an ongoing basis until the works are completed.	The Applicant had no objection to the conditions proposed by the Department of Agriculture, Food and the Marine.
Sea Fisheries Protection Authority Sea Fisheries Protection Authority stated that the application is limited to the internal boundaries of the harbour foreshore and therefore will not interfere with any sub-tidal wild fisheries. Some temporary disturbance regarding an increase in turbidity immediately outside of the harbour is likely but it should be short in duration. Fisheries control activities by the SFPA may be restricted due to the restriction of access at times during the construction of the proposed works, the expected timeframe is detailed within the foreshore application of 8 weeks of dredging activity within the harbour. Sea Fisheries Protection Authority noted that there are no classified shellfish production areas in the area of the proposed works. Sea Fisheries Protection Authority stated that seafood safety issues, caused by the proposed works, are not expected. The operators should be aware of the notification process should a pollution incident take place during the	The Applicant had no objection to the conditions proposed by the Sea Fisheries Protection Authority.

Statutory Body	Applicant's Response
three month works period. The SFPA office with responsibility for Ballycotton is Clonakilty and should be contacted directly on 023 88559300 or sfpaclonakilty@sfpa.ie	
Marine Survey Office After a comprehensive review of this application the MSO had no comment with regard to the safety of navigation. A local Marine Notice shall be published for the information of all local maritime users detailing the proposed dredging campaign and any associated hazards to navigation arising for the duration of the license period.	The Applicant had no objection to the conditions proposed by the Marine Survey Office.

1.4 Legislative context

The *Foreshore Act 1933* (as amended), requires that a lease or licence must be obtained from the Minister for Housing, Local Government and Heritage for the carrying out of works or placing structures or material on, or for the occupation of or removal of material from, State-owned foreshore.

The 1992 EU Habitats Directive (Council Directive 92/43/EC) and Birds Directive (2009/147/EC) are transposed into Irish law by Part XAB of the *Planning and Development Act 2000* (as amended) and the *European Communities (Birds and Natural Habitats) Regulations 2011* (as amended). The latter outlines the requirements for screening for AA and AA under Regulation 42:

> *42. (1) A screening for Appropriate Assessment of a plan or project for which an application for consent is received, or which a public authority wishes to undertake or adopt, and which is not directly connected with or necessary to the management of the site as a European Site, shall be carried out by the public authority to assess, in view of best scientific knowledge and in view of the conservation objectives of the site, if that plan or project, individually or in combination with other plans or projects is likely to have a significant effect on the European site.*
>
> *(2) A public authority shall carry out a screening for Appropriate Assessment under paragraph (1) before consent for a plan or project is given, or a decision to undertake or adopt a plan or project is taken.*
>
> *(6) The public authority shall determine that an Appropriate Assessment of a plan or project is required where the plan or project is not directly connected with or necessary to the management of the site as a European Site and if it cannot be excluded, on the basis of objective scientific information following screening under this Regulation, that the plan or project, individually or in combination with other plans or projects, will have a significant effect on a European site.*

SECTION 2 - DESCRIPTION OF PROPOSED WORKS

2.1 Proposed works

The works which will comprise a single dredging programme, are summarised below.

- Dredge the area outlined in orange in Figure 2.1 to bedrock or -3.5m below Chart Datum whichever is shallowest.
- Dredge remainder of the harbour outlined in purple to bedrock or -2.5m below Chart Datum whichever is shallowest.
- Disposal of suitable dredged materials at the previously used dumping site to the south of Power Head, 16km southwest of Ballycotton (Figure 2.2).
- Dispose of contaminated dredged material outlined in cyan to a licensed landfill facility.

2.2 Sediment analyses

Cork County Council's agent consulted with the Marine Institute' environmental chemist regarding their plans to submit both Foreshore licence and Dumping at Sea Permit applications. The Marine Institute provided a site-specific sampling and analyses plan for the analysis of the material to be dredged. Sediment sampling was undertaken in two rounds, in October 2020 and January 2021. Five samples were taken in the first round and 10 in the second round. The sediment samples were analysed by Socotec, an accredited laboratory which is based in Burton-upon-Trent in the UK.

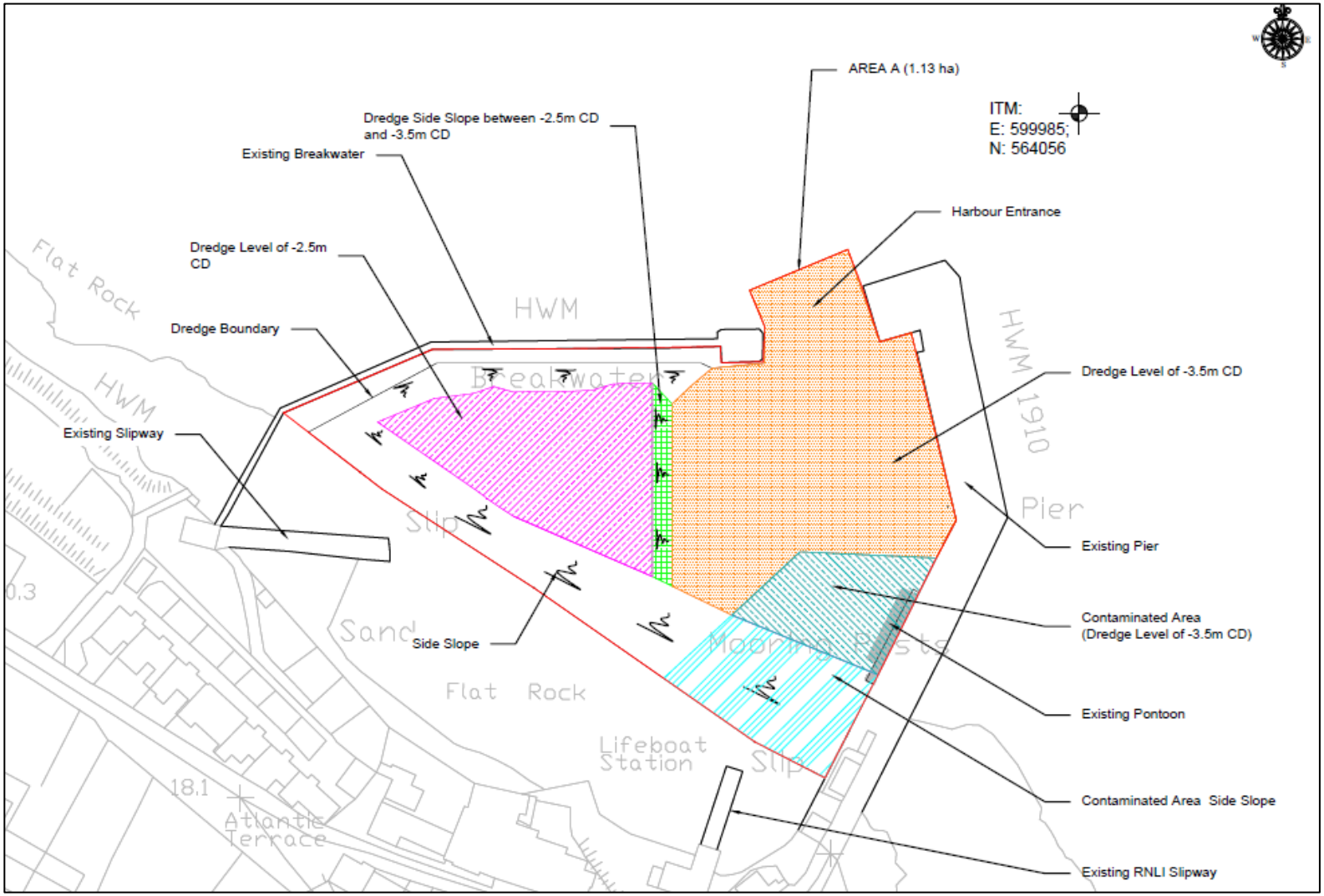
The five samples from the first round were analysed for a very wide range of parameters including 10 heavy metals, organochlorines, total extractable hydrocarbon, tributyl tin (TBT) and dibutyl tin (DBT), and 16 polycyclic hydrocarbons (PAH). Following consultation with the Marine Institute, the second round of sampling was undertaken, and the samples were analysed for copper, lead, TBT/DBT and PAH. The sampling and analyses plan and analyses results are provided in appendices to the Cork County Council Ballycotton Harbour Dredging Foreshore Application Report, Byrne Looby Partners, 2021.

