

DUBLIN PORT COMPANY

Dublin Harbour Capital Dredging
Application for Derogation under Regulation 54 European Communities
(Birds and Habitats) Regulations 2011



-Dublin Harbour Capital
Dredging
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REPORT

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1 BACKGROUND

The Dublin Port Masterplan 2040 was first published in 2012 and was reviewed in 2018. The Dublin Port Masterplan 2040 presents a vision for future operations at the Port in order to plan for sustainable growth and changes in facilitating seaborne trade in goods and passenger movements to and from Ireland and the Dublin Region in particular. The Masterplan is being implemented through a series of capital development projects.

The Alexandra Basin Redevelopment (ABR) Project is the first major strategic infrastructure development project from Dublin Port's Masterplan 2040, involving the construction of approximately 3km of quay walls, deepening of the harbour basin and channel to accommodate larger sea going vessels as well as works associated with the conservation of the port's Victorian industrial heritage. An Bord Pleanála (ABP) granted permission for the ABR Project on 8th July 2015 (Ref: 29N.PA0034) and works commenced in November 2016.

The MP2 Project is the second strategic infrastructure development project from the Masterplan. It focuses on the use of existing port lands at the eastern end of the North Port estate. When complete, it will provide additional capacity for almost one-third of the projected increases in Dublin Port's Ro-Ro and Lo-Lo traffic to 2040. An Bord Pleanála (ABP) granted Planning Permission for the MP2 Project 1 July 2020 (ABP-304888-19) and works commenced in 2022.

The third and final strategic infrastructure development project to complete the Dublin Port Masterplan 2040 is the 3FM Project, which is focused on developing additional port capacity on port owned brown-field lands on the Poolbeg Peninsula. An application for planning permission is currently lodged with ABP.

The Dublin Harbour Capital Dredging Project supports the Masterplan infrastructure projects by bringing forward key elements of the capital dredging works required to create the required depth of the navigation channel, basins and berthing pockets to allow for the safe passage and berthage of vessels of deeper draught expected to visit Dublin Port. Consent under Sections 3 and 10 of the Foreshore Act, 1933 (as amended) has been granted to Dublin Port Company by the Minister of Housing, local Government and Heritage for the purpose of these capital dredging operations (Ref: FS007164). The Foreshore Consent (Appendix 5) is granted with conditions attached and Condition 9 (Section 10) and Condition 31.8 (Section 3) state the following:

"The Consent Holder shall ensure that loading and dumping of dredge spoil shall not commence until the Consent Holder obtains a derogation under Regulation 54 of European Communities Birds and Natural Habitats Regulations 2011, as amended".

Regulation 54 provides for issue of a derogation licence in respect of compliance with the requirements of Regulations 51 (strict protection of Annex IV animals), 52 (strict protection of Annex IV Plants) and 53 (taking of Annex V fauna and flora).

Only the provisions of Regulation 51 are relevant to this derogation application. Strict protection as set out in Regulation 51 states that a person who in respect of the species referred to in *Part 1* of the *First Schedule*:

- (a) deliberately captures or kills any specimen of these species in the wild,
- (b) deliberately disturbs these species particularly during the period of breeding, rearing, hibernation and migration,
- (c) deliberately takes or destroys eggs of those species from the wild,
- (d) damages or destroys a breeding site or resting place of such an animal, or
- (e) keeps, transports, sells, exchanges, offers for sale or offers for exchange any specimen of these species taken in the wild, other than those taken legally as referred to in Article 12(2) of the Habitats Directive,

shall be guilty of an offence.

Regulation 51 applies to fauna listed in Part 1 of the First Schedule i.e. all species listed in Annex IV of the Habitats Directive. The Annex IV species that occur in Ireland's marine waters include:

- All Irish cetaceans (whales, dolphins, and porpoise);
- Eurasian otter; and,

- All marine turtles.

All species listed under Annex IV with the potential to be impacted by the Dublin Harbour Capital Dredging Project are assessed below. Ecological surveys have been undertaken to assess the local populations of these species, the locations frequented, and the frequency at which they occur, and the findings are presented below.

Strict protection of these species has been central to the planning, design and development of the Dublin Harbour Capital Dredging Project from its inception. Key relevant studies, and supporting environmental and ecological information that provide a basis for this proposal and decision making process, and on which the text draws heavily include:

- Dublin Harbour Capital Dredging Project – EIAR (Dublin Port Company, 2021a), attached as Appendix 1.
- Dublin Harbour Capital Dredging Project - Screening for Appropriate Assessment & Natura Impact Statement (Dublin Port Company, 2021b), attached as Appendix 2.
- Dublin Port Masterplan (including the 2018 review) and the related Strategic Environmental Assessment (SEA) and Natura Impact Statement (NIS) in conjunction with the Environmental Impact Assessment Report
- Alexandra Basin Redevelopment Management Plan (ABR) Strategic Environmental Assessment (SEA) and Natura Impact Statement (NIS) in conjunction with the Environmental Impact Assessment Report.
- MP2 Strategic Environmental Assessment (SEA) and Natura Impact Statement (NIS) in conjunction with the Environmental Impact Assessment Report
- Annex IV Risk Assessment – Dublin Harbour Capital Dredging Project Foreshore Consent Application Ref. No. FS007164. Report to Department of Housing, Local Government and Heritage. Hartley Anderson Ltd, August 2022, attached as Appendix 4.
- Harbour Porpoise SAC Survey (Berrow and O'Brien 2013)
- ABR & MP2 Marine Mammal monitoring surveys and reports (2016 – 2025)
- Ecological Survey for Otter and Badger (RPS, 2025a), attached as Appendix 7.
- Dublin City Otter Survey - An Action of the Dublin City Biodiversity Action Plan 2015-2020. Triturus Environmental Ltd. for Dublin City Council (August 2019)
- Marine Mammal Monitoring – Visual and acoustic monitoring in ABR and MP2 Dredging Campaign Reports (IWDG, 2016-2024)
- Strict Protection of Animal Species – Guidance for Public Authorities on the Application of Articles 12 and 16 of the EU Habitats Directive to development/works undertaken by or on behalf of the Public Authority. NPWS Guidance Series 2, 2021
- Guidance on the Strict Protection of Certain Animal and Plant Species under the Habitats Directive in Ireland. National Parks and Wildlife Guidance Series 1. DHLGH, 2021
- NPWS Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters – January 2014. DAHG, 2014
- Doyle, T.K. (2007). Leatherback Sea Turtles (*Dermochelys coriacea*) in Irish waters. Irish Wildlife Manuals No. 32. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland.

The proposal below follows the decision making process set out in NPWS Guidance on Strict Protection of Animal Species (2021):

- Stage 1 – Use of existing information to establish probability of the protected animal being present in the area affected by the works
- Stage 2 - Ecological Survey
- Stage 3 – Examination of impacts and satisfactory alternatives
- Stage 4 – Application for Regulation 54 Derogation Licence

2 STAGE 1 - USE OF EXISTING INFORMATION TO ESTABLISH PROBABILITY OF THE PROTECTED ANIMAL BEING PRESENT IN THE AREA AFFECTED BY THE DUBLIN HARBOUR CAPITAL DREDGING WORKS

2.1 Project Description

Dublin Port is the largest Port in Ireland. The Northern Lands and Southern Lands of Dublin Port (Dublin Port Estate) comprise an area of 265 ha of land entirely within the ownership of Dublin Port Company. The entire Port Estate comprises 309 ha, including the lands at the Dublin Inland Port.

The proposed Dublin Harbour Capital Dredging Project comprises capital dredging works within the Dublin Harbour area of Dublin Port. The proposed area to be dredged is in the western upstream section of the inner Port area, lying entirely within the Foreshore of the inner Liffey Channel between the Northern Lands of Dublin Port and the Southern Lands of Dublin Port (Figure 1). Until recently, Dublin Port's navigation channel and fairway was maintained to a standard depth of -7.8m CD. The main navigation channel between the Western Oil Jetty and Dublin Bay has now been deepened to -10.0m CD under the permitted Alexandra Basin Redevelopment (ABR) Project (ABP Ref. 29N.PA0034) to enable the safe passage of larger vessels bringing freight and passengers to and from the Port.

The proposed capital dredge area for which Foreshore Consent FS007164 has been granted (Appendix 5) subject to conditions, is defined by the 'red line' boundary illustrated in Figure 1. The site area is 27 ha (excluding the area of the licenced offshore disposal site).

As illustrated in Figure 1, the Dublin Harbour Capital Dredging Project consists of the following elements:

- Deepening of the navigation channel from -7.8m CD to -10.0m CD between the North Wall Quay Extension and the Western Oil Jetty, including deepening of riverside Berth 35 (Ocean Pier) to -10.0m CD and widened to 50m.
- Deepening of Alexandra Basin East from -7.8m CD to -10.0m CD with Berths 36 and 37 widened to 50m and Berths 38, 39 and 40 deepened to -11.0m CD and widened to 50m.
- Deepening of the Oil Basin from -7.8m CD to -10.7m CD with Berths OB1 and OB2 widened to 50m.
- Deepening of the Ferryport Basin from -7.8m CD to -10.0m CD.
- Widening of South Port Berths 42, 43, 44, 45, 46 and 47 to 50m.
- Removal of ridge between the navigation channel and the Poolbeg Oil Jetty (Berth 48) to -10.0mCD.

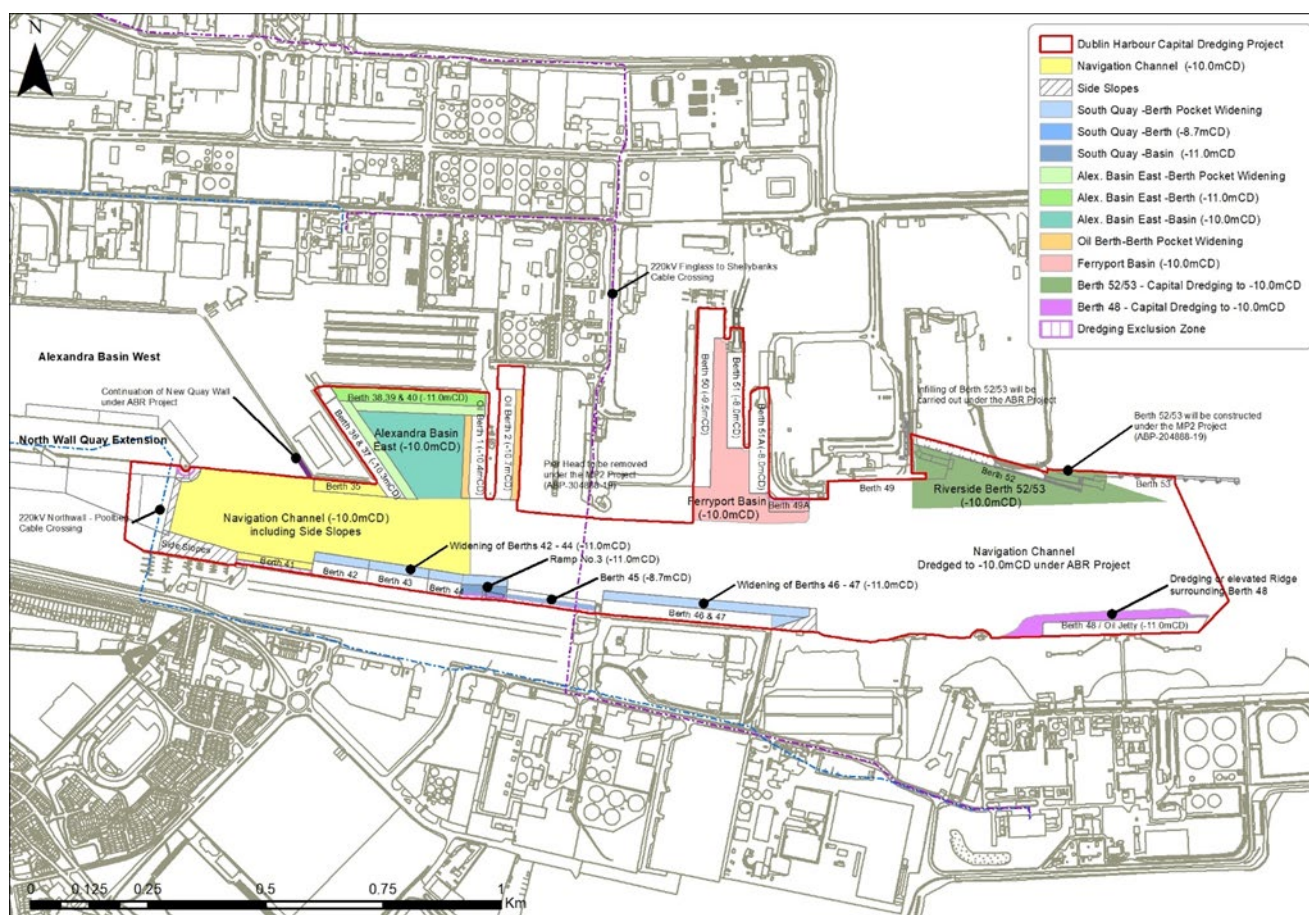


Figure 1 Dublin Harbour Capital Dredging Project Site Location Map

The total dredge volume is estimated to be 500,000m³. The material to be dredged comprises clays, silts, sands and gravels with occasional cobbles. No dredging of rock is required. Capital dredging operations will be restricted to the winter seasons (October to March) and be spread over a number of years. The Foreshore Licence (FS007164) has a term of 8 years from the date of execution, 13th December 2023. The EPA have also granted a Dumping at Sea Permit (Appendix 6) for the loading of dredge material from the inner Liffey channel (Dublin Harbour), including areas within Dublin Port's navigational channel, basins and berths, and dumping of this material at the established dumping site immediately west of the Burford Bank in Dublin Bay. The Dumping at Sea Permit (S0033-01) has an execution date of 17th Dec 2024, and ends 31st March 2030. This derogation application is aligned with the permitted periods.

