Hartley Anderson Limited

Marine Environmental Science and Consultancy

Screening for Appropriate Assessment

Dundalk Port Maintenance Dredging Foreshore Licence Application

Report to
Department of Housing, Local Government and Heritage

January 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 O'Hanlon and Sons Ltd for a Foreshore Licence for maintenance dredging in the navigation channel of Dundalk Port. Due to ongoing sediment accretion in the approaches to Dundalk Port, vessel access has become limited. This is having a negative impact on the Port's trade and therefore maintenance dredging is required in the areas of Soldiers Point, and Buoy 15 to restore depth in the channel and safe vessel access.

The sand is good quality sediment and will be dredged and then landed ashore at Dundalk Port. No marine disposal permit is required for this activity so a Dumping at Sea permit is not being required/sought from the Environmental Protection Agency.

1.2 Application documents submitted

A number of application documents submitted by O'Hanlon and Sons Ltd have informed this AA Screening, including:

- Application form [Applicant: O'Hanlon and Sons Ltd, 18 March 2021]
- Dundalk Harbour Navigational Channel Stability Study [RPS, dated October 2011]
- Foreshore Licence Map (Admiralty) [Colm Sheehan, dated May 2021]
- Foreshore Licence Map (OS) [P. Herr & Associates, dated May 2021]
- Natura Impact Statement [Anthony D Bates Partnership LLP, dated March 2021]
- Sediment Sampling EPA Threshold Comparison [Anthony D Bates LLP, dated February 2021]
- Supporting Information [Anthony D Bates LLP, dated March 2021]
- Prescribed Body Consultation
    - Prescribed Bodies Observations
    - Applicant's response to Prescribed Bodies Observations.

1.3 Relevant consultation responses

The licence application was open for public consultation between 20th July 2021 to 19th 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.

Table 1.1: Responses from prescribed bodies to the consultation

Statutory Body	Applicant's Response
Marine Survey Office (MSO) The Marine Survey Office had no objection to the proposed works in the application from a navigational safety perspective. The Marine Survey Office proposed a condition: • 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 licence period.	In relation to the proposed conditions: The applicant welcomed the feedback provided and agreed with the proposed condition.
Marine Institute (MI) The Marine Institute noted that chemical analysis of sediments to be loaded was carried out and presented with the application. The analysis was based upon a plan designed by Margot Cronin (Environmental Chemist, Marine Institute). Sampling for sediment chemistry was carried out on seven samples taken from along the navigation channel. DDX (DDT, DDD, DDE) pesticide was found in one sample at location 3, but not exceeding the effects range low (ERL) level. Dundalk sediment is considered clean. It should be noted that the assessment guidelines for Dumping at Sea are not used for bringing the sediment on land. If this sediment is being brought up on land, it will need to be assessed using the Waste Assessment Criteria. It is the understanding of the MI that the EPA issues waste licences for this activity. The MI noted that the risk to conservation features associated with the proposed activity are communicated in the NIS report. 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	The applicant welcomed the feedback provided and conclusion that impacts on aquaculture and sea fishing from the proposed activity are not considered likely.

Statutory Body	Applicant's Response
communicated in the NIS. It notes in a separate communication that the activities will not occur during the months of March to May in order to minimise any impact on migratory salmon. This is considered an appropriate measure. Interactions with Fisheries and Aquaculture operations: The MI noted that there are no licensed aquaculture sites within the proposed areas to be dredged. The closest licensed aquaculture site is in Carlingford Lough. Commercial fishing activity is carried out in Dundalk Bay for cockles and razor clams. Given the confined nature of the activity it is unlikely to impact on these activities and the resources they fish. On this basis, and considering the information above, the MI concluded that impacts on aquaculture and sea fishing from the proposed activity are not considered likely.	
Inland Fisheries Ireland (IFI) Observation 1 The IFI requested the applicant to provide the date and duration of the dredging undertaken in previous years, in relation to the previous application (FS006425 – October 2014). If the works have taken place at different times in different years this would minimise the impact on any one fish species or life stage. The time scale that the dredging takes place annually will give an indication of the short and temporary impact on the fish species in the area. This information would be very useful in evaluating the application. The application mentions that there will be no waste deposited into the sea from the dredger at any time. Bilgewater and wastewater from the dredger will be brought onshore for proper removal and disposal by licensed waste contractors. Contractors working on-site during the works will be responsible for the collection, control and disposal of all wastes generated by the works. Refuelling of the dredging vessel will take place at the quayside using suitable hoses etc to avoid any spillages. An effective spillage control procedure must be put in place with all staff properly briefed to prevent poor water quality run off from the stored dredged material.	The applicant welcomed the submission from the IFI. Unfortunately, a search of the port's archives for dredging records from 2014 was unsuccessful. Therefore, the time of year and duration of the works is unknown. In relation to IFI's Observation 2: The applicant agreed that proper records should be maintained and, in the future, will ensure hard and soft copies are stored of the daily progress reports provided by the contractor to ensure historical records are not lost. A foreshore licence condition on this basis is sensible.

Statutory Body	Applicant's Response
The local IFI office should be notified in advance of the works commencing. The IFI welcomed the close season as a mitigation measure to reduce impact of salmon smolts. **Inland Fisheries Ireland Observation 2** Inland Fisheries Ireland expressed their surprise that the information on the date and duration of the dredging undertaken in previous years, in relation to the previous application (FS006425 – October 2014) is not available. IFI requested that the applicant starts to record this information for future foreshore applications. IFI requested the provision of the dates the dredging took place every year (date started, date finished, duration of dredging (days)) to be made a condition for this foreshore licence and potentially all dredging FS licences. The IFI noted that since it is a requirement for the port to notify relevant authorities in advance of works commencing it should be easy to keep a record from this year onwards.	
Department of Agriculture, Food and the Marine (DAFM) The DAFM had no objection to the proposal. One observation was included in the consideration of the licence is set out below: The DAFM noted that there is not expected to be any issues with seafood safety caused by the proposed dredging operations. The operators should be aware of the notification process should a pollution incident take place during the survey period. The SFPA office with responsibility for Dundalk Port is SFPA Howth and they should be contacted directly on 01-8321910 or sfpahowth@sfpa.ie.	The applicant welcomed the feedback provided and agreed with the proposed condition.
Underwater Archaeology Unit (UAU)	