The results of the analyses were compared with the Marine Institute guidelines (Cronin *et al*. 2006). The guidelines established threshold levels for upper and lower levels of sediment contamination and define three classes of material as follows:

Class 1	Contaminant concentrations less than level 1 and level 2; Uncontaminated: no biological effects likely.
Class 2:	- Contaminant concentrations between Level 1 and Level 2. - Marginally contaminated. - Further sampling & analysis necessary to delineate problem area, if possible.
Class 3	- Heavily contaminated - Very likely to cause biological effects / toxicity to marine organisms. - Alternative management options to be considered.

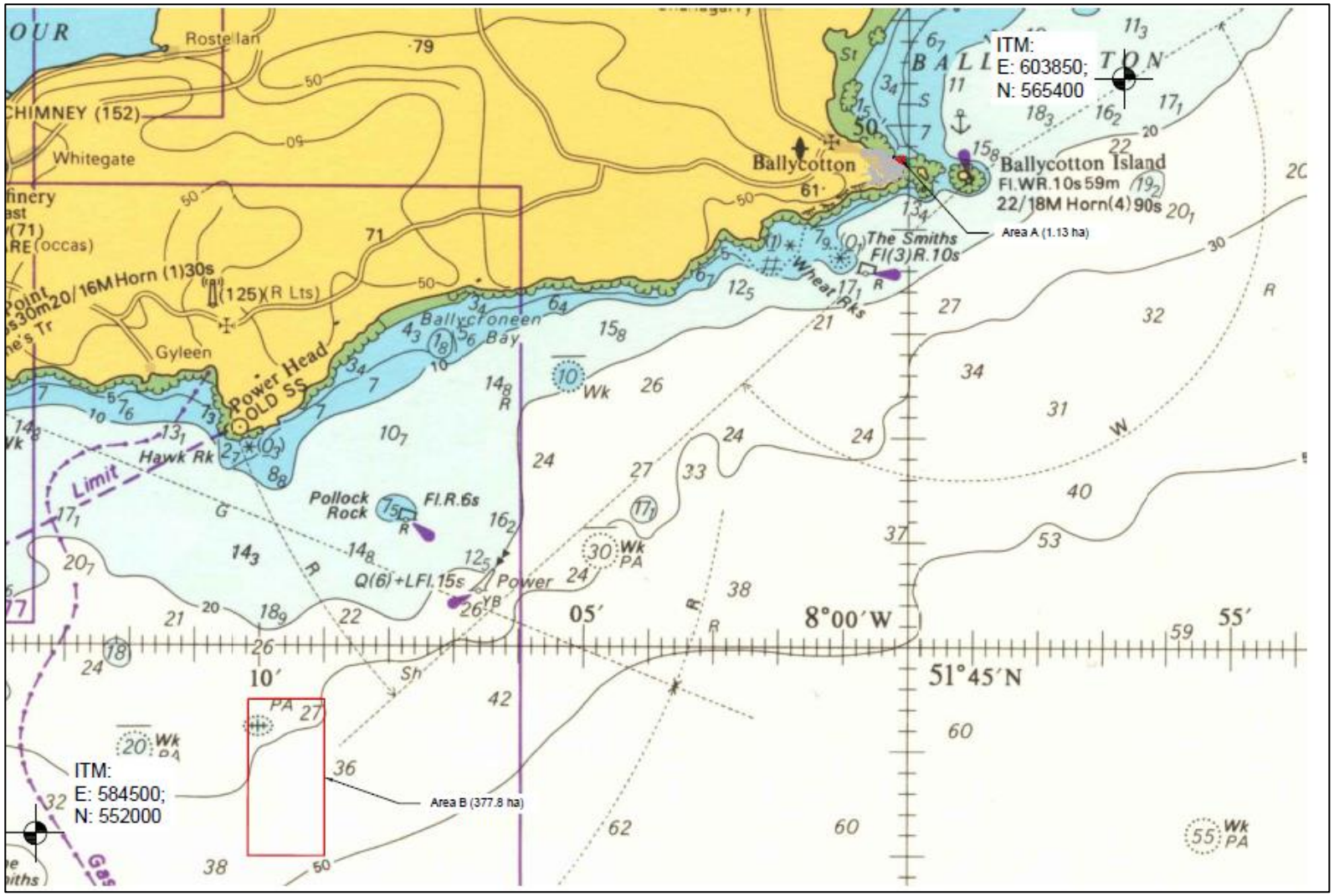
The analyses results indicated low levels of contamination in several of the samples. Class 2 levels of lead were found between the pontoon and the head of the pier. The contamination level did not preclude the option of disposing the dredged material at sea. Class 2 and 3 levels of TBT/DBT were found adjacent to the RNLI slipway. This material is not suitable for disposal at sea. This area is indicated in cyan in Figure 2.1.