The capital dredging works will be carried out using a trailing suction hopper dredger (TSHD) and/or a backhoe dredger. No overspill of the hopper will be permitted during the loading operations to minimise the amount of suspended solids within the River Liffey channel during the loading operations. When working within the navigation channel, the TSHD will also work in the direction of flow to avoid any potential of creating elevated levels of suspended solids across the River Liffey.

There will also be a requirement for a back-hoe dredger mounted on a barge to carry out small scale elements of the dredging works, notably for areas where the TSHD cannot reach or where the material is too stiff to be removed by the TSHD. This material is either pulled into the track of the TSHD for collection or loaded into a separate hopper barge which is taken directly to the licenced offshore site for disposal of the dredged material.

It is proposed to dispose of the dredge spoil at a licenced offshore disposal site located to the west of the Burford Bank at the approaches to Dublin Bay (Figure 2). A Dumping at Sea Permit (S0033-01) has been granted by the EPA for this activity. All capital dredging operations will take place within the period October to March inclusive.

The area potentially affected by the Capital Dredging Project is therefore taken to be Dublin port inside the north and south Bull Walls, and the area of the dump site in Dublin Bay.

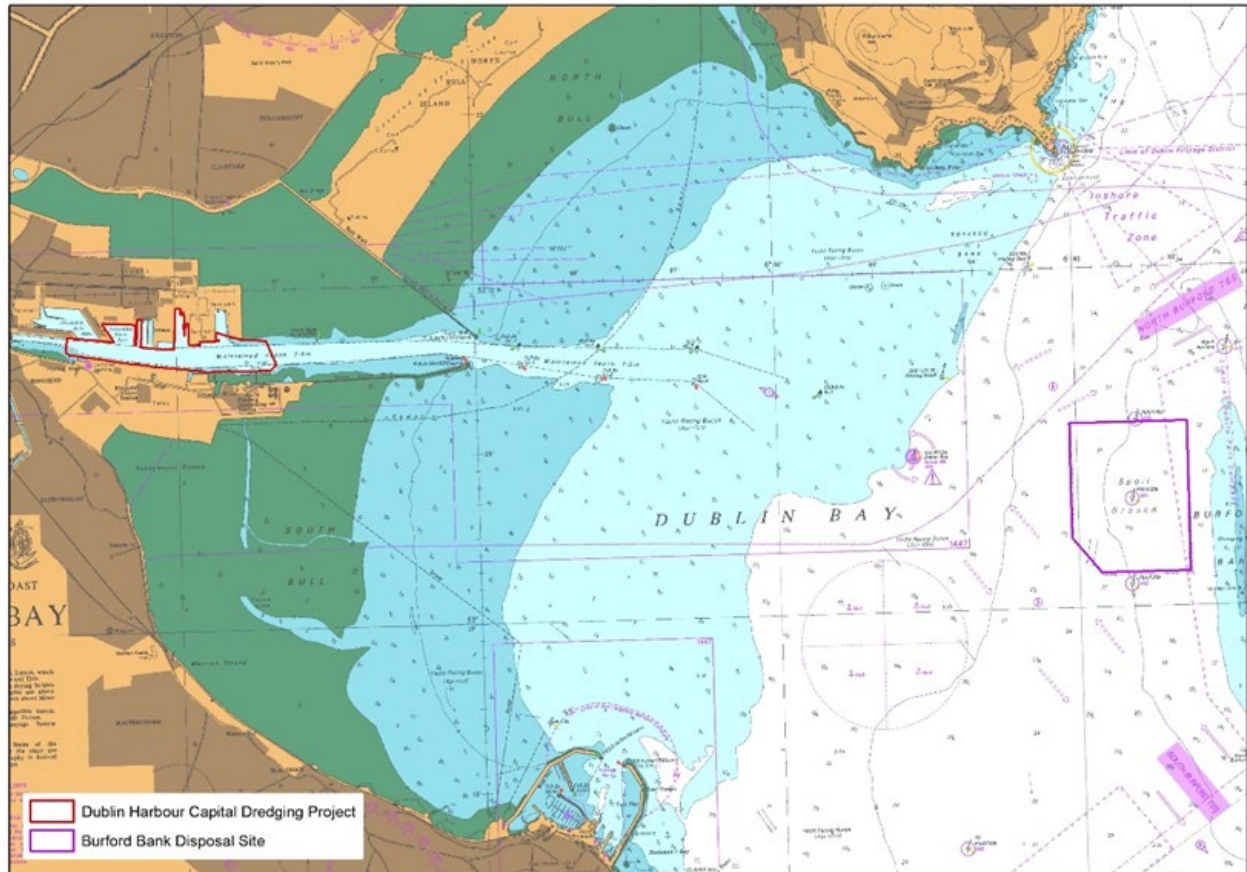


Figure 2 Location of Licenced Spoil Grounds at Burford Bank

2.2 Probability of Annex IV Species being present

A preliminary assessment of the probability of Annex IV species being present in the zone of influence of the proposed Dublin Harbour Capital Dredging works was made to identify species for bringing forward in the risk assessment. All species listed under Annex IV with the potential to be impacted by the capital dredging works were assessed, including all Annex IV marine species:

- Eurasian otter,
- All Irish cetaceans (whales, dolphins, and porpoise) and,
- All marine turtles.

The following sources were consulted during the desktop review:

- Irish Whale and Dolphin Group Sightings Log <https://iwdg.ie/browsers/sightings.php/>;
- Distribution records for Annex IV species held online by the National Biodiversity Data Centre (NBDC) www.biodiversityireland.ie;
- NPWS (2019) The Status of EU Protected Habitats and Species in Ireland. Volume 3: Species Assessments. Unpublished Report, National Parks and Wildlife Service. Department of Culture, Heritage and the Gaeltacht, Dublin; and
- Previous survey reports and literature reviews specific to Dublin Harbour and Coastal area as cited.

Otter

Otter (*Lutra lutra*) has been recorded in the port area, although the area has been ranked poorly in terms of frequency of otter signs and activity by comparison with upstream catchments (Macklin *et al.*, 2019; RPS, 2025a). It does not occur at the offshore dump site at Burford Bank.

Otter has been included in the Annex IV risk assessment below.

Cetaceans

Dolphins, whales and porpoises (cetaceans) are all listed in Annex IV of the Habitats Directive. Of the 27 species of cetacean recorded to date in Ireland, four occur regularly within or adjacent to Dublin Bay: the harbour porpoise (*Phocoena phocoena*); bottlenose dolphin (*Tursiops truncatus*); minke whale (*Balaenoptera acutorostrata*); and common dolphin (*Delphinus delphis*). Of these only harbour porpoise and bottlenose dolphins regularly come into Dublin Bay (RPS, 2024; IWDG, 2023). Harbour porpoise is the most consistently reported cetacean species observed during the maintenance and capital dredging programmes associated with Dublin Port since 2017. It has been sighted in the Liffey estuary sporadically. Other species, such as humpback whale (*Megaptera novaengliae*) and killer whale (*Orcinus orca*), are occasionally recorded off the Dublin coastline.

Cetaceans have been included in the Annex IV risk assessment below.

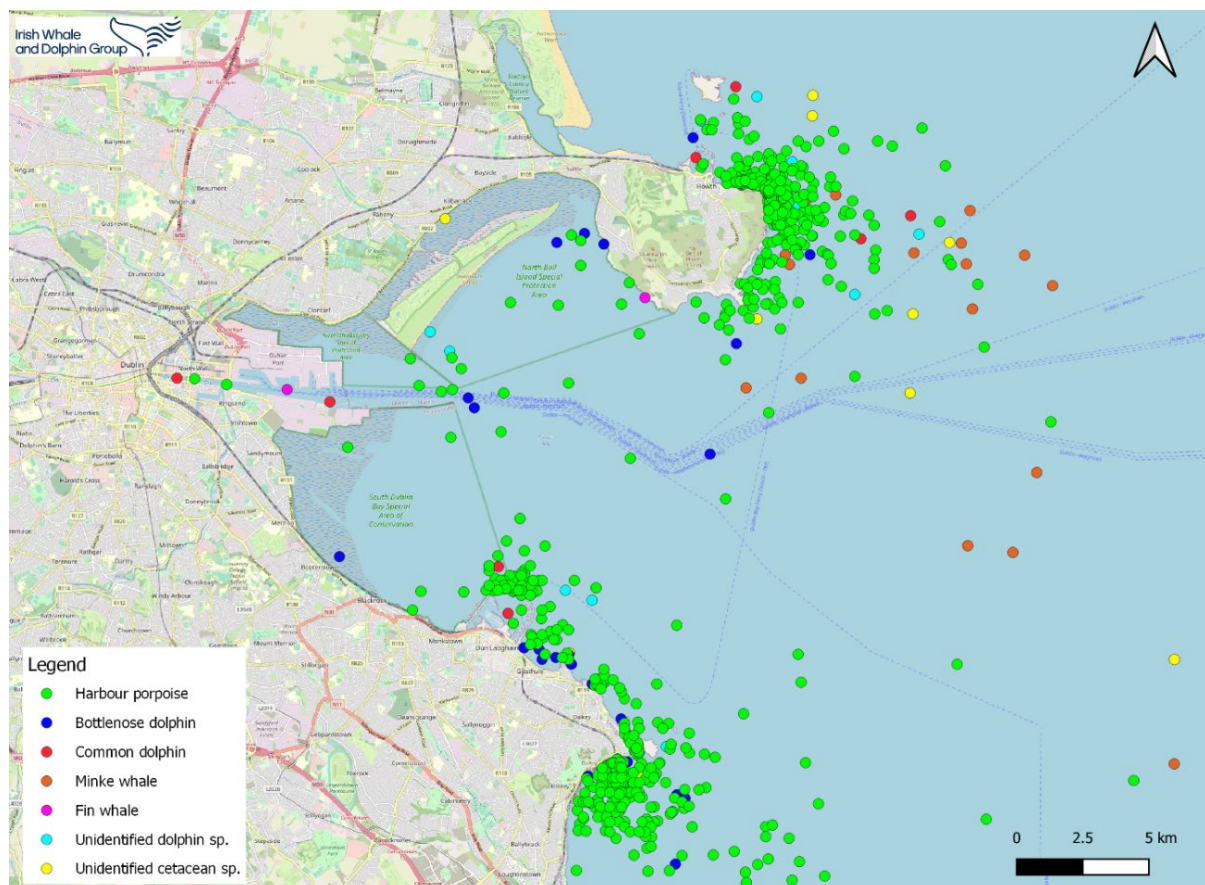


Figure 3 Cetacean sightings Dublin Bay and Coastal Waters 2013-2023 (IWDG, 2023)

Marine Turtles

Five species of marine turtle have been recorded in Irish waters (King and Berrow 2009; Botterell *et al.*, 2020) including: Leatherback (or Leathery) turtle (*Dermochelys coriacea*), loggerhead (*Caretta caretta*), Kemps Ridley (*Lepidochelys kempii*), Hawksbill (*Eretmochelys imbricata*) and green turtle (*Chelonia mydas*).

Hawksbill and Green turtle are very rare and no sightings have been recorded in the Irish Sea (Biodiversity Maps, <https://maps.biodiversityireland.ie/Map>, accessed May 2025). Kemps Ridley has not been recorded in the Irish Sea in the past 25 years, and Loggerhead has only been recorded on three occasions in that period, one of these records being a dead individual at Kilbarrack Strand in Dublin Bay in 2004.

Only one marine turtle is regularly observed in Irish waters, the leatherback turtle (*Dermochelys coriacea*). Sightings of leatherbacks can occur anywhere in Irish coastal waters, but are more likely to occur in higher numbers off the south and west coasts of Ireland. It is most commonly recorded in the boreal summer months (Botterell *et al.*, 2020). Transient and foraging individuals occur in Irish waters, but breeding grounds are in warm tropical waters. Abundance estimates in Irish waters are difficult but numbers may be extremely low, and the species may be less numerous in the Irish Sea (Doyle, 2007). Leatherbacks are generally present during summer months, peaking in August when water temperatures are higher, and therefore highly unlikely to be present during capital dredging campaigns. In the 25 year period since 2000, the National Biodiversity Data Centre has only five records of *Dermochelys coriacea* between Wicklow Head and Dundalk, and none of these occur in the proposed dredging or spoil disposal area, or in Dublin Bay. All five species of marine turtles reported in Ireland are listed on Annex IV of the EU Habitats Directive. However, given the rarity of their occurrence they not been taken forward for further consideration in subsequent stages of this assessment.

Marine turtles have not been included in the Annex IV risk assessment below.

Therefore, in summary, information suggests that within Dublin Port there is a possibility of otter and harbour porpoise being present. There is also a possibility of harbour porpoise and other species of whale and dolphin being present at the dump site at Burford Bank. Further details of ecological surveys undertaken to assess the local populations of these species, the locations frequented, and the frequency at which they occur, are summarised below.

3 STAGE 2 – ECOLOGICAL SURVEY

3.1 Ecological Surveys

Annex IV species that are afforded strict protection and that have been identified above as potentially being present in the project area are considered below. These include Otter, Whales and Dolphins, and Harbour Porpoise.

3.1.1 Otter

Otter (*Lutra lutra*) occurs throughout Ireland (NPWS, 2019) and is found along rivers, lakes, and coasts, where fish and other prey are abundant, and where the bank-side habitat offers plenty of cover. The otter is an opportunistic predator with a broad and varied diet. They have diverse habitat preferences: lakes, canals, riverine (streams up to major river systems) marshland and estuaries. Otters that live nearer to the coast tend to require access to freshwater for bathing purposes, while any aquatic environment which has nearby vegetation or rock cover will be used by otters (NPWS, 2019).