Statutory Body	Applicant's Response
The Underwater Archaeology Unit had no comment on the application.	
Sea Fisheries Protection Authority (SFPA) The SFPAs comments were as follows: The applicant should keep in contact with the fishermen representatives in Dundalk and Clogherhead to ensure that all static gear is removed from the proposed areas and that dredging for razor clams may be restricted while the dredger is operating. 1 Wild Fisheries There are two bivalve fisheries within Dundalk Bay, Cockle, *Cerastoderma e*dule and Razor Clam, *Ensis siliqua*. Due to the locations and depths, it is unlikely that there will be any long-term disturbance to either species. Adjacent to the proposed areas there are static fishing operations for crustaceans. The SFPA noted that the proposed dredging operations will not restrict the SFPA in conducting official control duties in the area. 2. Shellfish Production Areas Dundalk Bay is classified as a shellfish production area for both cockle and razor clam and proposed works fall inside the classified shellfish production area. Due to the location and depth, it is unlikely that any long-term damage to either species will occur. The razor clam fishery operates on an annual basis whereas the cockle fishery is seasonal and normally operates from July to October. 3. Seafood Safety There is not expected to be any issues with seafood safety caused by the proposed dredging operations. The operators should be aware of the notification process should a pollution incident take place during the survey period. The SFPA office with responsibility for Dundalk Port is SFPA Howth and they should be contacted directly on 01-8321910 or sfpahowth@sfpa.ie.	The applicant welcomed the submission from the SFPA and their conclusion that there is not expected to be any issues caused by the proposed dredging operations.

Statutory Body	Applicant's Response
Marine Advisor (Department of Housing, Local Government and Heritage) Marine Advisor's comments had no objection to the granting of a Section 3 Foreshore Licence 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 maintenance dredging operation shall be located on the foreshore as outlined on Map No: 595-FL-5 Rev O Dated 24/05/2021. 3. The Licensee shall notify the Department of Housing, Local Government and Heritage at least 14 days in advance of the commencement of any works on the foreshore. 4. All dredging procedures follow industry best practice as set out in Section 3 of the Natura Impact Statement dated March 2021. 5. The Licence shall remain valid for a 10-year period from 2022 to 2031 inclusive. Dredging of the seabed shall be to a maximum of 0.75m below CD with a maximum dredge volume of 5,000m³ per annum. 6. During the course of the works the Licensee shall ensure that existing public access arrangements are maintained, where possible, and all necessary precautions are put in place to protect the public in accordance with relevant Health and Safety Legislation. 7. On completion of the works, the surrounding foreshore shall be returned to its natural state to the satisfaction of the Department of Housing, Local Government and Heritage. 8. The Licensee shall ensure that contractors, and their subcontractors, are made aware of all conditions and project specific requirements and they are required to have briefings on these to ensure all parties are fully aware of these requirements.	The applicant welcomed the feedback provided and agreed with all of the proposed conditions.
National Parks and Wildlife Service (NPWS) No response has been received by NPWS.	

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.*

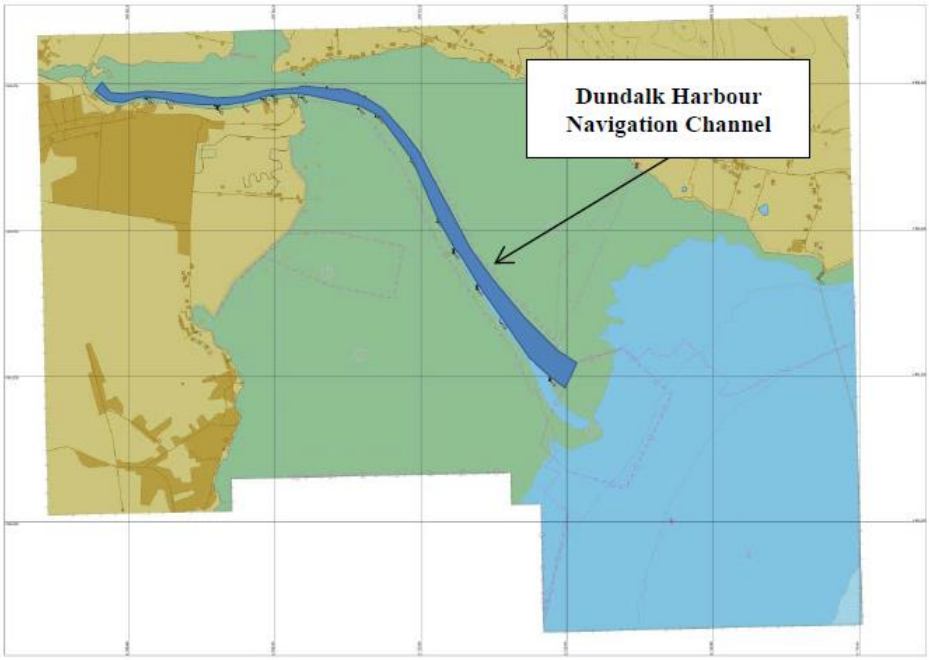
SECTION 2 - DESCRIPTION OF PROPOSED WORKS

2.1 Site location

Dundalk Bay is located on the east coast of Ireland and stretches for approximately 16km from the Cooley Peninsula in the north, to Annagassan and Dunany Point in the south. The bay has large expanses of inter-tidal areas which are exposed at low water.

The Castletown River is used by vessels to access Dundalk Harbour. The river provides a channel through the intertidal zone in the north-west corner of the bay and has been used by small ships to access to Dundalk Port for many years. The location of the channel is shown in Figure 2.1.