Figure 2.1: Proposed Foreshore licence area (in red) for dredging



Source: Byrne Looby Partners, Foreshore Consent Application Ref. FS007037

Figure 2.2: Proposed Foreshore Licence area (in red) for dredge disposal



Source: Byrne Looby Partners, Foreshore Consent Application Ref. FS007037

2.3 Dredging methodology

A pre-condition survey of the site will be carried out by the contractor to determine the suitability of the plant proposed. It is proposed that the following equipment will be mobilised to the site for the dredging elements of the works:

- Long-reach back-hoe excavator
- Dredge barge
- 1,000m^3 hopper barge
- Tugboat
- Articulated dump trucks
- Safety boat
- Road sweeper

A site compound will be set up on site. Appropriate fencing will be erected around the perimeter of the compound. The size of the site compound will be minimised to limit obstructions to the normal operation of the port. The compound will incorporate a site office, canteen, welfare facilities and storage.

All existing swing moorings will be removed from the seabed before commencing dredging works. All swing moorings will be stored off site in a location agreed with Cork County Council while dredging works take place. Swing moorings will be reinstalled on completion of dredging works. The pontoon and gangway shall be removed by the dredging contractor, stored and reinstated on completion of the works.

A bathymetric survey will be carried out to determine the exact seabed levels prior to dredging. A dredge barge will be towed to the harbour by a tugboat.

For the contaminated material, indicated in cyan in Figure 2.1, a long-reach excavator, mounted on the dredge barge, will use a dig control system to determine the dredge level achieved. The excavated material will be placed in a hopper barge. This material will then be transferred to tipper trucks, which will transport it to a suitably licensed facility for disposal.

For uncontaminated material, the excavated material will be placed in a hopper barge and towed to the disposal site, south of Power Head (Figure 2.2), for disposal at sea. Storage of the material will not take place on the quay. It is likely that dredging activities will take place 24hrs per day, 7 days per week to achieve the maximum production rates within tidal envelopes.

It is not anticipated that there will be any requirement to dredge rock from the harbour. Table 2.1 indicates the estimated volumes of dredge materials.

Table 2.1: Estimated dredge volumes

Material to be dredged	Volume (m^3)	Mass (tonnes)
Silt, Sands & Gravels	19,500	35,743
Assume bulk density is 1,300kg/m^3		

It is estimated that 18,000m^3 of gravel, silt and sand will be disposed of at sea. The remaining 1,500m^3 of contaminated gravel, silt and sand will require disposal at a suitably licensed site.

2.4 Expected schedule

It is anticipated that overburden (gravel, silt and sand) will have a maximum dredging rate of 500m³ per 24 hours. It is estimated that the haulage contractor would dispose of overburden material over 12 hours per day. The expected programme is indicated in Table 2.2 with an expected duration for the project of two months.

Table 2.2: Proposed works programme

Activity	Duration
Mobilisation	2 weeks
Removal of existing moorings	1 week
Dredging	8 weeks
Mooring reinstallation	2 weeks
De-mobilisation	1 week

2.5 Review of proposed works

EC (2002, 2021) guidance indicates that a project description should identify all those elements of the project, alone or in combination with other projects or plans, that have the potential for having significant effects on the Natura 2000 site. To this end, the guidance (EC 2021) provides an indicative list of the key parameters of the plan or project to be identified.

Size (e.g. in relation to direct land-take)	Yes: The foreshore boundary of the proposed works is described in Section 2.1 and Figures 2.1 and 2.2.
Overall affected area including the area affected by indirect impacts (e.g. noise, turbidity, vibrations)	Yes. The potentially affected area is described in Section 3.2 of this report.
Physical changes in the environment (e.g. modification of riverbeds or morphology of other water bodies, changes in the density of forest cover)	Yes: The potential physical changes to the environment from the proposed works are summarised in Section 2.1 and Figure 2.1.
Changes in the intensity of an existing pressure (e.g. increase in noise, pollution or traffic);	Yes. Increase in dredging and disposal activities (increased suspended sediment, vessel activity).
Resource requirements (e.g. water abstraction, mineral extraction);	N/A. Due to nature of project, no additional resources required.
Emissions (e.g. nitrogen deposition) and waste (and whether they are disposed of on land, water or in the air)	Yes. Section 2.2 provides details of the analysis of sediments and the identification of contaminated sediments for onshore disposal.
Transportation requirements (e.g. access roads)	Single dredge vessel to carry out dredging and disposal operations.

Duration of construction, operation, decommissioning, etc.	Yes. Section 2.4 above.
Temporal aspects (timing of the different stages of a plan or project)	Yes. Section 2.4 above.
Distance from Natura 2000 sites and in particular from their designating features	Yes. See Table 3.1 of this report.
Cumulative impacts with other projects or plans	Yes addressed in Section 3.5 of this report.

SECTION 3 - STAGE 1 SCREENING FOR APPROPRIATE ASSESSMENT

3.1 Basis for screening the project

Article 6(3) of the Habitats Directive indicates that, "*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*[2]*, 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*." These provisions are transposed under regulation 42 of the *European Communities (Birds and Natural Habitats) Regulations 2011* (as amended).

The project, as defined in Section 2, is not directly connected with the management of a Natura 2000 site, and under the provisions of the *European Communities (Birds and Natural Habitats) Regulations 2011* (as amended), and the Competent Authority (in this case the Department of Housing, Local Government and Heritage) must therefore determine whether an Appropriate Assessment is required.

Relevant guidance informing the AA screening includes that at a European (European Commission 2019, European Commission 2021) and national (DoEHLG 2010, Office of the Planning Regulator 2021) level.

3.2 Identification of possible effects

Sediment disturbance

Benthic habitats and species
The applicant indicated that while the dredged material will be removed from the site in the bucket of the excavator, disturbance of residual mobilised sediment will occur. Depending on the exact location within the harbour where the material is being dredged from, a quantity of this will settle out within the confines of the harbour while the remainder will be washed out of the harbour and will settle out at a location determined by the nature and direction of the following tides. Given that the majority of the dredged material will be removed from the site, the applicant considered that sediment disturbance and residual settlement would be limited and any sediment would settle out or disperse within a very short time period (days). While sediment dispersion modelling for the proposed project was not available, it was considered reasonable to assume that suspended fine sediment, as a result of mobilisation, would be expected to remain in suspension for a number of days and to disperse over a large area, possibly up to 2-3km. The load of sediment settling over such a wide area on such an exposed coast would not be considered to be significant except in the immediate vicinity of the dredging operations (up to 1km radius) and for a limited period of time (days).

Coastal habitats
The potential for sediment dredging to lead to erosion and/or accretion of coastal habitats was also noted. The potential for dredging to lead to such impacts is a factor of the location and volume of dredged material and location of the dredge site relative to prevailing tidal currents

[2] Article 6(4) relates to plans or projects which must be undertaken despite identification of an assessment determining a negative effect on a given site due to imperative reasons of overriding public interest (IROPI), including those of a social or economic nature. Suitable compensatory measures are required to maintain the coherence of the network should such a case be made.

and exposure. However, given the size, scale and location of the dredged sediment within the confines of Ballycotton Harbour and its subsequent disposal at the Power Head disposal site, the potential for erosion and/or accretion of coastal habitats was not considered possible.