Although otters are a mobile species, they have defined territories. Females have territories of 7.5 ± 1.5 km in length along a riverine environment and 6.5 ± 1.0 km in coastal environments, while male otter territory along rivers is approximately 13.2 ± 5.3 km in length with a high degree of variability (Reid et al., 2013).

The main threats to otter include pollution, particularly organic pollution resulting in fish kills; and accidental deaths, e.g., road traffic and fishing gear (NPWS, 2019). The most recent Article 17 conservation assessment for otters in Ireland deemed the species as being in favourable conservation status (NPWS, 2019).

Otter is not a Qualifying Interest in any of the SACs within the Dublin Harbour Capital Dredging Project zone of influence, but does occur in the Dublin Port area.

Otter Surveys carried out for Dublin City Council's Dublin City Otter Survey, 'An Action of the Dublin City Biodiversity Action Plan 2015-2020' covered habitats along 44.7km of the Dublin City coastline, including Dublin Port (Macklin et al., 2019). Spraints were identified on quay steps near Poolbeg Lighthouse, but surveys failed to identify any otter signs on North Bull Island and throughout much of Dublin Port and Merrion Strand. Three holts were recorded in secluded areas of the Tolka Estuary to the north of Dublin Port, one of which was inactive. The port area was typified by low levels of otter seclusion due to high levels of human activity. The low frequency of otter signs in the port and surrounding coastal habitats ranked near the bottom of areas surveyed for otter signs/activity.

A number of recent ecological surveys have also been undertaken for Otter in the Dublin Port area; between June 2022 and February 2023; in April 2023; between January and May 2024; December 2024, January 2025; February 2025 (Appendix 7), and June 2025 (Dublin Port Company, 2022a; RPS, 2025a, ABR2 Scoping EIAR citation). The area surveyed covers almost the entirety of the Dublin Port estate and additional coastal areas on the southern Poolbeg peninsula. Surveys recorded the locations of otter holts, couches, slides, spraints, paths, and feeding sites, and included a boat survey in January 2025.

Evidence for presence of otter has been documented by way of holts, couches, spraints and occasional sightings. Figure 3 shows the locations of holts/couches and spraints identified in recent surveys and anecdotal indications of presence (RPS, 2025a). Of the holts identified, only one holt on the northern boundary of the Port estate in Tolka Estuary, was found to be active in January 2025 (a single male otter recorded on trail-cam), although no evidence of otter utilising the site was found during the survey in June 2025. No evidence of natal holts was found. Occurrence of spraints and reported anecdotal sightings suggest some otter activity throughout the port area. Significant predation by an otter at the nesting tern colony on the CDL Dolphin in the Liffey channel was recorded on trail-cam in 2021, resulting in no Common or Arctic Tern chicks fledging that season, and required predation preventative measures by placement of climb-proof metal bands around predator access points (Boland et al, 2022).

In coastal areas, otters usually alternate between marine and freshwater habitats (Macklin et al., 2019), and require sources of freshwater to wash saltwater off their coats prior to resting in their coastal holts. The River

Dodder/Grand Canal, and the River Tolka are the nearest freshwater sources to potential Holts 1 and 2, with an approximate separation distance of 3 km. These sources of freshwater are not realistically connected to potential holt locations over land, and therefore it is considered that the holts are likely to act as short-term resting holts or couches only. They are not suitable for breeding or natal purposes (RPS, 2025a). It is highly likely that any otters frequenting the Port area of the Liffey are based in holts located within freshwater rivers such as the Dodder and Tolka, and potentially further upstream in the Liffey.

Typically, otter resting sites are in places where the risk of direct physical disturbance is low (Chanin, 2003). The areas along the Dublin Port Estate coastal boundaries and berms are typically busy locations, likely with too much human/industrial activity for long-term otter holting. The waterside environment along much of the Port is comprised of vertical quay walls, mainly constructed from stone or concrete. There were very few crevices or cavities in these vertical structures which would be suitable as otter resting places. Cavities were shallow and located below the highwater mark, and therefore would be inundated for periods of the day and not suitable for otter holting. Anecdotal observations suggest that some locations sufficiently removed from port activity may provide opportunistic above ground resting locations (couches) for short periods.

Therefore, evidence suggests that while Dublin Port area is frequented by otters, presence is low by comparison with other upstream areas. Resting places are sporadically used and infrequent, and there is no evidence of natal holts in the area.



Figure 4 Locations of otter holts, spraints and sightings in Dublin Port during recent surveys

Potential impacts and suitable alternatives are considered below in relation to otter presence in Dublin Port. Otters do not occur at the offshore spoil disposal site which is 6.75km east of the harbour mouth.

3.1.2 Cetaceans

Dublin Port Company's Dublin Harbour Capital Dredging Project EIAR (2021a) has presented an ecological impact assessment for marine mammals (Section 7.2). Relevant details are presented here. A variety of

whale, dolphin and porpoise species regularly occur in Dublin Bay and along the Dublin coast. All these cetaceans are entitled to strict protection under EU legislation (Annex IV of the EU Habitats Directive).

Only harbour porpoise (*Phocoena phocoena*) is known to occasionally occur within the port area. This has been confirmed by sightings during Marine Mammal (MM) watches as part of Dublin Port Company dredging and construction activities. MM Watches for capital dredging campaigns between 2017 and 2022 have reported just over 1,000 sightings of marine mammals (including seals). Of these only 9 sightings of harbour porpoise have been recorded in the Port area i.e. inside the north and south Bull Walls.

3.1.2.1 Whales and Dolphins

A number of whale and dolphin species occur off the Dublin coast. The Irish Whale and Dolphin Group (IWDG) have co-ordinated a Cetacean Sighting Scheme since 1991, which validates and logs all cetacean sightings available. This IWDG database was used to prepare cetacean distribution maps for the EIAR assessment (EIAR Section 7.2).

Bottlenose dolphin and minke whale are frequently recorded in, or adjacent to Dublin Bay. Bottlenose dolphins have been reported throughout the year, though mainly in the summer and from all along the coast, but mainly off Howth Head and especially from Dún Laoghaire and south to Wicklow. Most sightings are of small groups though occasionally large groups of greater than 20 dolphins occur but usually only for short periods. A small group of 3 individual bottlenose dolphins frequented Killiney Bay from August 2010 to August 2012. Bottlenose dolphins off Dublin are part of the highly mobile coastal population which has been recorded all around the Irish coast and some individuals reported off Scotland (O'Brien *et al.*, 2009; Robinson *et al.*, 2012). Surprisingly, there was no evidence of movement between the east coast of Ireland and Wales, which holds a large number of this species. This highly mobile Irish coastal population is thought to number between 200-400 individuals.

Risso's dolphin were regularly recorded to the south of Dublin Bay, in the spring and early summer for a number of consecutive years from 1999 to 2006 but have not been recorded regularly since 2013. They were likely part of a wider Irish Sea population whose occurrence is associated with the presence of squid, which may be an unpredictable food source.

Minke whales occur seasonally, especially off north County Dublin from Howth Head to Lambay Island and on the Kish Bank. They are usually solitary but up to 5 have been seen foraging in the same area at any one time.

Common dolphin and humpback whales have also been recorded. Common dolphins are thought to be more abundant in the Irish Sea in the summer and tend to occur further offshore than bottlenose or Risso's dolphins. They have been recorded from Rockabill to Dun Laoghaire. Single humpback whales were recorded in July for two consecutive years in 2010 and 2011 off north Dublin and are thought to be increasing in number in Irish coastal waters, suggesting they may be more frequently observed off Dublin in future years.

3.1.2.2 Harbour Porpoises

Harbour porpoise (*Phocoena phocoena*) are widespread around the Irish coast (Wall, D. *et al.*, 2013), and the Celtic and Irish Seas Management Unit (CIS MU) is recognised for the management of harbour porpoise in Celtic and Irish waters (IAMMWG, 2023). Abundance of harbour porpoise in the CIS MU is estimated at 62,517 animals (IAMMWG, 2023).

Cetaceans rarely occur within Dublin Port harbour area. During marine mammal monitoring for dredging and construction campaigns since 2017, harbour porpoise is the only cetacean that has been recorded to occur in Dublin Port, and only on seldom occasions. Marine Mammal Watches carried out for dredging campaigns since 2017 have recorded over 1,000 sightings of marine mammals, of which only 9 sightings of harbour porpoise were in the Port harbour area (ABR & MP2 Projects Environmental Monitoring Reports Year 1 to Year 8: 2017 to 2024).

The Rockabill to Dalkey Island SAC (003000) lies to the east of Dublin Port and includes harbour porpoise as a qualifying interest. The licensed dredge spoil disposal site lies within the Rockabill to Dalkey Island SAC but

comprises less than 1% of the SAC area. In 2024, the Codling Fault Zone SAC (003015) was amended to add harbour porpoise as a qualifying interest. It is located approximately 24km east of Howth Head, Co. Dublin within the Irish Sea.

Dedicated harbour porpoise surveys off County Dublin were first carried out in 2008, when a density of 2.03 porpoises/km² in North County Dublin, and 1.19 Porpoises/km² in Dublin Bay were estimated (Berrow *et al.*, 2008). Subsequent to SAC designation as the Rockabill to Dalkey Island SAC in 2011, surveys of the site were carried out in 2013 and 2016 and yielded density estimates of 1.44 and 1.55 porpoises/km² respectively (Berrow and O'Brien 2013; O'Brien and Berrow 2016). Calves consistently accounted for around 7% of the porpoises surveyed. These figures equate to abundance estimates of between 391 and 424 in Rockabill to Dalkey Island SAC and 138 in Dublin Bay. They confirm that Dublin Bay, and especially North County Dublin, provide some of the most important habitats for harbour porpoise in Ireland. This is reflected in the frequency of harbour porpoise sightings in Dublin Bay during dredging campaign MM watches, typically running at 25% to 30% of MM sightings outside the port area.

Dublin Port Company marine mammal monitoring programmes have led to a significant increase in our knowledge of harbour porpoise in Dublin Harbour, Dublin Bay and in the surrounding area. In addition to visual monitoring, a programme of continuous static acoustic monitoring (SAM) in several locations at the spoil grounds, and at a control location in Scotsmans Bay has been in place since 2017.

SAM is independent of weather conditions once deployed and thus ensures high quality data is collected but only at a small spatial scale. SAM can distinguish porpoise vocalisations from dolphin, and can also identify feeding buzzes which can provide information on feeding rates. The SAM data has been analysed to determine the influence of seasonal, diel and tidal patterns on porpoise occurrence at the monitoring sites.

SAM has only rarely indicated the presence of dolphin at the spoil grounds. However it shows that harbour porpoise are continuously present at the spoil grounds (almost 100% of monitoring days). There was a clear increase in detections during the winter months while dredging operations were ongoing. This was consistent across numerous dredging campaigns, and suggests that there has been no displacement of porpoise from the spoil grounds during disposal of dredged spoil. The highest presence was detected at all locations during the winter months, during the hours of darkness (including dusk), and across a range of tidal cycles and phases (RPS, 2024).

Results of visual and acoustic monitoring show that harbour porpoise do not use the immediate port area and are rarely recorded inside the harbour.

Potential impacts and suitable alternatives are considered below in relation to whales, dolphins and porpoises at the spoil grounds, and in relation to harbour porpoise presence in Dublin Port.

4 STAGE 3 – CONSIDERATION OF ALTERNATIVES

Ecological survey work has determined that Annex IV species are present in the project zone of influence. The likely impacts of the works are examined to see if those impacts can be avoided, through the design of the works, or through satisfactory alternatives that will not impact on the Annex IV species. A satisfactory solution is one which addresses the project needs while protecting the species at the same time.

This section sets out the alternatives considered in selecting the final option for implementing the Dublin Harbour Capital Dredging Works Project, and why the derogation sought is the only available option for works and no suitable alternative exists as per Regulation 54 of the European Communities (Birds and Natural Habitats) Regulations. It considers the impacts of the selected option on Annex IV species and the mitigation measures proposed to minimise any impact.

4.1 Alternatives

Assessment of reasonable alternatives is mandatory under the EIA Directive and is addressed in Chapter 4 of the Dublin Harbour Capital Dredging Project EIAR (Appendix I). The process allows for adjustment to minimise environmental impact thus minimising project significant effects on the environment. Satisfactory alternatives are those which allow project implementation while protecting Annex IV species at the same time.

The Dublin Harbour Capital Dredging Project forms an essential component of the Dublin Port Masterplan 2040, reviewed 2018, facilitating development of port infrastructure to meet the demands of the national economy and the safe passage of vessels through the port. Strategic level alternatives have been considered from the outset in the preparation of Dublin Port's Masterplan, reviewed 2018 to minimise environmental impacts and are presented in the relevant EIAR and SEA. Only Dublin Harbour Capital Dredging Project level alternatives are considered here.

The assessment of alternatives for the Dublin Harbour Capital Dredging Project has been undertaken in accordance with the following guidance documents:

- The EU Commission's Environmental Impact Assessment of Projects Guidance on the Preparation of the Environmental Impact Assessment Report (Directive 2011/92/EU as amended by 2014 /52/EU)
- The EPA's Advice notes on Current Practice (in the preparation of Environmental Impact Statements) and The Draft Guidelines on the information to be contained in Environmental Impact Assessment Reports (EIARs) (EPA, 2017)
- The Department of Housing, Planning and Local Government Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment August 2018.

The DHPLG Guidelines state that the EIA Directive requires that an EIAR includes *"a description of the reasonable alternatives studied which are relevant to the project and its specific characteristics"*. This *"must also indicate the main reasons for the option chosen taking into account the effects of the project on the environment The type of alternatives will depend on the nature of the project proposed and the characteristics of the receiving environment It is generally sufficient for the developer to provide a broad description of each main alternative studied and the key environmental issues associated with each. A 'mini-EIA' is not required for each alternative studied."*

Assessment of alternatives includes consideration of the avoidance, prevention, reduction, or offsetting of adverse environmental effects, which may be described at a number of levels including:

- those assessed at plan stage (which the EU guidance states *"it would likely be unnecessary to consider them again"*) and
- those assessed at design stage (which the EU guidance describes as *"alternatives or variants of Project components in order to mitigate significant environmental impacts that emerge during assessment"*).