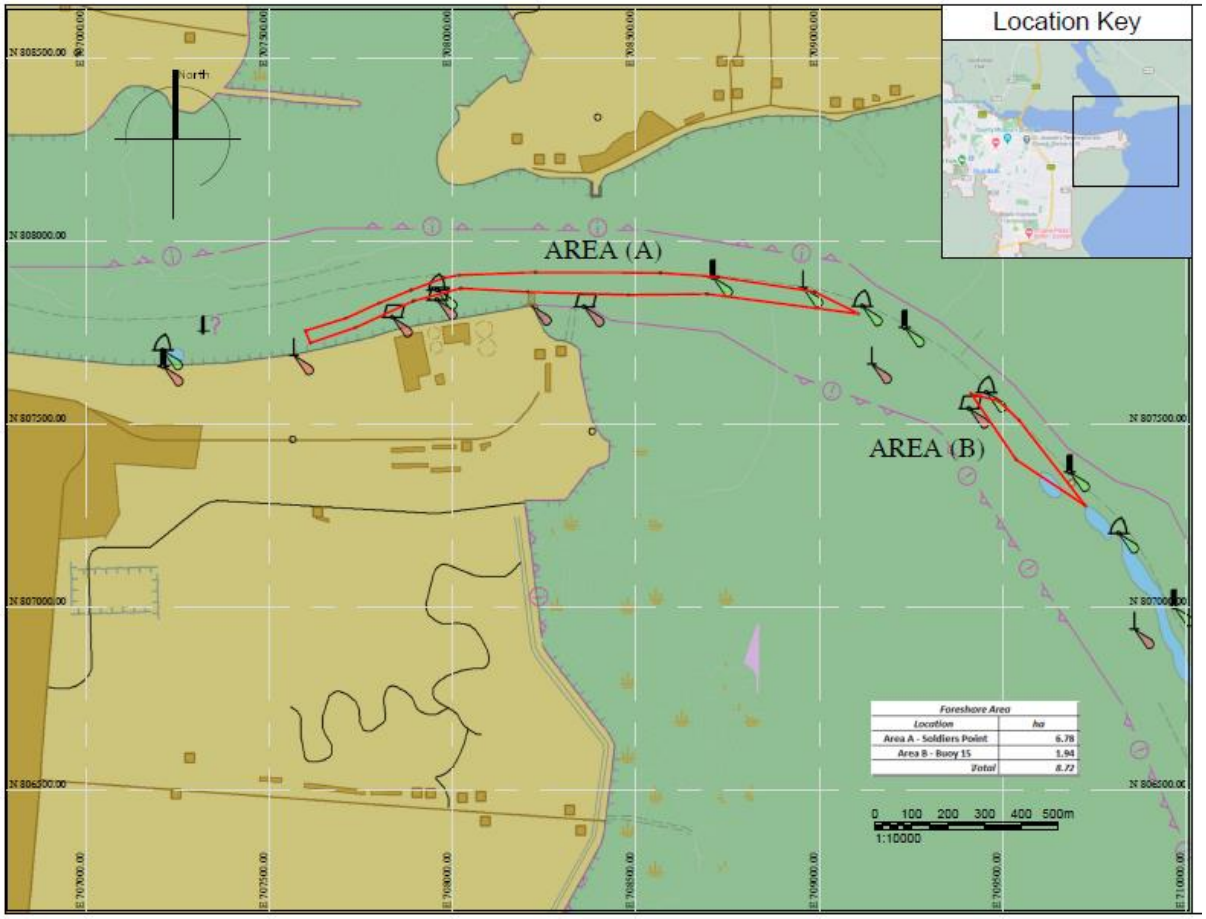
Figure 2.1: Dundalk Harbour Navigation Channel



Due to ongoing sediment accretion in the approaches to Dundalk Port, vessel access has become limited. This is having a negative impact on the Port's trade and therefore maintenance dredging is required in the areas of Soldiers Point, and Buoy 15 to restore depth in the channel and safe vessel access.

The Port therefore seeks a foreshore license to facilitate proposed maintenance dredging at Soldiers Point (Area A - 6.78ha) and near Buoy 15 (Area B - 1.94ha) in the navigation channel (Figure 2.2).

Figure 2.2: Foreshore boundary (red line) of areas to be dredged



2.2 Description of proposed works

Proposed maintenance dredging

It is proposed to carry out maintenance dredging in the areas highlighted in Figure 2.2. It is planned to dredge the seabed to at least 0m Chart Datum and if possible, restore the historical navigation levels of 0.75m below CD during the maintenance dredging operations. The estimated volume of material to be removed is approximately 5,000m³ per year. A hydrographic survey was completed in the navigation channel in September 2020 and the depths over the area to be dredged ranges up to 0.8m above Chart Datum, severely restricting tidal access to the Port.

The material to be removed is primarily clean fine to medium sand with an average grain size of 0.21mm. The chemical and physical properties of the sediment are described in the supporting information document of the foreshore application.

It is proposed that the sandy material dredged will not be disposed of at an offshore disposal site. The dredged sand will be brought ashore and used beneficially as a product, as in 2014, or, failing this for any reason, will be responsibly managed and placed in an appropriate facility.

It is proposed that the Foreshore Licence will run for a 10 year period from 2022 to 2031 inclusively, with an annual dredging allowance of 5,000m³.

Proposed vessel and dredging operation

Dundalk Port proposes to use the Trailer Suction Hopper Dredger (TSHD) the "Argus" (or similar) to carry out the dredging operations. This vessel is owned by Londonderry Port and Harbour Commissioners, who use it to maintain depths at Foyle Port and on the approaches in Lough Foyle. It also works at Drogheda Port.

A TSHD works by raising sediment to the surface by suction. A pipe is lowered through the water column into the seabed sediments. Suction is then created in the pipe by the rapid rotation of an impeller drawing sediments and water into the pipe. The mixture of sediment and water passes through the pump and into the hopper of the vessel via a sequence of sealed pipes. If the material is resistant to removal by suction alone then water jets may be employed at the lower end of the pipe to fluidise the sediment as the suction head passes over it.

The vessel will travel over the area to be dredged at a very slow speed, typically less than 2 knots. As the vessel progresses along the site the suction head passes over the area requiring dredging producing a trench in the sediment. Successive passes over the area result in the total removal of all sediments above a specific level. The dredge master monitors the depth of the suction head at all times.