Birds
The applicant indicated that the mobilisation of sediments during dredging may increase turbidity and reduce water clarity thereby affecting seabirds which feed by sight such as terns, common guillemot and northern gannet (Cook & Burton 2010). Birds such as sea ducks, divers, grebes and mergansers which forage under water are likely to be similarly affected. The impact of increased turbidity is considered to be dependent on initial background levels (Cook & Burton 2010).

Fish
The applicant noted that behavioural changes (avoidance) by fish to elevated suspended sediment was well documented and varied depending on the species and level of turbidity. The mobilisation of contaminated sediment may lead to greater impacts than that from clean sediment with early life stages such as eggs and larvae most likely to suffer lethal impacts. While a single event exposure to contaminants released from sediment may have little impact, repeat maintenance dredging of contaminated sediments may expose resident fish populations to multiple pulses of suspended sediments and released contaminants which have the potential to lead to cumulative impacts over time (Wenger *et al*. 2017).

Underwater noise

Given the low level of vessel activity associated with the proposed project which requires only the mobilisation of the barge to the dredge area by a tug boat, vessel noise is not considered a significant factor. In view of the fact that the normal vessel activity associated with the harbour will be suspended during dredging operations, noise levels associated with vessel traffic would be lower than normal in the immediate area of the harbour for the duration of the dredging operations.

Fish
It was noted that underwater sounds are detectable by fishes and may affect their behaviour, causing them to move away from their migration routes or leave favoured habitats (Normandeau Associates Inc. 2012, Popper & Hawkins 2019).

Hearing range and sensitivity varies considerably among fish species depending on the hearing mechanism of the species e.g. whether a swim bladder is involved in the hearing mechanism or not. Furthermore, within that class, some species with a swim bladder are sound pressure-sensitive at higher frequencies while others having a swim bladder are not e.g. Atlantic salmon (Hawkins & Johnstone 1978). Lamprey are known to be able to detect sound at low frequencies and behavioural responses from sound, in sea lamprey, at the low frequency range are known from limited studies (Mickle *et al*. 2018). Twaite shad are known to be able to detect sound at frequencies greater than 1.8Mhz, typically moving away from the sound source (Gregory *et al*. 2007).

Marine mammals
Marine mammals rely on sound to navigate, to communicate with one another and to sense and interpret their surroundings. Behavioural responses of marine mammals to a sound are known to be strongly influenced by the context of the event and individual factors such as the animal's experience, motivation, conditioning and activity (e.g. Nowacek *et al*. 2007, Southall *et al*. 2007, 2019, 2021).

DAHG (2014) indicates that dredging operations have been reported to produce low frequency omnidirectional sound of several tens of Hz to several thousand Hz (and up to approximately 20 kHz) at sound pressure levels of 135-186 dB re: 1 µPa. Therefore some coastal dredging operations can be detected at received levels exceeding ambient sound more than 10km from shore. While sound exposure levels from such operations are thought to be below that expected to cause injury to a marine mammal, they have the potential to cause lower-level disturbance, masking or behavioural impacts (DAHG 2014). It is noted that Defra (2003) reported that noise from the trailer suction hopper dredger (TSHD) *Arco Adur* was not detectable above ambient levels at a range of 500m. Short-term avoidance by harbour porpoises at ranges of 600m from a TSHD operating to the west of Sylt (Germany) was recorded by Diederichs *et al.* (2010). While sound exposure levels from such operations are thought to be below that expected to cause injury to a marine mammal, they have the potential to cause lower-level disturbance, masking or behavioural impacts. See also note above on vessel noise. The dredging within Ballycotton Harbour will be limited to a period of 8 weeks and limited to backhoe dredging of soft sediments. Therefore, noise levels will be at the lower range of the scale. Nonetheless, dredging may have the potential to lead to behavioural changes in marine mammals if they are within the area during dredging operations.

Birds

The applicant noted that impacts of underwater noise on foraging seabirds are poorly understood although bird species most likely to be vulnerable to underwater sound are those that forage by diving for fish of shellfish (Leopold & Camphuysen 2009). Owing to the nature of the works (dredging within a harbour and dumping at sea), the applicant indicated that interaction impacts with bird species which forage over open water i.e. divers, seaducks, cormorant, shag, and seabirds (auks, gulls, petrels, terns) were possible.

Vessel operations: pollution

Inshore working vessels, jack-up barges and equipment have the potential to lead to localised impacts on marine and coastal species and birds resulting from accidental spillage of hydrocarbons and chemicals. The applicant indicated that due to the limited use and size of these vessels and platform, the use of hydrocarbons was relatively low. However, the potential for localised impacts on the marine environment and adjacent coastal habitats existed if not managed correctly.

Vessel operations: Invasive Alien Species (IAS)

The risk of IAS introduction was considered very low by the applicant. The main area of concern was the presence of the terrestrial plant, Japanese knotweed to the back of the intertidal area within the harbour and the potential spread of this species by construction traffic (spoil disposal vehicles) leaving the harbour area.

Vessel operations: disturbance

Vessel activity for the duration of works will take place at the dredge site and dump site and transiting between the sites. Some species of seabird such as gulls may be attracted to vessel activity, while others are disturbed and displaced. Some species are more likely to be disturbed than others. Garthe & Hüppop (2004) developed a wind farm sensitivity index for seabirds and as part of this index assessed divers (great northern and red throated divers), scoters (velvet and common scoters) and cormorant as most sensitive to disturbance by vessels (strong escape/avoidance behaviour and/or large fleeing distance). Terns, shearwaters and grebes are known to activity avoid shipping lanes (Cook & Burton 2010). Prolonged vessel activity may create a barrier between breeding and foraging sites or increase the time required to reach alternative foraging sites.

However, it is considered that the vessel activity associated with this project is not at a level likely to lead to significant disturbance/displacement. Vessel activity at the dredge site will be reduced due to the removal of access to the harbour by fishing vessels during works. Transit to, from and at the dump site is considered insignificant above the current background levels.

Summary: It is concluded that the applicant correctly identifies the possible effects for relevant Natura 2000 sites and their related qualifying interests, from the proposed works.

3.3 Identification of relevant sites and features

The applicant used a source-pathway-receptor-consequence model for screening consistent with OPR (2021) to establish the project's zone of influence (ZOI). The model consisted of the following steps:

1. **Identify the Source** - The origin of a hazard e.g., noise generation from site investigation equipment.
2. **Identify the Pathway** - Route that a hazard takes to reach Receptors e.g., through water. A pathway must exist for a Hazard to be realised.
3. **Identify the geographical range** – The range the source, by way of the identified pathway, could extend.
4. **Identify the Receptor** - The entity that may be affected (e.g., a marine mammal, a habitat etc.).
5. **Assess the Consequence** - An effect e.g., hearing damage as a consequence of noise generation.