The Dublin Harbour Capital Dredging Project brings forward for consent key elements of the capital dredging works required to create the required depth of the navigation channel, basins and berthing pockets as set out in the Dublin Port Masterplan 2040, reviewed 2018. The location, size and scale of the required capital

dredging is determined by the existing port infrastructure and consented port Infrastructure under the ABR Project and MP2 Project.

Alternatives are considered here specifically in relation to Annex IV species, and satisfactory alternatives are those which allow project implementation while also protecting Annex IV species. Impacts on marine mammals under consideration here i.e. cetaceans and otter, during dredging works may arise due to underwater noise generation, collision with vessels, and silt plume formation.

Potential for disturbance to Annex IV marine mammals occurs when underwater noise levels are elevated. Marine mammals, especially cetaceans, have well developed acoustic capabilities and are sensitive to sound at much higher frequencies than humans (Richardson *et al.* 1995). They are less sensitive to the lower frequencies but there is still great uncertainty over the effects of sound pressure levels on marine mammals and thus the assessment of its impact. Sources of noise include that generated by the vessel during dredging and transiting to and from the dump site, the noise generated by dredging and that generated during dumping.

Movement of project vessels within the port area and transiting to the dump site may cause risk of collision with marine mammals resulting in injury.

Loading and dumping of marine sediments will result in generation of silt plumes in the harbour and at the licensed dump site at Burford Bank.

The project level design and technology evolution focussed on alternatives for the loading and disposal stages taking into account the following key factors:

- Dredging methodology; and
- Environmental impacts.

The following alternatives considered relate to not implementing the Dublin Harbour Capital Dredging Project (Do-Nothing Scenario), and a range of sediment loading and disposal methodologies.

4.1.1 Do-Nothing Scenario

The proposed capital dredging is required to achieve the required charted depth of water within the navigation channel, basins and berths, as set out in the Dublin Port Masterplan 2040, reviewed 2018.

In the absence of the capital dredging works, port investment would fail to deliver the required increase in usage identified by the Masterplan.

The deepening of the navigation channel and basins is required for the safe passage of vessels entering and leaving the port, accommodating large vessels into the future.

The berthing pockets are required to provide sufficient depth of water at all stages of the tide, to vessels berthed at the Port. This is also essential for the safe and effective operation of the proposed port facilities. Should the pockets not be dredged to the required depths then this would result in the limited capacity of these berths to accommodate large vessels into the future.

The overall consequence of this is the port would fail to provide for future anticipated growth. This would have a critical impact upon national and regional economies, particularly by way of trade, employment and associated taxes for societal benefit. This in turn, will undermine the port's ability to contribute towards achieving the sustainable transport objectives of National Port Policy.

Additionally, the absence of the proposed capital dredging works would result in limits to future port investment resulting from a loss of predicted revenue following capacity constraints. This would inhibit the attainment of objectives specified within the Masterplan; including the integration of the port with the city, by way of the promotion of sustainable linkages, and the amelioration of the visual impact of the port upon its landward surroundings. It would further hinder the growth of the port's existing vessel operators and prohibit any potential for new operators from residing at the port as well.

The do-nothing scenario, i.e. the absence of Dublin Harbour capital dredging, is largely representative of existing activities already taking place within this location. Therefore this scenario will not impact upon the environmental factors such as biodiversity, flora and fauna, air and water quality etc at the site.

However, in the event that the Dublin Harbour Capital Dredging Project as proposed, with loading of sediments from Dublin Port and disposal of these sediments at Burford Bank, is not carried out, then the port would fail to provide for future anticipated growth. This would have a critical impact upon national and regional economies. This in turn, will undermine the port's ability to contribute towards achieving the sustainable transport objectives of National Port Policy, and limit future port investment and development as specified within the Masterplan.

This alternative is not satisfactory.

4.1.2 Loading Alternatives

Capital dredging is undertaken by experienced dredging contractors using specialist equipment to remove sediments from the seabed to achieve the required design depth of water. This dredging operation is known as 'Loading' in accordance with the Dumping at Sea Acts 1996 to 2010.

There are a number of alternative methods of undertaking the loading process.

- **Mechanical Dredging**
 - Backhoe dredger - uses an open-faced excavator bucket to pick up sediment.
 - Bucket-ladder dredger - picks up sediment using many circulating buckets attached to a wheel chain.
 - Clamshell dredger - picks up sediment with a "clamshell" bucket, operated by a crane or fixed-arm excavator.
 - Plough dredger - blade pulled behind a suitable vessel.
- **Hydraulic Dredging**
 - Trailing suction hopper dredger - sucks up the sediment as a slurry which is held in a ship (hopper).
 - Pipeline dredger - sucks up the sediment slurry and pumps it through a pipeline directly to its destination.
 - Injection dredger – water jets fluidise the sediment and it flows under gravity to settle in deeper water.

4.1.2.1 Assessment of mechanical dredging options

Of the alternative mechanical dredging options, a Backhoe dredger is preferred over a Bucket-ladder dredger or Clamshell dredger because it is better suited to remove stiff material which is likely to be encountered at the lower dredged depths (gravels and stiff clays) at this site and more mobile to allow the dredger to move a safe distance from vessels operating at the port.

A Plough dredger would not be suitable at this site on environmental grounds. This is because it has the potential to release large volumes of sediment into the water column which could settle in the adjacent South Dublin Bay and Tolka Estuary SPA. This alternative is not satisfactory.

The Backhoe dredger usually operates with an adjacent Hopper Barge. The Backhoe dredger loads the dredged sediment into the Hopper Barge and is exchanged for an empty barge when filled. The Hopper Barge transports the dredged material to its final destination.

4.1.2.2 Assessment of hydraulic dredging options

Of the alternative hydraulic dredging options, a Trailing Suction Hopper Dredger (TSHD) is the preferred option. A TSHD is a self-propelled, fully contained vessel which uses a drag head to pump dredged sediment directly into a hopper. When the hopper is full, the TSHD transports the dredged material to its final destination.

A Pipeline dredge is not suitable due to the distance between the loading area and the final destination at this site (the licensed disposal site at Burford Bank). This alternative is not satisfactory.

Injection dredging also would not be suitable at this site on environmental grounds. This is because it has the potential to release large volumes of sediment into the water column which could settle in the adjacent South Dublin Bay and Tolka Estuary SPA. This alternative is not satisfactory.

4.1.2.3 Loading Final Design

Further to the assessment of mechanical and hydraulic dredge options, the final design comprises the following:

- Use of a Backhoe Dredger and/or a Trailing Suction Hopper Dredger (TSHD).

A TSHD requires to work in straight lines with sufficient water depth and access to be able to operate. A TSHD often works in conjunction with a Backhoe dredger to reach areas in confined spaces. Other ancillary vessels include the following:

- Survey vessel; and
- Bed Leveller to flatten the peaks and troughs created by the main dredger.

Mitigation measures include not permitting over-spill whilst loading within the inner Liffey channel (Dublin Harbour). The quantity of dredged material entering the water column as a sediment plume is therefore expected to be similar for both types of dredger. Monitoring undertaken during the ABR and MP2 Projects has shown that loading operations within Dublin Harbour have had no significant impact on water quality (RPS, 2024).

It is therefore proposed that both a TSHD and a Backhoe Dredger will be used for the loading operations in different parts of the overall project but with no difference in environmental impact. This is the only satisfactory alternative.

4.1.3 Disposal and Re-use Alternatives

The Dublin Harbour Capital Dredging Project will require the disposal of 500,000m³ of marine sediments. The marine sediments comprise a mixture of clay, silt, sand and cobbles. No rock will be dredged.

A chemical sediment and eco-toxicological sampling and analysis programme, described in Chapter 8 of the Dublin Harbour Capital Dredging Project EIAR (Appendix 1), confirmed that the marine sediments have no biological effects and thereby suitable for disposal at sea.

The following disposal and re-use alternatives for the dredged marine sediments were considered:

- Do-Nothing Scenario;
- Beneficial Re-use;
- Disposal on Land;
- Incineration;
- Disposal at Sea.

4.1.3.1 Do-Nothing Scenario

The proposed capital dredging is required to achieve the required charted depth of water within the navigation channel, basins and berths as set out in the Dublin Port Masterplan 2040, reviewed 2018.

In the absence of the capital dredging works, port investment would fail to deliver the required increase in usage identified by the Masterplan.

The deepening of the navigation channel and basins is required for the safe passage of vessels entering and leaving the port, accommodating large vessels into the future.

The berthing pockets are required to provide sufficient depth of water at all stages of the tide, to vessels berthed at the Port. This is also essential for the safe and effective operation of the proposed port facilities. Should the pockets not be dredged to the required depths then this would result in the limited capacity of these berths to accommodate large vessels into the future.

The overall consequence of this is the port would fail to provide for future anticipated growth. This would have a critical impact upon national and regional economies, particularly by way of trade, employment and associated taxes for societal benefit. This in turn, will undermine the port's ability to contribute towards achieving the sustainable transport objectives of National Port Policy.

Additionally, the absence of the proposed capital dredging works would result in limits to future port investment resulting from a loss of predicted revenue following capacity constraints. This would inhibit the attainment of objectives specified within the Masterplan; including the integration of the port with the city, by way of the promotion of sustainable linkages, and the amelioration of the visual impact of the port upon its landward surroundings. It would further hinder the growth of the port's existing vessel operators and prohibit any potential for new operators from residing at the port as well.

The do-nothing scenario, in the absence of these elements, is largely representative of existing activities already taking place within this location. Therefore this scenario will not impact upon the environmental factors such as biodiversity, flora and fauna, air and water quality etc at the site.

In the event that Burford Bank is not used to deposit sediment from Dublin Port as part of the Dublin Harbour Capital Dredging Project, then there will be no significant environmental, social or economic consequences. Dredge disposal activities currently undertaken at Burford Bank, in relation to Dublin Port, will continue to take place in compliance with existing Foreshore Licences and Dumping at Sea Permits. The environmental, social and economic consequences of this will continue as they presently exist.

However, the absence of the Dublin Harbour Capital Dredging Project would have a critical economic impact thus undermining the Port's ability to attain the objectives specified within the Masterplan.

This alternative is not satisfactory.

4.1.3.2 Beneficial Re-use

The options for beneficial uses of the mainly sandy CLAY marine sediments to be dredged are limited. The potential uses for the dredged marine sediments are:

- Engineering Uses
 - Using the dredged material as construction material
 - Beach Nourishment
 - Land Creation/Reclamation/Capping as part of port development
 - Flood and coast protection (above the level of mean high water springs)
- Environmental Enhancement
 - Wetland Habitat Creation/Enhancement
 - Sediment Cell Maintenance

- **Agricultural Uses**
 - Improve land of poor agricultural quality.

Engineering Use - Construction Material: The physical characteristics of the sandy CLAY which makes up the dredged marine sediments renders them unsuitable for forms of engineering works, other than for reclamation purposes which is discussed later. This alternative is not satisfactory.

Engineering Use - Beach Nourishment: Beneficial re-use of the dredged marine sediments was considered for beach re-nourishment, particularly at sites along the northern shoreline of Dublin Bay where erosion is taking place. However, the grading of the marine sediments to be dredged is too fine to be suitable for this type of use. This alternative is not satisfactory.

Engineering Use - Land Creation/Reclamation: Dublin Port Company is focussed on the redevelopment of brown-field sites within the Dublin Port Estate. Consequently, there is no further requirement for fill material within the Dublin Port Estate. This alternative is not satisfactory.

Engineering Use – Flood/Coastal Protection Works: Again, the physical characteristics of the sandy CLAY which makes up the dredged material makes them unsuitable for coastal protection works. This alternative is not satisfactory.

Environmental Enhancement - Wetland Habitat Creation/Enhancement: Fine dredge material can be used for habitat creation and re-nourishment projects such as mudflat recharge or salt marsh restoration. These types of projects however, typically require small quantities of sediment (e.g. 1,000m³ - 5,000m³) (UKMSAC, 2001). A search of the greater Dublin area did not identify any suitable sites for this type of beneficial re-use. This alternative is not satisfactory.

Environmental Enhancement - Sediment Cell Maintenance: The Dublin Harbour Capital Dredging Project has been designed to ensure that the sand and gravel fractions of the marine sediments to be dredged are not lost from the natural Dublin Bay sediment cell. The offshore disposal site to the west of the Burford Bank has been selected to keep the sands and gravels deposited at the site within the natural Dublin Bay sediment cell. Over time, the fine sand fraction will migrate from the site, particularly as a result of storm action, and will remain part of the natural coastal processes regime of Dublin Bay. The site is also dispersive with respect to silts and clays. Silts and clays deposited at the offshore disposal site will be dispersed in a north-south direction to the wider Irish Sea.

The use of this site to dispose of sand and gravel fractions as part of the Dublin Harbour Capital Dredging Project would result in no environmental impacts given its current use for this purpose under the ABR project. Whilst, the extent to which sand and gravel fraction are deposited within Burford Bank would be greater, this would have no discernible environmental impact within Dublin Bay or on the qualifying interests of the Rockabill to Dalkey Island SAC.

This has been identified as a feasible re-use option for the coarser portion of the dredged materials, as these will remain within the cell to replenish its coastal processes. It is a partial technology alternative as it is not suitable for the finer materials.

Agricultural Use - Improve land of poor agricultural quality: Again, the physical characteristics of the sandy CLAY which makes up the dredged material makes them unsuitable for agricultural use. This alternative is not satisfactory.