The dredger will operate across the area in an east-west direction in straight lines. The bed will be lowered each time until the required target depth is achieved. By moving along the seabed in this way, other vessels can pass by the dredger when it is working and enter or exit Dundalk Port unimpeded. In this way, navigation will not be interfered with during the dredging operations.

The dredged sediment will be raised to the surface by hydraulic action and stored within the hopper of the vessel. Once the vessel is full with a mixture of sediments and water the dredging process may continue in order to increase the sediment to water ratio in the hopper. This is achieved by allowing the surface water, in the hopper, to overflow through a dedicated weir system within the hopper. The optimum period of overflow depends on the particle size and density of the dredged material. Based on the sediment test results and the Port's experience in 2014, it is expected that most of the material dredged will be retained in the hopper.

Once the hopper is full, dredging stops and the suction pipe is raised to the surface and stowed on deck. The vessel will then return to Dundalk Port and berth alongside the quay. The sand will be off-loaded from the hopper using a grab. After the sediment is off-loaded, the dredger will return to the dredging area on a reciprocal course and the cycle will commence again.

Should a suitable TSHD not be available, then the dredging may alternatively be undertaken mechanically by a backhoe dredger or by a grab (clamshell) dredger. The sand would be excavated, transported within a hopper/hold, and unloaded, as outlined above, at the quay at Dundalk Port.

The works will be undertaken in compliance with industry best practice including the following measures:

- Dredging will be undertaken as efficiently as possible so that the number of dredger movements is minimised,
- There will be no ancillary waste deposited into the sea from the dredger at any time,
- Maintaining a low speed during dredging,
- Bilge water and wastewater from the dredger would be brought onshore for proper removal and disposal by a licensed waste contractor,

- Contractors working on site during the operation would be responsible for the collection, control and disposal of all wastes generated by the works,
- Refuelling of the dredging vessel will take place at the quayside using suitable hoses etc. to avoid any spillages; and
- Dredging will be carried out over a period outside of the months of March to May, which is the migratory period of juvenile salmon (smolts).

2.3 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 Figure 2.2.
Overall affected area including the area affected by indirect impacts (e.g. noise, turbidity, vibrations)	Partly. Given the nature of the material to be dredged and the limited scale of the dredging operations, indirect impacts limited.
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 2.2.
Changes in the intensity of an existing pressure (e.g. increase in noise, pollution or traffic);	Yes. Increase in dredging activities (vessel activity) described in Section 2.2.
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. See Section 2.2 for industry best practice with respect to waste disposal that will be followed and Section 3.2 for potential effects on water quality.
Transportation requirements (e.g. access roads)	Single dredge vessel to carry out dredging operations.
Duration of construction, operation, decommissioning, etc.	Yes. Section 2.2 above - 10 year period from 2022 to 2031.
Temporal aspects (timing of the different stages of a plan or project)	Partly. Section 2.2 above - dredging will be carried out over a period outside of the months of March to May.
Distance from Natura 2000 sites and in particular from their designating features	Yes. See Section 3 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*[1]*, 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

The applicant has used a source-pathway-receptor approach for screening, consistent with OPR (2021). They have defined 'source' as the individual elements of the proposed project with the potential to impact on the Natura 2000 site, its qualifying features and its conservation objectives. The pathway is defined as the means or route by which a source can migrate to the receptor. The receptor is defined as the Natura 2000 site and its qualifying features. An effect is created when there is a linkage between the source, pathway and receptor.

Habitat loss and disturbance

Given the location of the dredge sites within the Dundalk Bay SAC, the applicant identified the potential for direct habitat disturbance by virtue of the fact that bed sediments will be removed.

The applicant also noted that the removal of sediments may also affect the natural circulation of sediments that may in turn change the morphology of other mobile marine habitats. It was noted that deposition of sediments can impact sensitive habitats and benthic flora and fauna. However, the size of the dredge area and volume of material removed is relatively small and as such no notable indirect impacts are predicted evidenced by the navigation channel stability study submitted as part of the application.

[1] 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.

Aerial noise and visual disturbance

The applicant identified the potential for aerial noise and visual disturbance to wildfowl and waders that are qualifying interests of relevant SPAs.

Underwater noise

The applicant did not consider the potential for underwater noise from the proposed dredging works to cause disturbance to sensitive receptors. DAHG (2014) guidance to manage the risk to marine mammals from man-made sound sources in Irish waters indicates that while sound exposure levels from coastal dredging operations are thought to be below those expected to cause injury to a marine mammal, they have the potential to cause lower level disturbance, masking or behavioural impacts. It notes that dredging activity tends to occur in a fixed area for a prolonged period of days or weeks and it therefore has the potential to introduce continuous anthropogenic sound at levels that may impact upon marine mammal individuals and/or local populations.

The noise levels generated during dredging operations depends on the characteristics of the vessel used, as well as the nature of the dredged material, with gravel being noisier than sand (Robinson *et al*. 2011). Given that the material to be dredged is predominantly sand, the noise generated by the dredger will be similar to that generated by a normal vessel of a similar size, (DAHG 2014, Robinson *et al*. 2011). DAHG (2014) indicates 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: 1µPa. Defra (2003) found that noise from the 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). Richardson *et al*. (1995) summarised harbour porpoise avoidance of ships as possible from a distance of 1-1.5km, with a stronger reaction within 400m.

Section 5.6 of the applicant's supporting documentation provides a summary of marine mammal sightings (IWDG data) in the area but only up to 2012. From this, the applicant noted that all of the marine mammal sightings (which included one harbour porpoise sighting) took place in the Outer Dundalk Bay area. There were no sightings close to Soldiers Point/Buoy 15 where the proposed maintenance dredging will take place. Data from Rogan *et al.* (2018) may be of relevance, with Dundalk Bay lying within Stratum 5 of the recent ObSERVE survey programme, which extends from Carlingford Lough in the north to Carnsore Point in the south, and from the coast offshore to approximately the limit of the Irish EEZ. This area was surveyed a total of four times during the ObSERVE programme, in summer and winter 2015 and 2016. Harbour porpoise were observed throughout this area in all surveys, with density estimates of between approximately 0.7 and 1.0 porpoise per km^2 – the highest estimated density across any of the strata surveyed.