Using this approach, all elements of the proposed project were reviewed to assess potential pathways and receptors which might be affected so that a ZOI could be established for the proposed project. Table 3.1 summarises the model outputs and the ZOI for each of the sensitive receptors identified.

Table 3.1: Source, pathway, receptor matrix

Ballycotton Harbour dredge site			
Source	**Pathway**	**ZOI (km)**	**Receptor**
Dredging: sediment disturbance & mobilisation, IAS	Sediment and Water	3	Benthic habitats & associated species, coastal habitats, foraging seabirds, fish
Dredging: noise	Water	10	Marine mammals, fish, avifauna
Vessel operations: disturbance, noise, pollution	Water and air	20	Marine mammals, fish, birds, coastal habitats, benthic habitats
Powers Head Dump site			
Dredge spoil dumping	Sediment and Water	3	Benthic habitats & associated species, fish, foraging seabirds

The applicant indicated that there was no direct spatial overlap between any element of the proposed project site and any European site. There was a hydrological connection, and potential flight path/suitable foraging habitat link in the case of birds, between the proposed project site and a number of European sites which may have the potential to lead to indirect impacts on the conservation objectives of these sites.

Sediment disturbance

The ZOI relative to sediment disturbance was considered to be the direct footprint of the site investigations within the confines of the harbour extending out to a maximum of 3km distance to allow for dispersion (see Section 3.2).

Benthic habitats and species
No sites with designated benthic habitats within the ZOI.

Birds
Impacts from sedimentation may affect seabirds which feed by sight such as terns, common guillemot and northern gannet (Cook & Burton 2010). Birds such as sea ducks, divers, grebes and mergansers which forage under water are likely to be similarly affected. However, given the short duration of works and location of the dredge site outside of any SPA designated for these species (the closest relevant site being Cork Harbour SPA, 12km away), likely significant effects on SCI bird species as a result of sediment disturbance was excluded. It was noted that the south coast sea environment is turbulent under natural conditions and any increase in turbidity as a result of the proposed dredging and dumping is not likely to be significant above normal levels.

Fish
The applicant noted that impacts related to the mobilisation of sediment and contaminated sediments in particular were unlikely to represent a significant impact to fish as the potential ZOI is relatively small (limited to 3km), and the contaminated sediment will be removed to landfill, thereby providing limited opportunity for the mobilisation of contaminants into the water column. No contaminated sediment will be disposed of at the Power Head dump site. The potential for LSE on relevant fish qualifying features as a result of sediment was excluded.

Underwater noise

The ZOI resulting from dredging noise for Annex II fish species, marine mammals and birds was considered to be the area of the site investigations extending to 10km from the proposed project site.

Fish
While there is the potential for temporary changes in the behaviour of fish species, resulting from the impact of underwater noise generated by the proposed activities, it was not considered likely that such temporary changes in behaviour would lead to significant effects in their migration through the area (given the Blackwater River (Cork/ Waterford) SAC is 17km from the dredging location). The proposed dredging activities would be over a short duration of time (weeks) and not considered to be at a scale which could lead to any significant effect on fish migration.

Marine mammals
The applicant considered the ZOI resulting from dredging noise for marine mammals to be highly conservative relative to the scale and scope of the proposed dredging operations. No sites within the ZOI of the proposed project are designated for marine mammals.

The applicant did not identify potential linkages between marine mammals that may be present in the area of the proposed works and relevant Natura 2000 sites (e.g. through the use of marine mammal management units, IAMMWG 2021). However, given the localized nature of the impact and the distance to the nearest relevant site (*ca*. 94km to Saltee Islands SAC designated for grey seal), the likelihood of a direct linkage to a specific site and significant

effects on a site is minimal. The potential impacts on marine mammals foraging within the area of the proposed works was assessed in the applicant's marine mammal risk assessment (Appendix I of the AA Screening and NIS report), as reported in the Article 12 Risk Assessment.

Vessel operations: pollution

The extent of dispersal of hydrocarbons in marine waters is governed by a number of factors including spreading, drifting, evaporation, dissolution, photolysis, biodegradation and formation of both oil-in-water and water-in-oil emulsions.

Diesel and petrol are light, refined petroleum products with a relatively narrow boiling range, meaning that, when spilled on water, most of the oil will evaporate or naturally disperse within hours or a few days. Wave or swell action may lead to some of the oil dispersing into the water column. Oil dispersed in the water column can adhere to fine-grained suspended particulates which then settle out onto the seafloor. This process is more likely to occur in estuaries and near river mouths where fine-grained sediment is present. It is less likely to occur in open marine settings. The area of impact of accidental fuel spills will be dependent on the volume spilled, weather and dispersion conditions. The volume of such fuel likely to be carried by jack-up barges and small vessels could potentially be in the order of 4-5 tonnes. For this reason, the ZOI, relative to potential pollution events, was considered to extend out from the source to a distance of 20km. This was considered a conservative approach which took account of the open waters outside of the harbour area and potential for tidal dispersion.

Benthic habitats and species
The applicant indicated that the accidental spillage of hydrocarbons from small vessels, jack-up barges and plant operating in the area could have the potential to lead to temporary impacts on benthic habitats in the event of any accidental spillage or leakage. It was considered that this may have the potential to result in significant effects on benthic habitats, including wetland habitat for waterbirds within a 20km zone surrounding the proposed project. For this reason, likely significant effects on the conservation objectives of benthic habitats within all European sites within the identified ZOI could not be excluded.

Fish
The conservation objectives for salmon, sea lamprey, river lamprey and twaite shad are to maintain the favourable conservation condition of these species within the freshwater habitat of SACs where they are designated for these species. These five species have a marine phase in their life cycle and while the conservations objectives set for these species, in all Irish SACs, relate to the freshwater phase of their life cycle, the proposed project has the potential to affect these species ex-situ during their marine phase by way of pollution in the unlikely event of hydrocarbon spillage. Freshwater pearl mussel had been screened out by the applicant but screened in since salmon are host to the larval form of the freshwater pearl mussel and, thus, are essential to the completion of the life cycle (NPWS 2012).

Marine mammals
No sites within the ZOI of the proposed project are designated for marine mammals. The potential impacts on marine mammals foraging within the area of the proposed works was assessed in the applicant's marine mammal risk assessment (Appendix I of the AA Screening and NIS report), as reported in the Article 12 Risk Assessment.

Vessel operations: Invasive Alien Species (IAS)

No relevant sites and features identified.

Vessel operations: disturbance

Vessel activity at the dredge site will be reduced due to the removal of access to the harbour by fishing vessels during the works. Transit to, from and at the dump site is considered insignificant above the current background levels.

Summary: It is considered that, the applicant's source-pathway-receptor approach has identified the relevant sites and qualifying interests. The applicant provides a comprehensive assessment of the proposed works although consideration of the conservation objectives and targets of the relevant sites and their qualifying interests was left to a Stage 2 AA if required.