Beneficial re-use forms a partial technology suitable for the coarser portions of the dredged materials through Environmental Enhancement - Sediment Cell Maintenance technology.

4.1.3.3 Disposal on Land

This disposal option would require the dredger to bring the dredge spoil ashore, either by barge or by pumping. The material would then be temporarily stored in a designated hard standing or lagoon area to allow for dewatering/drying before subsequent transfer by road to a landfill site.

Even following a period of settlement, the dredged sediment would be likely to be considered a wet material for the purposes of land-filling. Landfill space is in very short supply and it is often the case that landfill sites are only licensed to receive relatively small volumes of wet waste (e.g. 500m³) per week. Due to the large quantity of material arising from the dredging activities, this option is considered to be unfeasible on a technical basis.

This alternative is not satisfactory.

4.1.3.4 Incineration

There are no suitable incineration facilities in Ireland capable of accepting the proposed type or quantity of dredge spoil. The dredge spoil would therefore need to be transported to mainland Europe. This option is considered to be unreasonable and has been ruled out due to prohibitive cost and having regard to the proximity principle.

This alternative is not satisfactory.

4.1.3.5 Disposal at Sea

A chemical sediment and eco-toxicological sampling and analysis programme (described in Chapter 8 of the EIAR) confirmed that the marine sediments can be classified as Class 1 (uncontaminated, no biological effects likely) in accordance to the Guidelines for the Assessment of Dredge Material for Disposal at Sea (Marine Institute, 2006). The dredged marine sediments are therefore suitable for disposal at sea.

The closest licenced offshore disposal site is located at the approaches to Dublin Bay to the west of the Burford Bank as presented in Figure 5. The site lies within the Rockabill to Dalkey Island SAC for which the qualifying interests are Harbour Porpoise and Reefs.

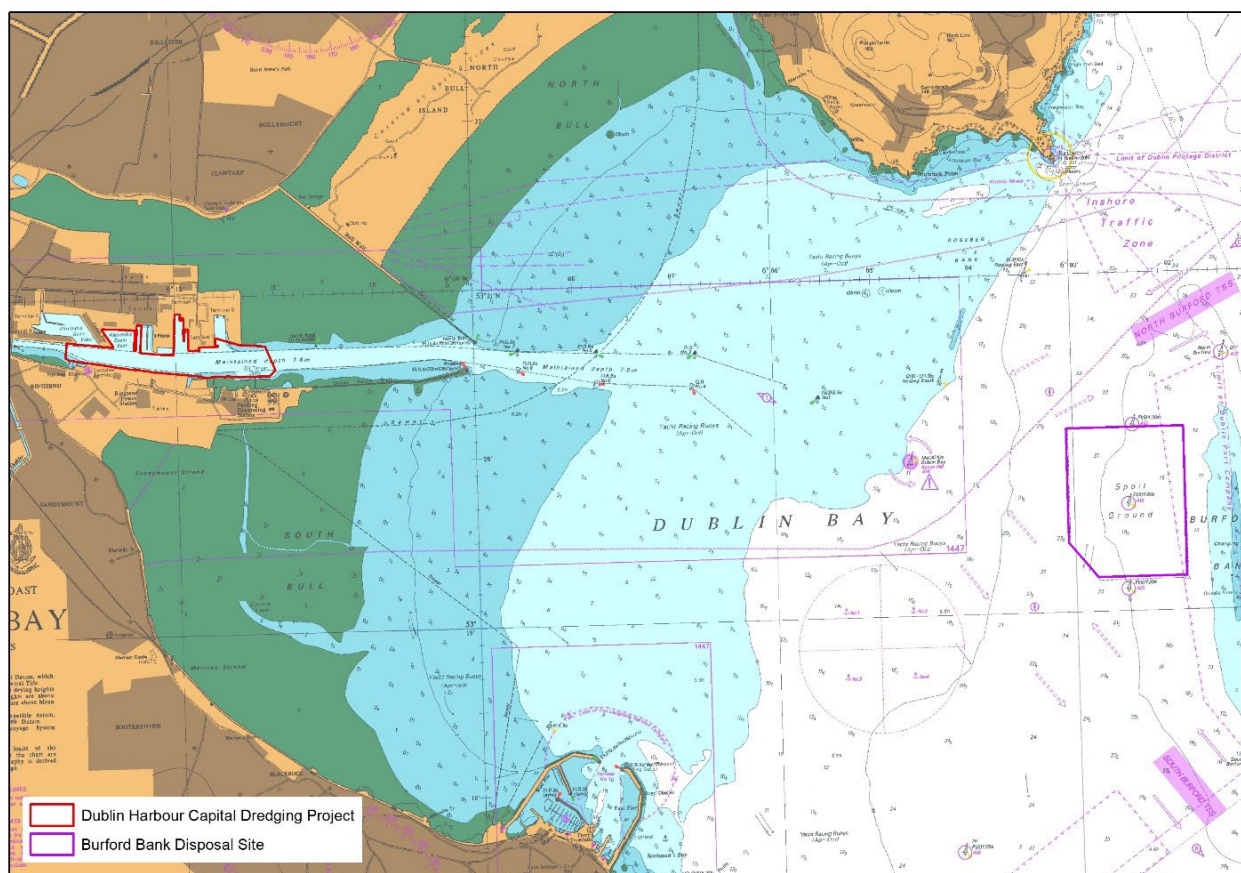


Figure 5 Location of the closest licenced offshore disposal site

This site is currently being used to dispose of dredge spoil arising from the ABR Project under Dumping at Sea Permit S0024-01 as granted by the EPA in September 2016. The site is also used by DPC for the disposal of dredge spoil arising from maintenance dredging. The site is similarly used for the disposal of dredged spoil from Dun Laoghaire and Howth Harbours.

As discussed under the technology of Environmental Enhancement - Sediment Cell Maintenance, the use of this site to dispose of sand and gravel fractions as part of the Dublin Harbour Capital Dredging Project would result in no environmental impacts given its current use for this purpose under the ABR project. Whilst, the extent to which sand and gravel fraction are deposited within Burford Bank would be greater, this would have no discernible environmental impact within Dublin Bay or on the qualifying interests of the Rockabill to Dalkey Island SAC.

Extensive environmental monitoring has been undertaken with respect to the dumping of dredged spoil from the ABR Project. The results of the monitoring undertaken during 2017-2020 are presented in the Annual Environmental Reports (AERs) which are available for download on the EPAs Website. During this period capital dredging took place within the inner Liffey channel and Dublin Bay and maintenance dredging took place within the inner Liffey channel including the Dublin Harbour Capital Dredging Project area.

The AERs concluded that measured turbidity results demonstrated that both the maintenance dredging campaigns and the ABR Project capital dredging campaign did not cause any discernible increase in turbidity above recorded background levels (see EIAR Chapter 9 Water Quality).

The environmental impact of dredging and the disposal activities is described in detail within the EIAR (see Chapter 7 Biodiversity, Flora and Fauna, Chapter 9 Water Quality, Chapter 12 Underwater Noise, Chapter 13 Coastal Processes and Chapter 14 Cultural Heritage). The assessments have concluded that disposal of the dredged marine sediments will have no discernible environmental impact within Dublin Bay or on the qualifying interests of the Rockabill to Dalkey Island cSAC.

The licenced offshore disposal site has been proven to be suitable for the safe disposal of dredge spoil arising from the Dublin Harbour Capital Dredging Project. The site also has the advantage that it is dispersive for clays and silts but sands and gravel are retained within the natural Dublin Bay sediment cell (see section on Environmental Enhancement - Sediment Cell Maintenance above).

There are no other licenced offshore disposal sites within the Greater Dublin Bay Area. The opening of a new disposal site further offshore would have no additional environmental benefit. On the contrary, it would lead to unnecessary increases in energy usage to transfer the dredged marine sediments from the dredging area to the disposal site; it would lose sands and gravels from the natural Dublin Bay sediment cell and it may have a greater impact on fisheries interests.

4.1.3.6 Disposal Final Design

The Disposal at Sea method, in combination with Environmental Enhancement - Sediment Cell Maintenance technology, has been selected as the disposal final design with no environmentally better alternative. This is the only satisfactory alternative.

4.1.4 Summary of Consideration of Alternative Options

At strategic level, the Masterplan identified that the Dublin Harbour Capital Dredging Project is a key element of its implementation, underpinning the Masterplan's fundamental approach of providing capacity in Dublin Port for the 77.2m gross tonnes projected by 2040 by maximising the utilisation of Dublin Port's brownfield lands. The assessment process in support of the Masterplan identified that the development in this area of the Port is the most sustainable approach and the desired approach from a strategic point of view.

The Dublin Harbour Capital Dredging Project is concluded to be an essential step in achieving the Port's ambitious throughput objective, and critical to transport sustainability, and regional and national socio-economic development.

At detailed design level the evolution of the proposed capital dredging works was considered to achieve the Dublin Harbour Capital Dredging Project's objective of loading and disposing of 500,000m³ of marine sediments.

All available alternatives, including a Do-Nothing Scenario, have been considered. The consequences of not carrying out the Dublin Harbour Capital Dredging Project would result in failure to provide for future anticipated growth, and critically impact upon national and regional economies. This in turn, will undermine the port's ability to contribute towards achieving the sustainable transport objectives of National Port Policy, and limit future port investment and development as specified within the Masterplan. This is not considered to be an acceptable alternative.

Alternative sediment loading options were examined including the use of a range of mechanical and hydraulic dredgers. The preferred option identified was the use of a backhoe dredger and/or a Trailing Suction Hopper Dredger. Using this alternative means no over-spill will be permitted whilst loading within the inner Liffey channel (Dublin Harbour) to limit sediment plume formation. The quantity of dredged material entering the water column as a sediment plume is therefore expected to be similar for both types of dredger. Monitoring undertaken during the ABR Project has shown that loading operations using this methodology within Dublin Harbour has had no significant impact on water quality or on any Annex IV marine mammal species (i.e. cetaceans and otter).

A number of disposal options were also examined including: do-nothing; beneficial re-use; disposal on land; incineration and disposal at sea. The preferred option identified was a combination of disposal at sea and re-use with computational modelling undertaken to determine appropriate method, rate, timing and location of these activities. A sediment chemistry and eco-toxicological sampling and analysis programme confirmed the sediments had no biological effect and thereby suitable for the safe disposal at sea. Monitoring undertaken during the ABR Project has shown that sediment disposal at Burford Bank using the same methods as this preferred alternative have had no significant environmental impact on water quality or on any Annex IV marine mammal species (i.e. cetaceans and otter).

The only satisfactory alternative is therefore implementation of the Dublin Harbour Capital Dredging Project using the proposed sediment loading methods of TSHD and backhoe dredging, and disposal at sea at the Burford Bank approved sediment disposal site which retains sediments within the Dublin Bay sediment cell.

4.2 Impacts

As described above, the preferred alternative is for capital dredging to be carried out primarily by TSHD, with support of a backhoe dredger in some areas. An estimated 500,000m³ of dredge spoil will be disposed of at the Burford Bank dump site spread over multiple winter seasons during the course of the dredging project. The assessment of potential impacts of the chosen project implementation alternatives are discussed next.

4.2.1 Dublin Harbour Capital Dredging EIAR Conclusions

The Dublin Harbour Capital Dredging Project has been subjected to Environmental Impact Assessment (Appendix 1), Screening for Appropriate Assessment and Natura Impact Statement (Appendix 2). These assessments have been informed by multi-annual environmental monitoring programmes implemented as part of the ABR and MP2 projects, and maintenance dredging projects.

The Dublin Harbour Capital Dredging Project EIAR concluded that the proposed Dublin Harbour Capital Dredging Project is expected to have only a temporary and minor adverse impact in the benthos within the footprint of the dredging works with benthos recovering rapidly following cessation of dredging activities. The benthos within the footprint of the Burford Bank disposal area is expected to undergo a cycle of temporary impact (during disposal) followed by partial recovery before the next disposal event until the completion of the capital dredging programme, followed by complete recovery expected to occur within 2 years of the cessation of the project. Overall, these impacts can be classified as temporary to short-term, minor and adverse.

The EIAR also concluded that dredge spoil disposal at the dump site is not expected to have any adverse impact on the protected porpoise population in the Rockabill to Lambay Island SAC by virtue of the tiny

proportion of the SAC constituted by the dump site and the fact that fish will still feed at the site during or immediately after disposal events so that there will effectively be no dredging related diminution in the porpoises' fish diet as a result.

IWDG concluded that full implementation of the NPWS Guidelines will minimise the acoustic impacts of dredging and will result in no significant impacts to marine mammals or on the conservation objectives of the Rockabill to Dalkey Island SAC. The Dublin Harbour Capital Dredging project will not cause injury or death but could lead to local disturbance, from noise associated with the project, although current evidence from recent dredging operations suggests no disturbance occurs and indeed dumping may provide increased foraging opportunities.

4.2.2 Dublin Harbour Capital Dredging Natura Impact Assessment Conclusions

A Screening for Appropriate Assessment and Natura Impact Statement has also been prepared for the Dublin Harbour Capital Dredging Project (Dublin Port Company, 2021b). In relation to marine mammals (seals and porpoises), likely Significant Effects could not be excluded at screening stage with regards to Underwater Noise and Disturbance effects on Lambay Island SAC or Rockabill to Dalkey Island SAC. However, further investigation and analysis in the Natura Impact Statement concluded that when mitigation measures are applied where necessary there will be no adverse effects upon the integrity of any European site and no scientific doubt remains as to the absence of such effects.