Water quality and habitat deterioration

Suspended sediments

The applicant notes that there will be no at sea disposal site as all the dredge material will be taken ashore. This limits considerably the effects of depositing sediments on benthic flora and fauna as there is little or no dispersion plume. Also, the sediment to be dredged is sandy in nature, with negligible silt content, any turbidity impacts from the loading process will therefore be low. Furthermore, the size of the dredge area and volume of material removed is relatively small.

Accidental pollution
There are potential sources of pollution of the marine environment that may arise as a result of the proposed works, limited to the release of substances from the dredging vessel, including oil and fuel. The potential for these sources to represent a likely significant effect was not directly considered by the applicant. However, an accidental pollution event of a significant magnitude is highly unlikely given that the vessel is required to be equipped and operate in accordance with MARPOL standards, and the 1972 Convention on the International Regulations for Preventing Collisions at Sea. Further, as noted by the applicant, the dredger will operate by moving along the area to be dredged in an east-west direction in straight lines, allowing others vessels to pass by the dredger when it is working and enter or exit Dundalk Port unimpeded. In this way, navigation will not be interfered with during the dredging operations and the potential for accidents is reduced. The vessel will also travel over the area to be dredged at a very slow speed, typically less than 2 knots, further reducing the risk of accidents with other vessels.

Summary: It is concluded that the applicant correctly identifies most of the possible effects for relevant Natura 2000 sites and their related qualifying interests, from the proposed works. Further consideration has been made above of whether likely significant effects would arise from underwater noise and accidental events. It is concluded that the proposed works will not lead to likely significant effects on relevant Natura 2000 sites and their related qualifying interests.

3.3 Identification of relevant sites and features

As indicated in Section 3.2, a source-pathway-receptor approach was used to identify possible effects and relevant sites (Figure 3.1) and qualifying interests (see Table 3.1).

Dundalk Bay SAC

Estuaries
Dredging works will take place within this habitat. There will be habitat disturbance by virtue of the fact that bed sediments will be removed. The area is regularly used by trade vessels where propellor scour will influence the bed community. Post-dredging, further bed sediments will remain and the total area of estuary habitat will not have decreased. Disturbance will be confined to limited sections of the navigational channel only, totaling 8.72ha or 0.167% of the SAC (5,234ha).

The applicant noted that changes to the benthic fauna community within the dredge area were inevitable but that communities should begin to re-establish after the cessation of works as fauna from adjoining, undisturbed areas repopulate the dredge area. Whilst this is most likely the case, the applicant did not describe the relevant communities within the habitat nor their potential resilience to dredging activities. The conservation objectives supporting document (NPWS 2011a) indicates that a fine sand community complex is present within navigation channel and the distinguishing species of the shallow subtidal estuarine channel are *Capitella capitata* and *Nephtys hombergii*. *C. capitata* is an opportunist species possessing life history traits of rapid development, many reproductions per year, high recruitment and high death rates. Experimental studies using defaunated sediments have shown that on small scales *Capitella* can recolonize to background densities within 12 days (Grassle & Grassle, 1974, McCall 1977, cited by MarLIN website[2]). Similarly, recoverability of *N. hombergii* to substratum loss has been assessed to be very high as recolonization would occur via adult migration and

[2] https://www.marlin.ac.uk/habitats/detail/32

larval settlement (MarLIN website[3]). The conservation objectives for the habitat (NPWS 2011b) indicate a habitat area of 2,799ha and therefore the extent of habitat disturbance from the proposed dredging activities represents just 0.3% of the habitat, well below the 15% threshold for significant continuous or ongoing disturbance (NPWS 2011a). The applicant indicates a short term minor impact, no LSE predicted.

Mudflats and sandflats not covered by seawater at low tide
There will be no removal of muds or sands from the adjoining Annex I habitat 'Mudflats and sandflats not covered by seawater at low tide. However, there is a potential for localised disturbance (subsidence) at the juncture between the low water mark and the channel which is permanently inundated. This is caused by the removal of supporting material within the existing channel. However, the volume and dredge cut proposed is very minor in nature. Changes to benthic fauna community at this zone are predicted but only to the outer limits of this Annex I habitat. These fauna associated with this particular habitat similarly should begin to re-establish, migrating from surrounding, unaffected areas. As above, whilst this is most likely the case, the applicant did not describe the relevant communities within the habitat nor their potential resilience to dredging activities. NPWS (2011a) indicates that an intertidal muddy fine sand community is associated with estuarine areas of the Castletown River, with the polychaete *Pygospio elegans*, the amphipod *Corophium volutator* and the bivalve *Macoma balthica*, frequently occurring in high densities. Clarke & Tully (2011) classified the habitat as LS.LSa.FiSa.Po (Polychaetes in littoral fine sand[4]) / LS.LSa.FiSa.Po.Aten (Polychaetes and *Angulus (= Macomangulus) tenuis* in littoral fine sand[5]). Both of these habitats were noted as having high resilience to the physical pressure - habitat structure changes - removal of substratum (extraction). The conservation objectives for the habitat (NPWS 2011b) indicate a habitat area of 4,375ha and therefore the extent of habitat disturbance from the proposed dredging activities represents just 0.2% of the habitat, well below the 15% threshold for significant continuous or ongoing disturbance (NPWS 2011a). The applicant indicates a short term minor impact, no LSE predicted.

Vulnerability and sensitivity to oil spills of intertidal and estuarine sediments is influenced by a number of physical and biological factors; including wave exposure, shore topography, sediment composition, height of water table, presence of large burrows, abundance and diversity of infauna and use of the shore by birds for feeding and roosting. Wave exposed, clean sandy shores are often considered to have a low vulnerability and sensitivity due to the natural cleaning of the waves and the relative sparsity of fauna present in the sediment. However, a sheltered muddy gravel shore with a high biodiversity may have a high vulnerability and sensitivity (Kirby *et al*. 2018). Given the relatively sheltered nature of the estuarine and intertidal Annex I habitats and the proximity of the dredging area to these, the possibility of LSE to these Annex I habitats associated with accidental pollution incident cannot be excluded.