3.4 Sites identified by the applicant to be screened for AA

The sites identified by the applicant as having a potential impact pathway with the proposed project were subject to screening assessment. The high level outcome for each site is presented in Table 3.1. The table lists the sources of potential likely significant effect which are considered against each of the relevant sites and their qualifying interests. Where a potential for LSE has been identified (cell shaded blue) this is indicated for the relevant qualifying interest against the possible effect. Note that cells shaded grey indicate no consideration was made as qualifying interest screened out.

Figure 3.1: Natura 2000 sites considered in the screening

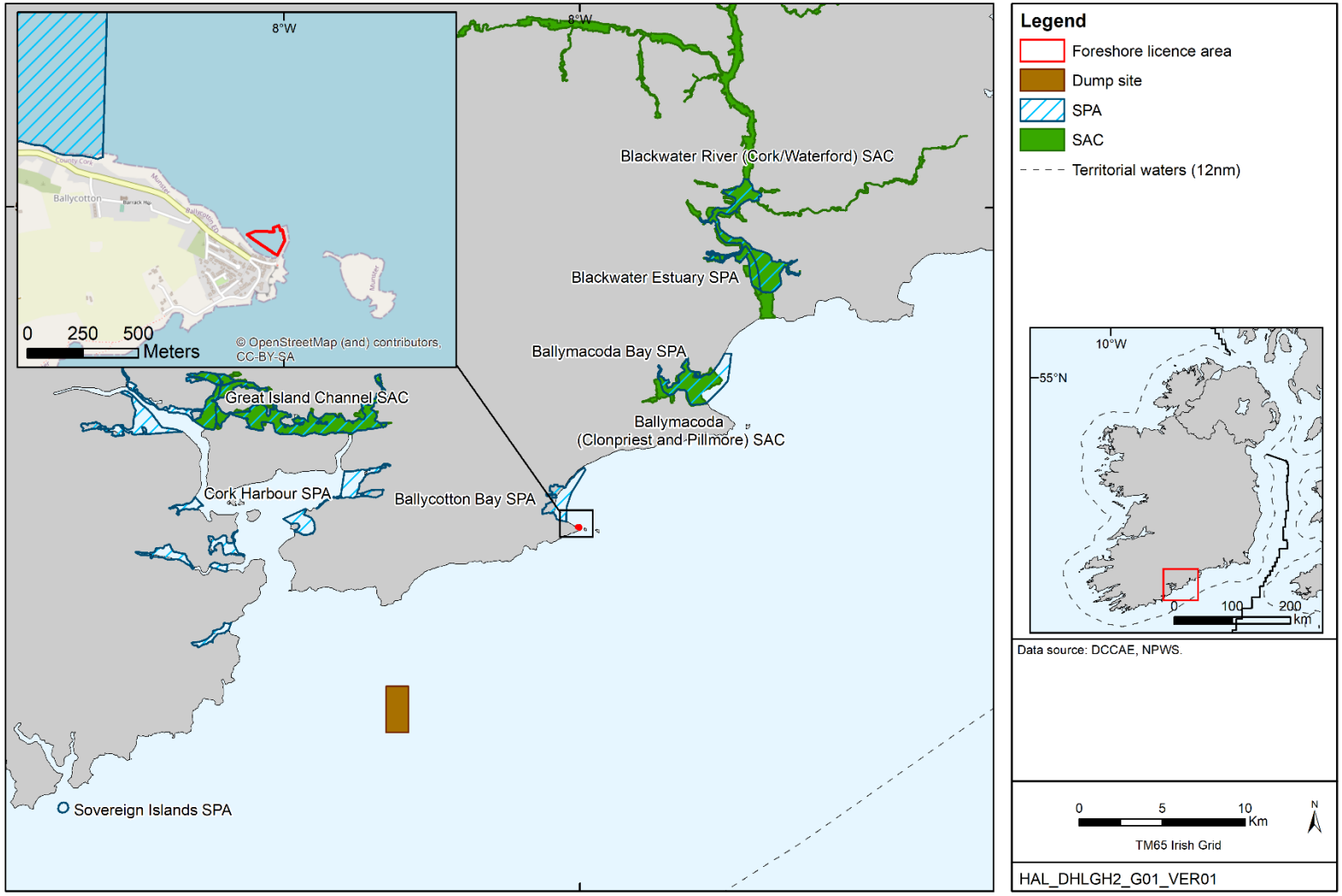


Table 3.1: Sites screened for likely significant effect and the high level outcome for each site

Site name	Site code	Distance to application area (km)[3]		Qualifying interests	Sediment disturbance	Underwater noise	Vessel operations: pollution	Vessel operations: IAS	Vessel operations: disturbance	In-combination effects
		Dredge site	Disposal site							
SACs										
Ballymacoda (Clonpriest and Pillmore)	000077	8	22	Estuaries[4]						
				Mudflats and sandflats not covered by seawater at low tide						
				Salicornia and other annuals colonising mud and sand[4]						
				Atlantic salt meadows (Glauco-Puccinellietalia maritimae)[4]						
				Mediterranean salt meadows (Juncetalia maritimi)[4]						
Blackwater River (Cork/ Waterford)	002170	17	31	Estuaries						
				Mudflats and sandflats not covered by seawater at low tide						
				Perennial vegetation of stony banks						
				Salicornia and other annuals colonising mud and sand						
				Atlantic salt meadows (Glauco-Puccinellietalia maritimae)						
				Mediterranean salt meadows (Juncetalia maritimi)						
				Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation[5]						

[3] Shortest straight line distance to site.
[4] Screened out - Habitat only occurs behind the spit at Ring Point within Ballymacoda Bay. It is considered that even in the unlikely event of accidental hydrocarbons spillage it would not have the potential to be impacted owing to its location behind the spit and the strong influence of the Womanagh River draining outwards at this location.
[5] Screened out – Habitat/species outside of ZOI. In the case of White-clawed Crayfish and Brook Lamprey, noted that upstream of a hydrological gradient.

Site name	Site code	Distance to application area (km)[3]		Qualifying interests	Sediment disturbance	Underwater noise	Vessel operations: pollution	Vessel operations: IAS	Vessel operations: disturbance	In-combination effects
		Dredge site	Disposal site							
				Old sessile oak woods with Ilex and Blechnum in the British Isles[5]						
				Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno- Padion, Alnion incanae, Salicion albae)[5]						
				Freshwater Pearl Mussel (*Margaritifera margaritifera*)[6]						
				White-clawed Crayfish (*Austropotamobius pallipes*)[5]						
				Sea Lamprey (*Petromyzon marinus*)						
				Brook Lamprey (*Lampetra planeri*)[5]						
				River Lamprey (*Lampetra fluviatilis*)						
				Twaite Shad (*Alosa fallax fallax*)						
				Salmon (*Salmo salar*)						
				Otter (*Lutra lutra*)[5]						
				Killarney Fern (*Trichomanes speciosum*)[5]						
Great Island Channel	001058	13	15	Mudflats and sandflats not covered by seawater at low tide[7]						
				Atlantic salt meadows (Glauco-Puccinellietalia maritimae)[7]						
SPAs										

[6] Applicant had screened out this feature but screened in due to association with salmon, which is screened in. Salmon are host to the larval form of the freshwater pearl mussel and, thus, essential to the completion of the life cycle (NPWS 2012).