In addition to Dublin Port Company's NIS for the proposed Dublin Harbour Capital Dredging, EPA also conducted their own AA and have granted a Dumping at Sea Permit (Reference Number: SOO33-01) for the loading of dredged material from the inner Liffey channel (Dublin Harbour), including areas within Dublin Port's navigational channel, basins and berths and the dumping of the material at the established dumping site immediately west of the Burford Bank in outer Dublin Bay subject to conditions. The Agency concludes (p5 of DAS) that *"it is satisfied that no reasonable scientific doubt remains as to the absence of adverse effects on the integrity of those European Sites"* (including the Rockabill to Dalkey Island SAC – Site Code 003000 with *Phocoena phocoena* (Harbour Porpoise) [1351] as a Qualifying Interest).

4.2.3 Annex IV Impact Assessment

This section considers the potential impacts of the proposed activities on relevant Annex IV species likely to occur in the project area of influence i.e. Otter, Harbour Porpoise, whales and dolphins.

The potential impacts that could arise from the capital dredging and disposal operations are:

- Underwater noise impacts
- Increased turbidity levels
- Vessel-strikes

These potential impacts are considered below in terms of injury, disturbance or displacement of Annex IV species, and appropriate mitigation measures are identified as required.

A risk assessment of the effects to species listed in Annex IV which occur within the project site was undertaken by Independent External Consultants on behalf of the Department of Housing, Local Government and Heritage (DHLGH, 2022). The potential for injury or disturbance to occur to Annex IV species as a result of the proposed capital dredging project was considered to be low. The risk will be further reduced by the implementation of mitigation as outlined in Section 4.2 of the Annex IV Risk Assessment. All mitigation listed in Section 4.2 is included in the MMMP for the capital dredging project. It is concluded that the proposed capital dredging project will not give rise to significant impact to species listed under Annex IV of the Habitats Directive.

4.2.3.1 Otter

Potential impacts on otter are only relevant for dredge loading operations in the port area as otters do not occur at the dredge disposal site offshore.

Underwater hearing sensitivity is significantly reduced in otters compared to pinnipeds and other marine mammals, and otter hearing is primarily adapted to receive airborne sounds. A Trailer Suction Hopper Dredger (TSHD) will be used for dredging. Robinson *et al.*, (2011), found that emitted sound levels from TSHDs at frequencies below 500 Hz were similar to a deep- draught cargo ship travelling at a moderate speed. Marine mammals, including coastal otters, are tolerant of shipping noise, being repeatedly exposed to many vessels, small and large. TSHD transits between loading and dumping locations will not add significantly to the vessel traffic in the port area which experiences about 50 vessel movements per day. Underwater noise transmission loss in Dublin Port is significant due to the shallow water and the prevalence of silts and sands on the seabed of the port. Noise generated by operation of the TSHD is unlikely to have any significant impact on otters. Sediment plumes generated during dredging have been shown to be local and settle/disperse rapidly (RPS, 2025b). Otter foraging is frequently in the shallow littoral area and thus unlikely to be impacted by dredging operations. TSHDs will not operate in such locations and the likelihood of collision or injury to otters is negligible.

Otters are crepuscular and usually active in early morning and late evening. Holts and potential resting places have been mapped and are outside the area of the capital dredging project operations, and no natal holts have been identified in the area (Appendix 7). The holts are sufficiently distanced and screened from the proposed works so that any disturbance or impact is very unlikely.

Mitigation in the form of a Marine Mammal Monitoring Plan (MMMP) (CEMP, 2025) will be implemented by trained and experienced Marine Mammal Observers (MMOs) throughout the project and for all dredging activities in accordance with the requirements of NPWS Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters (2014). This includes the implementation of a 500m monitoring zone for marine mammals (including otter). Dredging operations may only commence when the MM Observer has confirmed that no marine mammals are present in the monitoring zone for a period of at least 30 minutes.

A Dredging Management Plan (DMP) will be implemented to mitigate potential impacts (CEMP, 2025). Mitigation measures to reduce sediment plumes will include no overflow from the dredger when it is dredging in the harbour area. The dredger will also work in the direction of current flow to prevent development of a silt curtain in the channel. When operating in the River Liffey Channel, the TSHD pumps will be switched off when the drag head is being lifted and returned from the bottom as the dredger turns between successive lines of dredging to minimise the risk of fish entrainment.

A maximum of 4,100m³ of sediment and entrained water will be loaded into the dredger's hopper for each loading/dumping cycle, equivalent to approximately of 2,030 tonnes (wet weight). This will limit silt escape at the loading site and potential impacts at the spoil dumping grounds.

Dredging will be limited to winter months (October to March inclusive). The staging of dredging operations over multiple winter seasons, and the relatively small areas to be dredged in any single annual campaign, will minimise dredging impacts and allow biotic elements to recover. This will ensure no significant impact on use of the port area by otters.

Therefore, based on the current evidence base, it is considered that the proposed Dublin Harbour Capital Dredging works will not result in the capture or kill of any otters, or to disturbance of otters, or to the damage or destruction of any otter resting place. Therefore the proposed capital dredging works will not offend the system of strict protection of otter under Article 12 of the Habitats Directive.

4.2.3.2 Harbour Porpoises/Whales/Dolphins

Dredge loading operations will be confined to Dublin Harbour. Harbour porpoise may rarely enter the harbour area and could therefore be potentially exposed to impacts of dredge loading operations. However, the extremely low frequency of such an event and the implementation of NPWS Guidance (Department of Arts, Heritage and the Gaeltacht, 2014) through the MMMP will ensure no impact on harbour porpoise during dredge loading operations. Other cetaceans do not frequent the confined shallow waters of Dublin Port.

The spoil disposal site is situated within the Rockabill to Dalkey Island SAC which includes Harbour porpoise as a qualifying interest. The Dublin Harbour Capital Dredging Natura Impact Statement (Dublin Port Company, 2021b) found that the possibility of likely significant habitat loss effects, and water quality and habitat deterioration effects can be excluded for this European site, even without consideration of mitigation measures. The possibility of likely significant underwater noise and disturbance effects cannot be excluded for this European site, without consideration of mitigation measures. Mitigation will be effected through implementation of NPWS Guidance (Department of Arts, Heritage and the Gaeltacht, 2014) as set out in the MMMP. It is also important to note that no other dredging programmes will overlap temporally with the proposed Dublin Harbour Capital Dredging Project, thus avoiding any cumulative effects.

McKeown (RPS, 2016) carried out underwater noise measurements during the Dublin Port 2016 maintenance dredging campaign. The PSD plots of the dredging operation show some lower frequency tonal components between 200 Hz and 2 kHz that are attributed to the pump. The dredge loading operation has a higher frequency signal in comparison to the dumping operation. Sound levels for the dredging operations at ranges of 213 and 268m were below the disturbance threshold for harbour porpoise of 140 dB re 1 μ Pa SPLRMS and 140 dB re 1 μ Pa² s SEL. The sound level of 142.7 dB re 1 μ Pa SPLRMS for the dumping operation at a range of 90 m was 2.7 dB re 1 μ Pa SPLRMS above the disturbance threshold for harbour porpoise, suggesting porpoise may react if within 100m of the dredger during dumping. However, this level is still below the NOAA general behavioural threshold for marine mammals of 160 dB re 1 μ Pa SPLRMS.

Increased noise is restricted to <100m from the dredger during dredging (RPS, 2016), thus there will be no sound pressure associated with dredging within the SAC so sound exposure levels will be at or below ambient noise levels at Burford Bank for dredging activity. No capital dredging loading works will take place within the SAC and will be spatially separated by a distance of approximately 6.2km from the proposed capital dredging area. It is therefore considered that the proposed dredging works are unlikely to expose porpoises within the SAC to increased noise and disturbance and as such will not lead to any significant impact.

Shipping produces low broadband and “tonal” narrowband sounds. The primary sources are propeller cavitation and singing and propulsion of other machinery (Richardson et al. 1995). For large and medium vessels tones dominate up to around 50Hz and broadband components may extend to 100Hz.

Many odontocetes show considerable tolerance to vessel traffic. Sini et al. (2005) showed bottlenose dolphins resident in the Moray Firth generally exhibited a positive reaction to medium (16-30m) and large vessels (>30m) and showed some evidence of habituation. Buckstaff (2004) suggested an exposure level of 110-120 dB from vessel noise solicited no observable effect on bottlenose dolphins. A similar exposure level solicited minor changes in orientation behaviour and locomotion changes in minke whales (Palka and Hammond 2001). Harbour porpoise are frequently observed near vessels but tend to change behaviour and move away and this avoidance may occur up to 1-1.5km from a ship but is stronger within 400m (cited from Richardson et al. 1995).

The presence of a dredger in the area will lead to increased vessel traffic and associated noise. Large vessels such as TSHDs produce low frequency sounds. However given the busy nature of Dublin Port and shipping lane and increased ambient noise already experienced at this site (Beck et al. 2013) the presence of an additional vessel and associated noise, is extremely unlikely to be significant. The increased noise above ambient levels generated by the TSHD during spoil disposal at the dump site will be of short duration. The duration of the release of sediment loads is typically 10 to 20 minutes.

The disposal site has been routinely used for the dumping of dredged material, with approximately eight million tonnes of material dumped at this site between 1997 and 2012 at an average rate of around 550,000 m³ per annum. The ABR Project Dumping at Sea Permit for capital dredging (Reference number: S0024-01) permitted

a maximum of 8,760,000 tonnes (equivalent to 5,300,000 m³) of dredged material to be loaded and dumped at sea up until and including March 2021.

Increased noise is restricted to <100m from the dredger during disposal (RPS, 2016), thus increased sound pressure associated with spoil disposal within the SAC will be above ambient noise levels at Burford Bank within a very small area (radius <100m). The outer reaches of the navigation channel within Dublin Bay extends into the Rockabill to Dalkey Island SAC.

The risk of injury or mortality is considered extremely low as marine mammals are exposed to considerable vessel traffic on a daily basis and would be aware of their presence. Collisions are unlikely due to the slow speed of the TSHD. The dredge vessel is slow moving and not able to turn quickly thus any animals in the area would have sufficient time to avoid any collisions and thus injury or mortality. The chance of actually releasing dredged material on top of a marine mammal is extremely unlikely (Dublin Port Company, 2021b). As per best practice, effort watches by the on-board MMO are continued during dumping operations, and when necessary the dredger is diverted to locations within the dump site where MM are absent in a surrounding 500m mitigation zone. The MMMP also provides that dumping may not proceed if a MM is within 100m of the dumping location.

The short duration of the release of dredged material (around 10-20 minutes) and the slow movement of the vessel during spoil release, in association with all other mitigation in the MMMP will ensure that MM .

Dredging is unlikely to cause damage to marine mammal auditory systems, but masking and behavioural changes are possible (Todd et al. 2015). Sediment disturbance and any increases in turbidity are unlikely to affect marine mammals that use echolocation (McConnell et al. 1999). Static acoustic monitoring of harbour porpoises recorded a significant increase in acoustic detections during dumping (Figure 6) concurrent with increased foraging clicks suggesting harbour porpoises may be taking advantage of increased foraging opportunities presented during disposal at Burford Bank (Russell et al. 2018).

The dumping of dredged material will not cause any adverse effects on cetaceans or seals in the area providing mitigation measures are in place but may affect prey availability. Small shoaling fish that occur regularly in the diet of seals and porpoises (Rogan 2008) and are likely to be affected during operations. However, with the benthos and demersal fish species subject to periodic smothering over the last 15 years, together with an increase in acoustic detections of harbour porpoise during dumping (Russell et al. 2018), there is no evidence of an aversive reaction leading to impacts on species life cycle. Any displacement resulting from indirect impacts on available prey will be short-term and local, with fish returning to the area at the completion of dumping activity.

Multiple monitoring studies of sediment plumes have been completed during dumping operations at the Burford Bank disposal site, during both maintenance and ABR/MP2 capital dredging programmes (Dublin Port Company, 2020; 2022b; 2024b). These studies have shown that on release of sediments from the dredger/barge they disperse rapidly, both spatially (200-400m) and temporally (typically less than 20 minutes) and return to baseline levels, and no impact is observed outside the immediate dumping zone in accordance with sediment dispersion models.. Even during successive disposal episodes at the dump site, turbidity monitoring indicates that no significant acute or chronic impact of sediment plumes due to individual or successive use of the dumping site has occurred in Dublin Bay.

Increased turbidity is unlikely to have a direct effect of marine mammals but may have an indirect effect through impacts on prey (Todd et al. 2015). There is limited evidence for an effect of increased turbidity on marine mammals. Harbour porpoise use echolocation to navigate and locate prey and thus would not be affected by increased turbidity. Even when increased turbidity has been shown to substantially reduce visual acuity in seals, which are not known to use sonar for prey detection, there is no evidence of reduced foraging efficiency (Todd et al. 2015).

As set out above the operation of dredgers on silty material results in underwater noise levels in the same range as shipping traffic. While the dredger is operating suction equipment, it is travelling at slow speed. Shipping traffic in the area is usually larger vessels, generally travelling at higher speeds or manoeuvring using thruster engines. Given that noise from dredging vessels will not be any greater than background shipping noise, disturbance and displacement of the harbour porpoise community within Rockabill to Dalkey Island SAC

will not occur. The project will not adversely affect the integrity of the Rockabill to Dalkey Island SAC and no reasonable scientific doubt remains as to the absence of such effects.

Notwithstanding this finding, to reduce the risk of disturbance to passing individuals of these species, measures intended to avoid or reduce the harmful effects of dredging and dumping must be applied.

To minimise any disturbance effects on Annex IV species' populations the NPWS Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters (DAHG, 2014) shall be applied to dredging and dumping operations.