Perennial vegetation of stony banks
The applicant indicated that in Dundalk Bay SAC this habitat is beyond the immediate area/influence of the proposed works. Furthermore, it occurs above the high tide mark and is therefore not subject to the same levels of potential disturbance as per inter and sub-tidal environments. No LSE predicted.

The remaining saltmarsh habitats described below are restricted to the area between mid neap tide level and high water spring tide level (NPWS 2011c) and therefore the potential for habitat loss and disturbance associated with dredging activities in the navigation channel is limited.

[3] https://www.marlin.ac.uk/species/detail/1710
[4] https://www.marlin.ac.uk/habitats/detail/1125
[5] https://www.marlin.ac.uk/habitats/detail/1170/polychaetes_and_angulus_tenuis_in_littoral_fine_sand

Salicornia and other annuals colonizing mud and sand
The applicant noted that part of this community is located approximately 90m south of the dredge works (see Map 5, NPWS 2011b). The applicant indicated that this area appeared to represent only a small % of the wider *Salicornia* habitat evidenced by Map 5 and occupied the outer limit of the Atlantic salt meadow habitat described below. No direct or indirect disturbance was predicted. No LSE predicted.

Atlantic salt meadows (Glauco-Puccinellietalia maritimae)
The applicant noted that this habitat lies immediately beyond the *Salicornia* described above, approximately 100m south of the dredge works (see Map 5, NPWS 2011b). No direct or indirect disturbance was predicted. No LSE predicted.

Mediterranean salt meadows (Juncetalia maritimi)
The applicant noted that the exact distribution of this habitat within the wider salt marsh habitat is unclear. However, this habitat is known to occupy the upper zone of salt marshes usually on the boundary with terrestrial habitats (NPWS 2011c), thus further removed from the dredge site compared to the *Salicornia* muds and Atlantic salt meadows. Depositing sediments will be negligible. No LSE predicted.

Saltmarsh habitats are generally considered to be very vulnerable to oil spills as they form in the upper part of sheltered muddy shores where oil may become concentrated and cause long-term contamination. Given the vulnerability of saltmarsh habitats and the proximity of the dredging area to these, the possibility of LSE to the *Salicornia* and other annuals colonizing mud and sand, Atlantic salt meadows (Glauco-Puccinellietalia maritimae) and Mediterranean salt meadows (Juncetalia maritimi) Annex I habitats associated with accidental pollution incident cannot be excluded.

Carlingford Shore SAC

Annual vegetation of drift lines
The applicant noted that this habitat is far removed from the immediate area of works (at least 13km). Furthermore, unlike the Annex I habitats Estuaries and Mudflats and sandflats not covered by seawater at low tide described above, this habitat occurs along the high tide mark at the limit of seawater influence. No impact predicted.

Perennial vegetation of stony banks
As above, this habitat is far removed from the immediate area of works (at least 13km). It is also further removed from the high tide mark thus less subject to seawater disturbance or deposition. No impact predicted.

Rockabill to Dalkey Island SAC

Reefs
This site is 47km from the dredging area and given no disposal at sea of dredged material, no impact predicted.

Harbour porpoise (Phocoena phocoena)
The limited dredging operations will be carried out by a single vessel working in the navigation channel to Dundalk Port. Given the distance of the site from the dredging area, the existing vessel traffic in the navigation channel and the relatively low numbers of harbour porpoise that are expected to be present in the area, dredging operations are not expected to represent a source of LSE with respect to underwater noise.

Murlough SAC

Harbour seal (Phoca vitulina) (only qualifying feature of relevance)
The limited dredging operations will be carried out by a single vessel working in the navigation channel to Dundalk Port. Given the dredging area is 37km from the site, the existing vessel traffic in the navigation channel and the predicted low to moderate usage of the area by harbour seal (Russell *et al*. 2017), dredging operations are not expected to represent a source of LSE with respect to underwater noise.

Dundalk Bay SPA

Twenty-three bird species [all wintering] are listed qualifying features of the Dundalk Bay SPA (see Table 3.1).
The applicant noted that the proposed dredging site already experiences regular shipping activities and there will be a degree of habituation within the proximity of the shipping channel. The presence of an additional small vessel is therefore unlikely to constitute a significant impact. Any disturbance to birds feeding on the estuary in the immediate vicinity of the dredge area will be minimal and temporary in nature. The relatively small area proposed for dredging will enable any potential birds displaced by the presence of the vessel simply to move elsewhere to forage. In addition, the dredging area is entirely submerged during the tidal cycle and no intertidal communities will be directly lost. No LSE predicted.

The extensive sand and mud flats have a rich fauna of molluscs, polychaetes and crustaceans which provide an important food resource for most of the bay's wintering waterfowl. The site also includes extensive areas of saltmarsh that provide important roosting areas; the main areas are Lurgangreen, Marsh South, Dundalk Harbour and Bellurgan (NPWS 2011d). The wetlands contained within Dundalk Bay SPA are identified of conservation importance for non-breeding migratory waterbirds. Therefore the wetland habitats and the waterbirds that utilise this resource are considered to be an additional Special Conservation Interest (NPWS 2011d). The latest Irish Wetland Bird Survey (I-WeBS) report (Fitzgerald *et al.* 2021) indicates a count of 40,129 wintering waterbirds for Dundalk Bay in 2017/18, slightly below the 5-year average (2013/14-2017/18) of 45,360 birds.

These species would be vulnerable to an accidental pollution incident either directly e.g. through direct contact with oil or other polluting chemicals, or indirectly by affecting the habitats and food supply on which they rely for feeding and roosting. Therefore whilst the potential for an accidental spill associated with the dredging operations is very small (see Section 3.2), given the proximity of the dredging area to habitats of potential importance to wintering waterbirds, the possibility of LSE to the listed wintering bird SCIs and the wetlands and waterbirds SCI cannot be excluded.