[7] Screened out - Great Island Channel SAC is located in the extreme northern end of Cork harbour and protected by Great Island to the south. There are only two narrow entrances to the SAC, one of which is protected by means of a hydrological gradient. Therefore, even in the unlikely event of accidental hydrocarbons spillage it would not have the potential to reach this habitat.

Site name	Site code	Distance to application area (km)[3]		Qualifying interests	Sediment disturbance	Underwater noise	Vessel operations: pollution	Vessel operations: IAS	Vessel operations: disturbance	In-combination effects
		Dredge site	Disposal site							
Ballycotton Bay	004022	0.7	13	Teal						
				Ringed plover						
				Golden plover						
				Grey plover						
				Lapwing						
				Black-tailed godwit						
				Bar-tailed godwit						
				Curlew						
				Turnstone						
				Common gull						
				Lesser black-backed gull						
				Wetland and waterbirds						
Ballymacoda Bay SPA	004023	10	23	Wigeon						
				Teal						
				Teal						
				Ringed plover						
				Golden Plover						
				Grey Plover						
				Lapwing						
				Sanderling						

Site name	Site code	Distance to application area (km)[3]		Qualifying interests	Sediment disturbance	Underwater noise	Vessel operations: pollution	Vessel operations: IAS	Vessel operations: disturbance	In-combination effects
		Dredge site	Disposal site							
				Dunlin						
				Black-tailed Godwit						
				Bar-tailed Godwit						
				Curlew						
				Redshank						
				Turnstone						
				Black-headed Gull						
				Common gull						
				Lesser black-backed gull						
				Wetland and Waterbirds						
Blackwater Estuary	004028	18	31	Wigeon						
				Golden plover						
				Lapwing						
				Dunlin						
				Black-tailed Godwit						
				Bar-tailed Godwit						
				Curlew						
				Redshank						
				Wetland and waterbirds						
	004030	12	10	Little Grebe						

Site name	Site code	Distance to application area (km)[3]		Qualifying interests	Sediment disturbance	Underwater noise	Vessel operations: pollution	Vessel operations: IAS	Vessel operations: disturbance	In-combination effects
		Dredge site	Disposal site							
Cork Harbour				Great Crested Grebe						
				Cormorant						
				Grey Heron						
				Shelduck						
				Wigeon						
				Teal						
				Pintail						
				Shoveler						
				Red-breasted Merganser						
				Oystercatcher						
				Golden plover						
				Grey Plover						
				Lapwing						
				Dunlin						
				Black-tailed Godwit						
				Bar-tailed Godwit						
				Curlew						
				Redshank						
				Black-headed Gull						
				Common gull						

Site name	Site code	Distance to application area (km)[3]		Qualifying interests	Sediment disturbance	Underwater noise	Vessel operations: pollution	Vessel operations: IAS	Vessel operations: disturbance	In-combination effects
		Dredge site	Disposal site							
				Lesser black-backed gull						
				Common tern						
				Wetland and Waterbirds						
Sovereign Islands	004124	35	20	Cormorant						

3.5 In-combination effects

The proposed project is marine based. Therefore, only additional projects which have a marine component are considered in relation to the potential for cumulative effects.

The Power Head site has been used for the disposal of dredge spoil from Cork Harbour since 1978. Impact assessments have not indicated that the use of the site for disposal of dredged material has resulted in any significant effects on the receiving environment. Given the relatively low volume of dredge spoil from the proposed Ballycotton Harbour dredging works and that all contaminated material from the site will be disposed of at a separate on-shore licensed landfill, no in-combination impacts are considered likely.

A search by the applicant of Foreshore licence applications on the Department of Housing, Local Government and Heritage website and Applications for Statutory Petroleum Consent on the website of the Department of the Environment, Climate and Communications did not indicate any other current projects within the ZOI of the proposed project.

However, in their response to consultation (Table 1.1), the Marine Advisor of the DHLGH noted that Irish Water have application FS007022 under consideration for a licence to construct a temporary work area which overlaps partially with the proposed dredge area[8]. The Marine Advisor recommended that if approved the licensee shall coordinate with Irish Water in terms of sequencing to ensure both set of works do not conflict.

The AA Screening[9] for the proposed Irish Water pumping station on Ballycotton Pier (FS007022) concluded that the potential for adverse effects on the Conservation Objectives of Natura 2000 sites by the proposed works could be screened out. Given this, that likely significant effects associated with the proposed harbour dredging project can also be excluded, and the Marine Advisor recommendation above, the potential for any in-combination effects can also be excluded.

3.6 Transboundary effects

No transboundary effects were identified.

3.7 Screening conclusion

Finding of no significant effects statement:
The applicant has used a Source-Pathway-Receptor approach to identify sources of possible effects associated with the proposed project which have the potential to interact with qualifying interests of relevant Natura 2000 sites. Given the nature and scale of the proposed works; the possible effects, SPA/SAC site selection and feature screening is deemed appropriate, and an adequate level of information has been provided to justify the screening conclusions.

[8] https://www.gov.ie/en/foreshore-notice/4bed4-irish-water-temporary-wall-and-working-area-at-ballycotton-pier/?referrer=http://www.gov.ie/en/publication/f132d-irish-water-temporary-wall-and-working-area-at-ballycotton-pier/

[9] https://assets.gov.ie/138057/a304ed79-a84b-4f6a-8b26-7dae60e3420e.pdf

SACs
LSE was discounted for all SACs considered relevant to the proposed works with respect to sediment disturbance effects. LSE was discounted for all SACs considered relevant to the proposed works with respect to underwater noise effects. LSE was discounted for all SACs considered relevant to the proposed works with respect to invasive alien species associated with vessel operations. LSE was discounted for all SACs considered relevant to the proposed works with respect to disturbance associated with vessel operations. LSE was discounted for all SACs considered relevant to the proposed works with respect to in-combination effects. LSE was discounted for the following SACs (and qualifying interests) with respect to accidental pollution effects: • Ballymacoda (Clonpriest and Pillmore) SAC (all qualifying interests except Mudflats and sandflats not covered by seawater at low tide) • Blackwater River (Cork/ Waterford) SAC (Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation, Old sessile oak woods with Ilex and Blechnum in the British Isles, Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno- Padion, Alnion incanae, Salicion albae), White-clawed Crayfish (*Austropotamobius pallipes*), Brook Lamprey (*Lampetra planeri*), Otter (*Lutra lutra*), Killarney Fern (*Trichomanes speciosum*)) • Great Island Channel SAC (all qualifying interests) It is accepted that likely significant effects can be discounted for these SAC sites and their qualifying interests.
SPAs
LSE was discounted for all SPAs considered relevant to the proposed works with respect to sediment disturbance effects. LSE was discounted for all SPAs considered relevant to the proposed works with respect to underwater noise effects. LSE was discounted for all SPAs considered relevant to the proposed works with respect to invasive alien species associated with vessel operations. LSE was discounted for all SPAs considered relevant to the proposed works with respect to disturbance associated with vessel operations. LSE was discounted for all SPAs considered relevant to the proposed works with respect to in-combination effects. It is accepted that likely significant effects can be discounted for these SPAs sites and their Special Conservation Interests (SCI).