The following mitigation measures are proposed to minimise the potential impacts on marine mammals and to allow animals move away from the area of dredging operations:

- A trained and experienced Marine Mammal Observer (MMO) will be put in place during dredging and dumping operations. The MMO will scan the surrounding area to ensure no marine mammals are in a pre-determined exclusion zone in the 30-minute period prior to operations. The NPWS exclusion zone is 500m for dredging activities.
- Noise-producing activities will only commence in daylight hours where effective visual monitoring, as performed and determined by the MMO, has been achieved. Where effective visual monitoring is not possible, the sound-producing activities will be postponed until effective visual monitoring is possible. Visual scanning for marine mammals (in particular harbour porpoise) will only be effective during daylight hours and if the sea state is WMO Sea State 4 (≈Beaufort Force 4 conditions) or less.
- If there is a break in dredging activity for a period greater than 30 minutes then all pre-activity monitoring measures and ramp-up (where this is possible) will recommence as for start-up.
- Once normal operations commence, there is no requirement to halt or discontinue the activity at night-time, nor if weather or visibility conditions deteriorate, nor if marine mammals occur within a radial distance of the sound source that is 500m for dredging activities.
- Any approach by marine mammals into the immediate (<50m) works area will be reported to the National Parks and Wildlife Service.
- The MMO will keep a record of the monitoring using a 'MMO form location and effort (coastal works)' available from the National Parks and Wildlife Service (NPWS) and submit to the NPWS on completion of the works.

As an additional mitigation measure for harbour porpoises, it is proposed to maintain the static acoustic monitoring (SAM) programme previously established during the ABR Project for the duration of the proposed project. This will provide long-term data on the use of Dublin Bay by the species. It is proposed that four monitoring stations will be maintained to provide high resolution data on porpoise and dolphin occurrence. These stations will be monitored pre-dredging, during dredging and for a minimum of two years post-dredging in line with best international practice.

Therefore, based on the current evidence base, it is considered that the proposed Dublin Harbour Capital Dredging works will not result in injury of any harbour porpoise, whales or dolphins, or to any significant disturbance. Therefore the proposed capital dredging works will not offend the system of strict protection of harbour porpoise, whales or dolphins under Article 12 of the Habitats Directive.

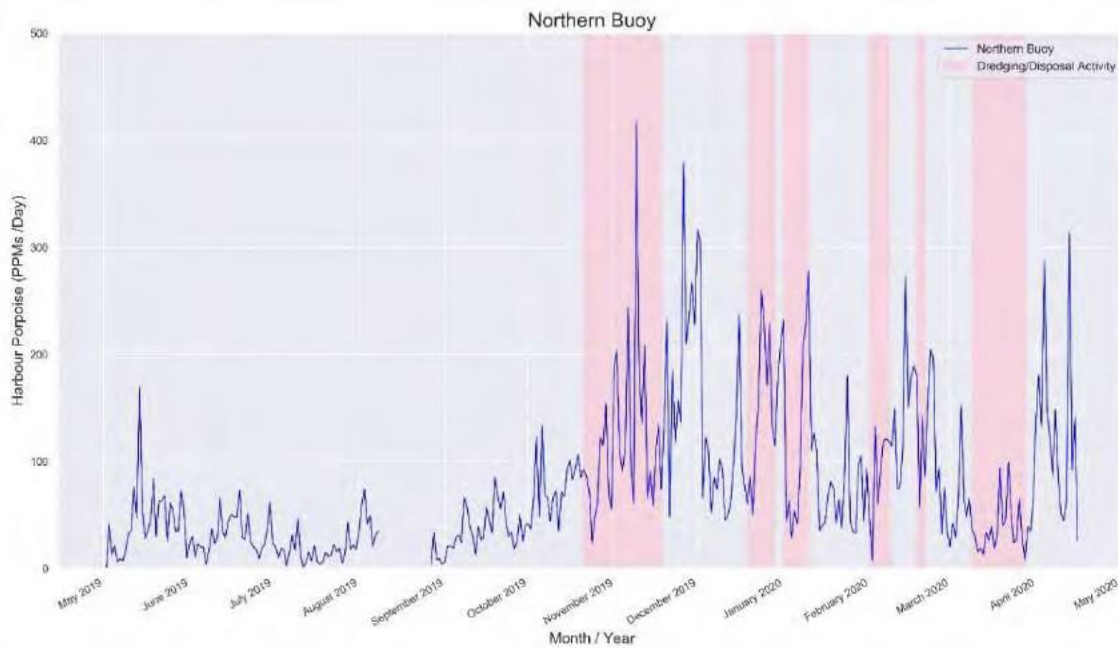


Figure 6 Number of harbour porpoise detections per day recorded at the north of the spoil grounds. *Red columns indicate periods of capital dredging campaigns (2019-2020) (from EIAR Chapter 7).*

5 STAGE 4 – APPLICATION FOR REGULATION 54 DEROGATION

Article 16 of the Habitats Directive sets out three conditions, all of which must be met before a derogation from the requirements of Article 12 or Article 13 of the Directive can be granted. These conditions are also set out in Regulation 54 of the Regulations. The conditions are:

1. A reason(s) listed in Regulation 54 (a)-(e) applies (see below)
2. No satisfactory alternatives exist
3. Derogation would not be detrimental to the maintenance of a population(s) at a favourable conservation status.

Compliance with each of these conditions is addressed in the following sections.

5.1 Condition 1 – Reason for Derogation

Regulation 54(2)(c) provides for application to the Minister for a derogation '*in the interests of public health and public safety, or for other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment*'. The present application relies on Regulation 54(2)(c).

Chapter 2 of the EIAR (Appendix 1) sets out the need for the Capital Dredging Project. The following discussion cites imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment in support of this derogation application.

5.1.1 Key Transport Node

Dublin Port is the largest and most important port in the country. The combination of reasonable depth of water, proximity to the largest concentration of population on the island and excellent access to the national road and rail networks gives Dublin Port its importance in both the EU Trans European Network for Transport (TEN-T network) and in the national port system. The TEN-T network recognises ports as key nodes within the wider road, rail and shipping networks that facilitate trade within and outside the EU. There are 319 ports identified in the network. 83 (including Dublin) are in the core network and 236 are in the comprehensive network (European Commission, 2011).

In common with other important parts of national infrastructure, there has been significant underinvestment in Dublin Port for many decades. For example, for 31 years from 1979 to 2010 Dublin Port & Docks Board and latterly Dublin Port Company (DPC) sought permission to expand the port by infill into Dublin Bay opposite Clontarf rather than optimising existing quays and lands.

A new direction for the development of the Port was established by the Dublin Port Masterplan 2012-2040 published in February 2012.

The Masterplan was reviewed and updated and the current version is the Dublin Port Masterplan 2040 Reviewed 2018, published in June 2018.

Between the publication of the original Masterplan in 2012 and the updated version in 2018, the challenges facing the Port changed significantly due to a number of factors:

- Rapid economic recovery after the 2008 recession led to large growth in cargo volumes from 28.1m gross tonnes in 2011 to 38.0m gross tonnes in 2018, an increase of 35.2%.
- The country's population increased by 6.2% from 4.6m in 2011 to 4.9m in 2018.
- Following the referendum in the UK concerning Brexit in June 2016 and the UK's decision to leave the EU in January 2020, the patterns of trade have already begun to change with increased growth on

services between Dublin and ports in Continental Europe such as Rotterdam, Zeebrugge and Cherbourg.

The review of the Masterplan modified DPC's view of how Dublin Port needs to be developed:

- Firstly, the long-term growth rate assumption for capacity planning² was increased from 2.5% to 3.3%
- Secondly, where the original Masterplan had posited the ultimate deepening of the Port to -12.0m CD, it is now accepted that the ultimate depth will be -10.0m CD.
- Thirdly, where the Masterplan published in 2012 had envisaged a possible return to the eastwards expansion of the Port, this has now been ruled out and all remaining developments will be based on the existing footprint of the Port.
- Finally, it is envisaged that major works in Dublin Port will need to be completed before 2040 at which stage the Port will have reached its maximum and ultimate capacity of 77.2m gross tonnes.

The ABR Project and MP2 Project are two of a series of Dublin Port Masterplan projects required to provide capacity for this growth. The Dublin Harbour Capital Dredging Project supports these significant infrastructure developments by providing sufficient water depth within Dublin Harbour's navigation channel, basins and berths for the safe movement of vessels to and from the port and whilst at berth.

The Dublin Harbour Capital Dredging Project has been carefully devised by DPC to ensure that:

- It is consistent with the Dublin Port Masterplan 2040
- The proposals selected for development make optimum use of the Port's finite resources of river berths and quayside lands
- The proposed configuration reflects and responds to assessments of the potential environmental impact of different options to achieve the project's objectives
- The chosen project option best meets all applicable environmental and ecological requirements
- The project can be constructed in a way that minimises the impact on existing port operations
- The proposed project is consistent with the principles of proper planning and sustainable development
- The project makes provision for future population growth and a concomitant increase in demand for port infrastructure at the location closest to where the need for additional capacity arises

The main elements of the Dublin Harbour Capital Dredging Project are set out in Section 2.1 Project Description in this document.

5.1.2 Projected Future Growth at Dublin Port

The need for the developments envisaged in the Dublin Port Masterplan 2040 arises from the level of future growth which DPC is projecting. The basis of these projections is discussed next by reference to trends over the long, medium and short terms.

Long-term growth trends (1950 to 2040)

The key driver of growth in Dublin Port is population increase. The *National Planning Framework* envisages the country's population growing by 20% from 2016 to 2040. This is equivalent to a population increase of just over one million with 49% of this increase occurring in the Eastern & Midland region, the natural hinterland of Dublin Port. Table 1 shows the historic and projected levels of national population and of Dublin Port cargo throughput from 1950 to 2040. The population projection for 2040 is the planning assumption used in the *National Planning Framework*. The volume projection for 2040 is from Dublin Port's Masterplan 2040.

Table 1 National population and Dublin Port volumes 1950 to 2040 (from EIAR Chapter 2)

	Population	Gross Tonnes	AAGR
1950	3.0m	2.9m	
1980	3.4m	7.3m	3.2%
2010	4.6m	28.9m	4.7%
2040	5.6m	77.2m	3.3%

DPC looks at growth trends over long periods (30 years). The current planning projection of an average annual growth rate (AAGR) of 3.3% over the 30 years to 2040 is unremarkable by comparison with historic trends shown on Table 1.

The 30 year average annual growth rate from 1980 to 2018 indicates that the AAGR grew during the boom years to reach a high of 4.9% in 2008. It then fell to 4.5% in 2012 before beginning to grow again, reaching 5.5% in 2018. This trend suggests that the Masterplan's long-term planning growth rate assumption of 3.3% is more likely to be an underestimate than it is to be an over-estimate.

Medium-term growth trends (1995 to 2018)

The unitised modes (Ro-Ro and Lo-Lo) account for 82% of Dublin Port's throughput and 97% of the growth projected over the period to 2040 is in these modes.

The rapid increase in Dublin Port's unitised volumes began in the mid-1990s as result of major restructuring initiatives and reforms in Dublin Port in 1992. These changes led to an unprecedented period of growth every year from 1993 to 2007, a record year for overall throughput.

This growth was driven by the unitised modes and Ro-Ro volumes in Dublin Port and in 2018 were five times higher than they were in 1995. Lo-Lo volumes are two and a half times higher, as shown in Figure 2-3.

Short-term growth trends (2013 to 2018)

Looking at more recent trends, Dublin Port's volumes have recovered strongly since the recession in 2008 and are now 23% higher than they were in 2007 (38.0m gross tonnes in 2018 compared to 30.9m in 2007). The growth trends seen from 1995 to 2007 have re-emerged as shown in Table 2.

Table 2 Year on year growth rates of Ro-Ro and Lo-Lo in Dublin Port, 2013 to 2018 (from EIAR Chapter 2)

	Ro-Ro	Lo-Lo
2013	5.9%	-2.0%
2014	7.9%	9.4%
2015	6.8%	8.6%
2016	7.6%	8.1%
2017	5.0%	5.2%
2018	4.0%	4.0%

DPC believes that future growth will slow down by comparison to recent trends. These year-on-year growth rates combined with the actual growth from 2010 to 2016 suggest a 30 year growth rate to 2040 of 3.3%.

These projected levels of growth are consistent with historical trends over the long, medium and short terms. Importantly, they are also consistent with the National Planning Framework's Policy Objective 1b which foresees a growth in population of between 490,000 and 540,000 in the Eastern & Midland Region bringing the population in Dublin Port's natural hinterland to 2.85 million.

The ABR Project and MP2 Project are two of a series of Dublin Port Masterplan projects required to provide Dublin Port's ultimate capacity of 77.2m gross tonnes, based on an annual average growth rate of 3.3%. The Dublin Harbour Capital Dredging Project supports these significant infrastructure developments by providing sufficient water depth within Dublin Harbour's navigation channel, basins and berths for the safe movement of vessels to and from the port.

5.1.3 Impact of Brexit

The Dublin Harbour Capital Dredging Project will take place in the aftermath of Brexit.

In the context of the long life cycle for the development and operation of port infrastructure, DPC believes that the full impacts of Brexit (which are unknown) will be short-term.

Just as the enormous shock to the Irish economy in the recession post 2008 has already been absorbed and port volumes in 2019 reached a fifth consecutive annual record, so also the effects of Brexit in years to come are not expected to be significant.

These potential effects are twofold:

- Firstly, a diminution in economic growth with a consequent effect on the growth of port volumes.
- Secondly, a changing of trade patterns with an increasing proportion of Ro-Ro and Lo-Lo trade on direct routes to Continental Europe at the expense of UK routes.

The first effect is a timing effect. A negative economic impact from Brexit will result in a lower growth in port volumes than there would otherwise have been in future years. This is consistent with the February 2018 Copenhagen Economics Brexit report which concluded that a hard Brexit would reduce Ireland's GDP in 2030 by 7.0% compared to what it otherwise would have been with no Brexit. Over the 12 years from 2019 to 2030, this 7.0% reduction would be equivalent to an annual reduction in GDP of 0.6%. Against a background of 36.0% growth in Dublin Port volumes over the six years to 2018, such a slowdown in the years to 2030 would have no perceptible influence on the demand for additional port capacity.