Carlingford Lough SPA

Pale-bellied brent goose *Branta bernicla hrota* [wintering]
The applicant indicated that the distance to the dredge site is approx. 17km, thus aerial noise and visual disturbance is not applicable. The applicant did not indicate whether geese from Carlingford Lough SPA forage within the area of the proposed works. The conservation objectives supporting document for Carlingford Lough SPA (NPWS 2013) indicates that a cohort of brent geese are known to commute from saltmarsh in Dundalk Bay (North and South Bull as well as Lurgangreen/Mooretown) to Carlingford Lough, which constitutes a round trip of 36km. It notes that movements of geese between Dundalk Bay and Carlingford Lough are primarily at dawn and dusk, but may also occur in response to tidal state. NPWS (2013) notes that brent geese are known for their preference for foraging in intertidal areas with the eelgrass *Zostera* sp. Where this food source is absent or becomes depleted, the birds feed upon algae

species, saltmarsh plants and may also undertake terrestrial grazing. This would suggest that brent geese are unlikely to be present in the immediate vicinity of the dredging operation and that dredging will not impact supporting habitats for this species. No impact predicted.

Stabannan-Braganstown SPA

Greylag goose *Anser anser* [wintering]
This SPA is over 14km from the dredge site and therefore this species and the habitat upon which it depends is unlikely to incur any impact. However, the greylag geese at Stabannan-Braganstown SPA use Dundalk bay as a night-time roost. However, dredge works will not coincide with late evening or night-time hours. No LSE predicted.

Summary: The applicant's assessment of the proposed works with respect to the conservation objectives and targets of the relevant sites and their qualifying interests was limited. Relevant conservation objectives were described in Section 4 of the applicant's NIS but no reference was made to relevant conservation attributes and targets which could have informed the assessment. However, given the limited area and volume of material to be dredged, the assessment provided above is considered adequate.

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 (shaded cell) this is indicated for the relevant qualifying interest against the possible effect – note, in this instance no cells are shaded.

Figure 3.1: SACs and SPAs considered in the screening

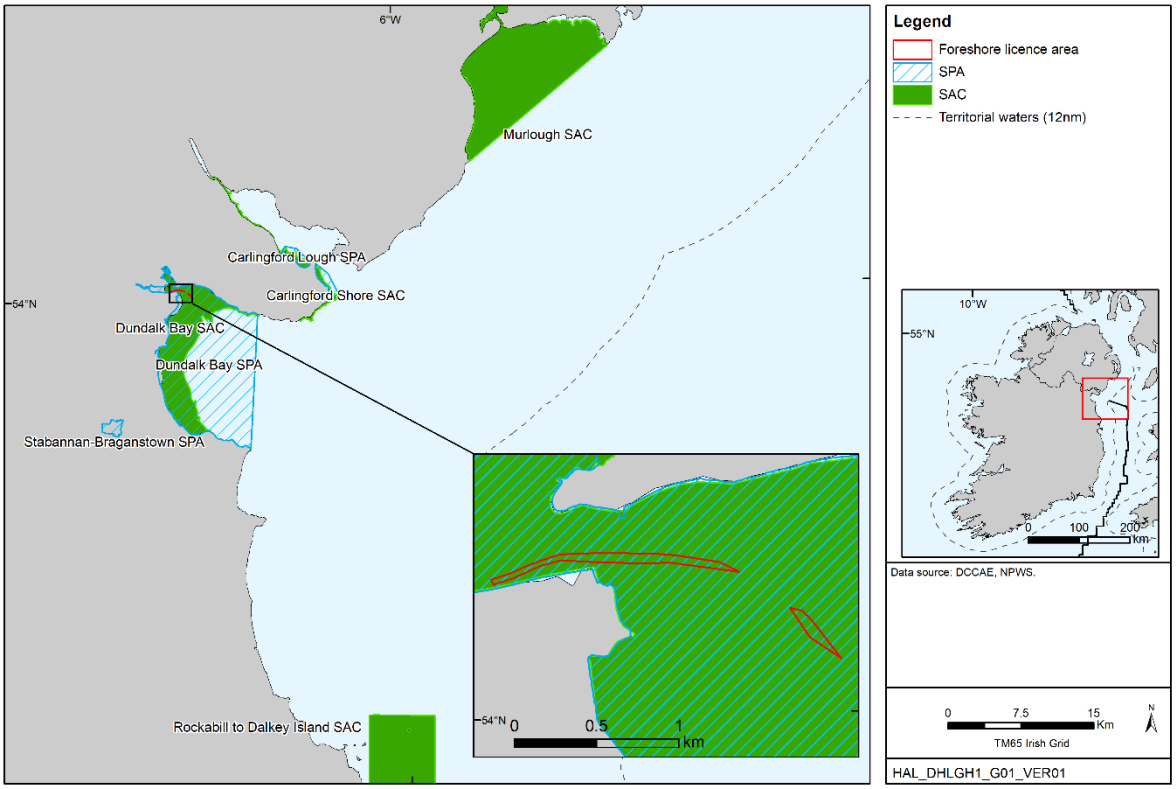


Table 3.1: Sites screened for likely significant effect and the high level outcome for each site

Site name	Site code	Distance to application area (km)	Qualifying interests	Habitat loss	Water quality and habitat deterioration	Underwater noise and disturbance	Aerial noise and visual disturbance	In-combination effects
SACs								
Dundalk Bay	000455	Within site	Estuaries [1130]					
			Mudflats and sandflats not covered by seawater at low tide [1140]					
			Perennial vegetation of stony banks [1220]					
			Salicornia and other annuals colonizing mud and sand [1310]					
			Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]					
			Mediterranean salt meadows (*Juncetalia maritimi*) [1410]					
Carlingford Shore	002306	13	Annual vegetation of drift lines [1210]					
			Perennial vegetation of stony banks [1220]					
Rockabill to Dalkey Island	003000	47	Reefs [1170]					
			Harbour porpoise (*Phocoena phocoena)* [1351]					
Murlough	UK0016612	37	Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]					
			Atlantic decalcified fixed dunes (Calluno-Ulicetea) [2150]					
			Sandbanks which are slightly covered by sea water all the time [1110]					