Consultation with conservation authorities
The consultation feedback from prescribed bodies is provided in Table 1.1. Comments relating to Natura 2000 aspects of the application were received from the Marine Institute and NPWS.
Screening determination
SACs
LSE with respect to accidental pollution could not be ruled out for the following sites (and qualifying interests): • Ballymacoda (Clonpriest and Pillmore) SAC (Mudflats and sandflats not covered by seawater at low tide) • Blackwater River (Cork/ Waterford) SAC (Estuaries, Mudflats and sandflats not covered by seawater at low tide, Perennial vegetation of stony banks, *Salicornia* and other annuals colonising mud and sand, Atlantic salt meadows (Glauco-Puccinellietalia maritimae), Mediterranean salt meadows (Juncetalia maritimi), Freshwater Pearl Mussel (*Margaritifera margaritifera*), Sea Lamprey (*Petromyzon marinus*), River Lamprey (*Lampetra fluviatilis*), Twaite Shad (*Alosa fallax fallax*), Salmon (*Salmo salar*)) It is accepted that likely significant effects cannot be discounted for these sites and qualifying interests and that Stage 2 Appropriate Assessment is required.
SPAs
LSE with respect to accidental pollution could not be ruled out for the following sites (and Special Conservation Interests (SCI)): • Ballycotton Bay SPA (all SCI) • Ballymacoda Bay SPA (all SCI) • Blackwater Estuary SPA (all SCI) • Cork Harbour SPA (all SCI) • Sovereign Islands SPA (all SCI) It is accepted that likely significant effects cannot be discounted for these sites and SCI and that Stage 2 Appropriate Assessment is required.

BIBLIOGRAPHY

Cook ASCP & Burton NHK (2010). A review of the potential impacts of marine aggregate extraction on seabirds. Marine Environment Protection Fund (MEPF) Project 09/P130.

DAHG (2014). Guidance to Manage the Risk to Marine Mammals from Man made Sound Sources in Irish Waters. Department of the Arts, Heritage and the Gaeltacht, 58pp.

Defra (2003). Preliminary investigation of the sensitivity of fish to sound generated by aggregate dredging and marine construction. Project AE0914 Final Report. Defra / Department for Environment, Food and Rural Affairs, London, UK.

Department of Environment, Heritage and Local Government (2010). Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities.

Diederichs A, Brandt M & Nehls G (2010). Does sand extraction near Sylt affect harbour porpoises? Wadden Sea Ecosystem 26: 199-203.

European Commission (2002). Assessment of plans and projects significantly affecting Natura 2000 sites - Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC. European Commission, 81pp.

European Commission (2019). Managing Natura 2000 sites. The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC. 80pp.

European Commission (2021). Assessment of plans and projects in relation to Natura 2000 sites - Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC. European Commission, 114pp.

Garthe S & Hüppop O (2004). Scaling possible adverse effects of marine wind farms on seabirds: developing and applying a vulnerability index. *Journal of Applied Ecology* **41**: 724–734.

Gregory J, Lewis M & Hateley J (2007). Are twaite shad able to detect sound at a higher frequency than any other fish? Results from a high-resolution imaging sonar. *Proceedings of the Institute of Acoustics* **29**: 249-256.

Hawkins AD & Johnstone ADF (1978). The hearing of the Atlantic Salmon, *Salmo salar*. *Journal of fish biology* 13: 655-673.

IAMMWG (2021). Updated abundance estimates for cetacean Management Units in UK waters. JNCC Report No. 680, JNCC Peterborough, ISSN 0963-8091, 20pp.

Leopold MF & Camphuysen KCJ (2009). Did the pile driving during the construction of the Offshore Wind Farm Egmond aan Zee, the Netherlands, impact local seabirds?. Report number C062/07. Wageningen IMARES Institute for Marine Resources & Ecosystem Studies

Mickle MF & Higgs DM (2018). Integrating techniques: a review of the effects of anthropogenic noise on freshwater fish. *Canadian Journal of Fisheries and Aquatic Sciences* **75**: 1534–1541.

Normandeau Associates, Inc (2012). Effects of Noise on Fish, Fisheries, and Invertebrates in the U.S. Atlantic and Arctic from Energy Industry Sound-Generating Activities. Published by U.S. Department of the Interior Bureau of Ocean Energy Management.

Nowacek DP, Thorne LH, Johnston DW & Tyack PL (2007). Responses of cetaceans to anthropogenic noise. *Mammal Review* **37**: 81-115.

NPWS (2012). Conservation Objectives: Blackwater River (Cork/Waterford) SAC 002170, 53pp.

Office of the Planning Regulator (2021). Appropriate Assessment Screening for Development Management. OPR Practice Note PN01. 46pp.

Popper AN & Hawkins AD (2019). An overview of fish bioacoustics and the impacts of anthropogenic sounds on fishes. *Journal of Fish Biology* **94**: 692-713.

Southall BL, Bowles AE, Ellison WT, Finneran JJ, Gentry RL, Greene Jr. CR, Kastak D, Ketten DR, Miller JH, Nachtigall PE, Richardson WJ, Thomas JA & Tyack PL (2007). Marine mammal noise exposure criteria: Initial scientific recommendations. *Aquatic Mammals* **33**: 411-522

Southall BL, Nowacek DP, Bowles AE, Senigaglia V, Bejder L & Tyack PL (2021). Marine Mammal Noise Exposure Criteria: Assessing the Severity of Marine Mammal Behavioral Responses to Human Noise. *Aquatic Mammals* **47**: 421-464. DOI 10.1578/AM.47.5.2021.421

Wenger AS, Harvey E, Wilson S, Rawson C, Newman SJ, Clarke D, Saunders BJ, Browne N, Travers MJ, Mcilwain JL, Erftemeijer PA, Hobbs J-PA, Mclean D, Depczynski M & Evans RD (2017). A critical analysis of the direct effects of dredging on fish. *Fish and Fisheries* **18**: 967-985.