The second effect of changing trade patterns is already evident with increased deployment of new large ships (e.g. Irish Ferries W.B. Yeats and CLdN's Celine and Laureline) on direct routes to Continental Europe.

The Dublin Harbour Capital Dredging Project will facilitate the provision of sufficient depth of water to support these changed trade patterns.

Impact of Covid-19

During 2020, the Covid-19 pandemic has resulted in an unprecedented shock to the Irish economy and will undoubtedly lead to a sharp diminution in economic growth with a consequent effect on the growth of port volumes in the short term. The negative economic impact from Covid-19 will result in a lower growth in port volumes than there would otherwise have been in future years, however it is DPC's view that such a slowdown in the years to 2030 would again have no perceptible influence on the medium to long term demand for additional port capacity.

The Covid-19 pandemic shows that there can be unforeseen circumstances which impact on the timing of planned project works in Dublin Port. In such circumstances, it is very difficult to predict when individual projects within Dublin Port should commence.

2.2.6 Growth in ship sizes

The future growth in Ro-Ro and Lo-Lo will be accompanied by increases in ship sizes and the Dublin Harbour Capital Dredging Project will provide deeper and wider berths notably for Ro-Ro ferries and for Lo-Lo container ships.

The Dublin Harbour Capital Dredging Project is being proposed against a background where work is progressing within the ABR Project to deepen Dublin Port's navigation channel to -10.0m CD, from the Western Oil Jetty in Dublin Harbour to the -10.0m CD contour in Dublin Bay. Moreover, the Dublin Port Masterplan 2040 has confirmed that -10.0m CD will be the final depth of the navigation channel at Dublin Port.

These factors provide a clear context in which to relate the proposed capital dredging to future ship sizes.

The depth constraints in Dublin Port, Table 2-5, shows the maximum ship draughts which Dublin Port will be capable of handling. In order to be able to maintain set schedules, Ro-Ro ferries need to be able to access Dublin Port at all stages of the tide. Table 2-5 indicates that ferries with draughts up to about 9.7m will be able to access the port. This is sufficient for any conceivable size of Ro-Ro ferry that might be deployed by operators in the future. Currently ferries of up to 8.2m draught are in service in Dublin Port.

Table 3 Draught handling capabilities at -10.0m CD (from EIAR Chapter 2)

	Mean High Water	Channel Depth	Max. Draught		Mean Low Water	Channel Depth	Max. Draught
Spring Tides	4.1m	14.1m	13.1m		0.7m	10.7m	9.7m
Neap Tides	3.4m	13.4m	12.4m		1.5m	11.4m	10.4m
<i>Note: Max. draughts assume an under keel clearance of 1.0m</i>							

In the case of Lo-Lo container ships, the maximum size which can currently be handled in Dublin is limited by a combination of constraints (including basin depth, berth depths/widths and channel depth) to give a practical maximum draught in the region of 9.0m. The maximum size of container ship which has called to the Port in recent years is in the order of 1,400 TEU.

The deepening of the Port to -10.0m CD as part of the ABR Project removes the channel constraint within the navigation channel from Dublin Bay as far as the Western Oil Jetty. The Dublin Harbour Capital Dredging Project would lessen the existing basin and berth constraints and allow large container ships to safely operate.

The Dublin Harbour Capital Dredging Project would enable a large proportion of the world fleet of container ships in the capacity range from 1,000 TEU to 3,500 TEU to be handled at Dublin Port.

The ability to handle larger container ships at Dublin Port is essential if the increased throughput projected by the Dublin Port Masterplan 2040 is to be achieved.

5.1.4 The Need for 8-Year Consents

The Dublin Port Masterplan approach of redeveloping existing brownfield sites which are already in operation, to deliver strategic infrastructure projects such as the ABR Project and MP2 Project is not straightforward. The areas where much needed infrastructural improvements is required are in daily use and throughput volumes are expected to grow to 77.2 million tonnes by 2040.

DPC is currently constructing the ABR Project and the MP2 Project by way of discrete work packages designed to allow existing customers' growing businesses to continue with minimum disruption.

The Dublin Harbour Capital Dredging Project supports these significant infrastructure developments by providing sufficient water depth within Dublin Harbour's navigation channel, basins and berths for the safe movement of vessels to and from the port. The same constraints are applicable whereby the project will need to be delivered through a series of discrete work packages to minimise disruption to existing port activities.

The experience of recent years suggests that there can be unforeseen circumstances which impact on the timing of planned project works in Dublin Port. In such circumstances, it is very difficult to predict when individual works packages within the Dublin Harbour Capital Dredging Project should commence.

Because of such uncertainties, DPC requires an 8 year Foreshore Licence and associated Dumping at Sea Permit to provide the required flexibility to deliver the capital dredging project at the optimum times within that timeframe.

DPC estimates that the total cost of implementing the Dublin Port Masterplan 2040 will be in the order of €1.7 billion (2020 prices). In the shorter term, DPC has a €1 billion ten year capital expenditure programme from 2019 to 2028. By any standards, the scale of the infrastructural development challenge in Dublin Port is enormous.

In this dynamic environment, the construction timescales for individual projects within the overall Masterplan development programme are liable to change in response to circumstances. This is an inevitable consequence of DPC's preferred sustainable approach to the brownfield development of the existing Dublin Port estate rather than the less sustainable greenfield development at another location where construction timelines could be far shorter and more certain. DPC's choice of the brownfield approach rather than a greenfield approach is founded on DPC's commitment to the principles of proper planning and sustainable development.

The framework of the Dublin Port Masterplan (including the 2018 review) and the related Strategic Environmental Assessment (SEA) and Natura Impact Statement (NIS) in conjunction with the Environmental Impact Assessment Report (EIAR) and the NIS at the project level of the Dublin Harbour Capital Dredging Project have taken into account the environmental implications of an 8-year consent.

They provide robust evidence of the critical need for the implementation of the Dublin Harbour Capital Dredging Project over 8 years to secure the social and economic benefits of the very significant investment in the Masterplan in the overriding public interest.

5.1.5 Compliance with National Marine Planning Framework (NMPF)

Section 2.3 of the Dublin Harbour Capital Dredging EIAR considers EU, national, regional and local land use and transport planning and development policy guiding and regulating the development of Dublin Port. Section 2.3.3 specifically addresses Marine Spatial Policy. The National Marine Planning Framework (NMPF) was published circa one week prior to submission of the Foreshore Application. Compliance of the Dublin Harbour Capital Dredging Project was addressed by way of an addendum to Section 2.3 of the EIAR (Appendix 3).

The NMPF overall objectives are set out below:

- Safeguard the operation of ports as key actors in the economic wellbeing of the State through the provision of safe and sustainable maritime transport.
- Facilitate a competitive and effective market for maritime transport services.
- Sustainable development of the ports sector and full realisation of the National Ports Policy with a view to providing adequate capacity to meet present and future demand, and to adapt to the consequences of climate change.
- Ensure that the strategic development requirements of Tier 1 and Tier 2 Ports, ports of regional significance, and smaller harbours are appropriately addressed in regional and local marine planning policy.

Dublin Port is the largest freight and passenger port in Ireland, and has been identified as a Core Port of international significance in the Trans European Network (TEN-T) Guidelines. It also forms part of the European Union's Core Transportation Network, and it is also designated a Tier 1 Port of national importance in the National Ports Policy 2013.

Dublin Port's large share of national port volumes, particularly in the Roll-On Roll-Off (Ro-Ro) and Load-On Load Off (Lo-Lo) modes, arises due to a combination of two factors; location and depth of water. As a key part of the national port system, DPC seeks to ensure that it plays its role in providing national port capacity. For all of Ireland's major national ports, it is essential that capacity constraints do not emerge which could lead to supply chain inefficiencies. The Dublin Port Masterplan 2040, reviewed 2018, seeks to ensure that no capacity constraints emerge in Dublin Port between now and 2040.

Dublin Port is an essential part of Dublin and contributes to the life of the city in many ways. Dublin Port is a crucial part of the national infrastructure which facilitates merchandise trade in and out of Ireland. The port is also of key importance to the national tourism sector as an important gateway for visitors to Ireland. The contribution that Dublin Port makes to the national and regional economy and to the people of Ireland as a strategic piece of infrastructure gives port lands, navigation channel and berths their real intrinsic value.

Dublin Port is a significant focal point for employment in Dublin, both directly through businesses operating in the port and regionally through enterprises supported by the trading activity carried out at the port. An efficient and dynamic Dublin Port will contribute to the generation of more employment in the economy.

The Planning Policies for Ports, Harbours and Shipping are set out in Chapter 15 of the NMPF.

There are three planning policies (Policy 5, 8 & 9) which directly relate to the Dublin Port Capital Dredging Project.

Policy 5 Proposals for capital dredging will be supported where it is necessary to safeguard national port capacity and Ireland's international connectivity, and where required compliance assessments associated with authorisations have been carried out and incorporated into subsequent competent authority decision(s).

Policy 8 Proposals that cause significant adverse impacts on licensed disposal areas should not be supported. Proposals that cannot avoid such impact must, in order of preference:

- a) minimise,
- b) mitigate, or
- c) if it is not possible to mitigate the significant adverse impacts, proposals must set out the reasons for proceeding.

Policy 9 Proposals for the management of dredged material must demonstrate that they have been assessed against the waste hierarchy.

DPC's demonstration of compliance with these policies is set out in Appendix 3. It sets out the compliance assessment, the environmental appraisals, and assessment of alternatives undertaken.

It is concluded that the Dublin Harbour Capital Dredging Project is fully compliant with both the overall objectives of the NMPF and its associated Planning Policies.

5.2 Condition 2 - No satisfactory alternatives exist

The assessment of alternatives for implementation of the Dublin Harbour Capital Dredging Project has been presented in section 4.1 *Alternatives* of this document.

The possibility of not implementing the Dublin Harbour Capital Dredging Project has been assessed as the Do-Nothing scenario. Based on the interests of public health and public safety, and for other imperative reasons of overriding public interest, including those of a social and economic nature, the Do-Nothing scenario is not acceptable.

In relation to dredge loading activities, four alternative methods of mechanical dredging were considered, and three alternative methods of hydraulic dredging. Dredging using TSHD and/or Backhoe dredgers was selected as the final dredging design on the basis of minimising environmental impact while meeting project requirements.

In relation to disposal operations, 11 disposal and re-use alternatives for the dredged marine sediments were considered:

- Do-Nothing Scenario
- Beneficial Re-use: Engineering – Construction Material
- Beneficial Re-use: Engineering – Beach Nourishment
- Beneficial Re-use: Engineering – Land Creation/Reclamation
- Beneficial Re-use: Engineering – Flood/Coastal Protection Works
- Environmental Enhancement – Wetland Habitat Creation/Enhancement
- Environmental Enhancement – Sediment Cell Maintenance
- Agricultural Use – Land Improvement
- Disposal on Land
- Incineration
- Disposal at Sea

The Disposal at Sea method, in combination with Environmental Enhancement - Sediment Cell Maintenance technology, has been selected as the disposal final design with no environmentally better alternative, and is the only satisfactory alternative.

Having considered all potential alternatives it has been concluded that the alternative chosen will minimise environmental impact and there are no other satisfactory solutions capable of delivering the proposed project.

5.3 Condition 3 – Maintenance of Favourable Conservation Status

A consideration of the Annex IV species present in the zone of influence of the Dublin Harbour Capital Dredging Project was based on available records and detailed ecological surveys (Sections 2.2 and 3.1). Detailed project environmental assessments in an EIA and a NIS have been completed (Sections 4.2.1 and 4.2.2). These have been complemented by an Annex IV risk assessment by IEC on behalf of DHLGH (DHLG, 2022), and impact assessments specific to the final design alternatives selected for project implementation (Sections 4.1 and 4.2).

Appropriate mitigation has been identified to ensure impacts are avoided, including all mitigation listed in this document and Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters (DAHG, 2014). The effectiveness of such mitigation will be confirmed through a comprehensive monitoring system that will include visual and acoustic monitoring of areas of operation, and implementation of mitigation zones around dredging operations. Acoustic monitoring is proposed at four stations and will be carried out pre-dredging, during dredging and for a minimum of two years post-dredging in line with best international practice.

These assessments have confirmed that the project when implemented with the recommended appropriate mitigation will not have any significant environmental impacts, including on sites of European importance and their conservation objectives, nor on Annex IV species in need of strict protection.

6 SUMMARY & CONCLUSION

In summary, the potential for injury or disturbance to occur to Annex IV species as a result of the Dublin Harbour Capital Dredging works is considered to be low. This risk will be further reduced by the implementation of the mitigation measures outlined in this document and the Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters (DAHG, 2014). It is concluded that the Dublin Harbour Capital Dredging works will not give rise to significant impacts to species listed under Annex IV of the Habitats Directive.

Specifically, the Dublin Harbour Capital Dredging works will not impact any of the Annex IV species ability to maintain its population on a long-term basis as a viable element of its natural habitats, nor will the natural range of the species be reduced or likely to be reduced for the foreseeable future as a result of the Dublin Harbour Capital Dredging works. The habitat available to Annex IV species will also continue to be sufficiently large to maintain its populations on a long-term basis.

Following the assessment of the evidence base and available information on relevant Annex IV species, it is concluded that the Dublin Harbour Capital Dredging works comply with the system of strict protections afforded by Article 12 of the Habitats Directive and Regulations 51 and 52 of the European Communities (Birds and Natural Habitats) Regulations 2011, as amended. This applies to the following Annex IV species:

- Otter
- All cetacean species

Based on the current available evidence, no derogation licence(s) are considered necessary for the Dublin Harbour Capital Dredging works.

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