Site name	Site code	Distance to application area (km)	Qualifying interests	Habitat loss	Water quality and habitat deterioration	Underwater noise and disturbance	Aerial noise and visual disturbance	In-combination effects
			Mudflats and sandflats not covered by seawater at low tide [1140]					
			Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]					
			Embryonic shifting dunes [2110]					
			Shifting dunes along the shoreline with Ammophila arenaria (white dunes) [2120]					
			Dunes with *Salix repens* ssp. *argentea* (Salicion arenariae) [2170]					
			Marsh fritillary butterfly (*Euphydryas (Eurodryas, Hypodryas) aurinia)* [1065]					
			Harbour seal *(Phoca vitulina)* [1365]					
SPAs								
Dundalk Bay	004026	Within site	Great Crested Grebe (*Podiceps cristatus*) [A005]					
			Greylag Goose *(Anser anser*) [A043]					
			Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]					
			Shelduck (*Tadorna tadorna*) [A048]					
			Teal (*Anas crecca*) [A052]					
			Mallard (*Anas platyrhynchos*) [A053]					
			Pintail (*Anas acuta*) [A054]					
			Common Scoter (*Melanitta nigra*) [A065]					
			Red-breasted Merganser (*Mergus serrator*) [A069]					
			Oystercatcher (*Haematopus ostralegus*) [A130]					
			Ringed Plover (*Charadrius hiaticula*) [A137]					

Site name	Site code	Distance to application area (km)	Qualifying interests	Habitat loss	Water quality and habitat deterioration	Underwater noise and disturbance	Aerial noise and visual disturbance	In-combination effects
			Golden Plover (*Pluvialis apricaria*) [A140]					
			Grey Plover (*Pluvialis squatarola*) [A141]					
			Lapwing (*Vanellus vanellus*) [A142]					
			Knot (*Calidris canutus*) [A143]					
			Dunlin (*Calidris alpina*) [A149]					
			Black-tailed Godwit (*Limosa limosa*) [A156]					
			Bar-tailed Godwit (*Limosa lapponica*) [A157]					
			Curlew (*Numenius arquata*) [A160]					
			Redshank (*Tringa totanus*) [A162]					
			Black-headed Gull (*Chroicocephalus ridibundus*) [A179]					
			Common Gull (*Larus canus*) [A182]					
			Herring Gull (*Larus argentatus*) [A184]					
			Wetlands & Waterbirds [A999]					
Carlingford Lough	004078	17	Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]					
			Wetland and Waterbirds [A999]					
Stabannan-Braganstown	004091	14	Greylag Goose (*Anser anser*) [A043]					

3.5 In-combination effects

The applicant indicates that no other relevant known works are currently planned in close proximity to the proposed dredging works although does not provide a source for this information. However, the proposed minor works are proposed to be undertaken over a 10 year period and future proposed projects in the area should take this into account if a license is granted.

The DHLGH list of Foreshore Applications and Determinations for 2021 for County Louth[6] indicates three other projects of potential relevance where the potential for interaction should be considered:

- FS007197 UCD Soil and Vegetation Sampling - Dundalk Marshes
  Project includes the small-scale removal of soil samples and small quadrats of saltmarsh vegetation. Given the primarily terrestrial/intertidal location of the sampling, no potential for significant interaction with the maintenance dredging operation. No significant in-combination effects likely.
- FS007359 Drogheda Port Company - Maintenance Dredging Temporary Licence. Given the sporadic nature of the dredging operations for both ports, the temporary nature of the physical impacts from both activities e.g. sediment plumes (from the Drogheda dredging) with limited plumes associated with the Dundalk dredging as no at sea disposal, and the physical separation of the two dredging areas (*ca*. 30km), significant in-combination effects on Natura 2000 sites will not result. The applicant also indicates that the proposed dredge vessel also operates at Drogheda so there will likely be temporal separation between dredging activities at each port. No significant in-combination effects likely.
- FS007383 Oriel Windfarm Limited, Site Investigations for the proposed offshore Oriel Wind Farm. Given the physical separation between site investigation areas and dredging area and the location of the site investigation areas outside of Dundalk Bay SAC, no potential in-combination effects associated with habitat loss are likely. The maintenance dredging will be carried out by a single vessel within the navigation channel where existing vessel traffic occurs. The underwater noise associated with the limited and sporadic dredging works is estimated to be comparable to a single large vessel. Given the physical distance between the dredging area and the primarily offshore site investigation areas where geophysical surveys are proposed to be carried out, and the distance to the closest site with sensitive marine mammal qualifying interests (Rockabill to Dalkey Island SAC, harbour porpoise), no significant in-combination underwater noise effects are likely.

The applicant indicated that previously a foreshore licence was granted to Louth County Council for maintenance dredging at Annagasson Harbour which also lies within Dundalk Bay SAC and SPA, however, this harbour is approximately 14km from the dredge site so no in combination impacts are anticipated.

3.6 Transboundary effects

No transboundary effects were identified.

3.7 Screening conclusion

[6] https://www.gov.ie/en/collection/d81e9-foreshore-applications-and-determinations-2021/#louth

Finding of no significant effects statement:
SACs
LSE was discounted for all SACs considered relevant to the proposed works with respect to habitat loss effects. LSE was discounted for all SACs considered relevant to the proposed works with respect to water quality and habitat deterioration effects: LSE was discounted for all SACs considered relevant to the proposed works with respect to underwater noise and disturbance effects LSE was discounted for all SACs considered relevant to the proposed works with respect to aerial noise and visual disturbance effects LSE was discounted for all SACs considered relevant to the proposed works with respect to in-combination effects 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 habitat loss effects. LSE was discounted for all SACs considered relevant to the proposed works with respect to water quality and habitat deterioration effects: LSE was discounted for all SPAs considered relevant to the proposed works with respect to underwater noise and disturbance effects LSE was discounted for all SPAs considered relevant to the proposed works with respect to aerial noise and visual disturbance effects 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 SPA sites and their qualifying interests.
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.
Screening determination
SACs

It is accepted that likely significant effects can be discounted for the relevant sites and their qualifying interests and that Stage 2 Appropriate Assessment is not required.
SPAs
It is accepted that likely significant effects can be discounted for the relevant sites and their SCIs and that Stage 2 Appropriate Assessment is not required.

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