Appropriate Assessment Screening

Refurbishment Quay Wall Berth 2 - Greenore Port

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Contents

Context

Greenore Port proposes to repair and refurbish the quay wall at Berth no. 2 primarily for safety reasons. The quay wall, made of limestone blocks, is degrading, showing signs of outward rotation, material degradation, and settlement of the quay apron. Temporary ties have been installed through the wall to prevent further rotation, but without further work the quay wall is in danger of collapsing.

As the port is adjacent to Natura sites including a Special Protection Area (SPA) and a Special Area of Conservation (SAC), the requirements of Appropriate Assessment must be considered under the Habitats Directive.

The obligation to undertake appropriate assessment derives from Article 6(3) and 6(4) of the Habitats Directive, and both involve a number of steps and tests that need to be applied in sequential order. Article 6(3) is concerned with the strict protection of sites, while Article 6(4) is the procedure for allowing derogation from this strict protection in certain restricted circumstances. Each step in the assessment process precedes and provides a basis for other steps. The results at each step must be documented and recorded carefully so there is full traceability and transparency of the decisions made. They also determine the decisions that ultimately may be made in relation to approval or refusal of a plan or project. AA is not a prohibition on new development or activities but involves a case-by-case examination of the implications for the Natura 2000 site and its conservation objectives.

In general terms, implicit in Article 6(3) is an obligation to put concern for potential effects on Natura 2000 sites at the forefront of every decision made in relation to plans and projects at all stages, including decisions to provide funding or other support.

Article 6(4) states: *Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public."*

The Habitats Directive also provides for strict protection of all Annex II species in Ireland which covers all seals in Irish waters.

An application for a Foreshore License will be submitted to the Department of Housing, Planning, Community and Local Government (DoHPCLG) following lodging this subject planning application with Louth County Council.

Description of Plan or Project

The proposed development comprises the refurbishment of the quay wall of berth no. 2 consistent with that previously undertaken at berth no. 1 under Louth County Council Registered Reference 96/509.

The proposed development will comprise refurbishment of a quay wall at Berth No.2 and associated works at Greenore Port, Co. Louth. This document will assess the construction and operational phases of the proposed development. The works will include:

- Upgrading of the existing quay wall of Berth No.2 - the works will require the localised dredging of rock and soft material. A separate foreshore lease and licence application will be made to the DoHPCLG. Any dredged material leaving the site will be disposed of in an approved facility. Refurbishment of the existing quay wall will be achieved by installing a steel combi wall system in front of the existing masonry wall. Combi walls are reinforced sheet-pile walls: a combination of tubular steel piles and sheet piles. The void between the existing quay wall and the combi wall will be filled with recovered dredged material (if suitable), engineering fill material.
- Rehabilitation of the existing quay apron– the works will require removal of the existing concrete slab, installation of new concrete bearing piles under the apron and laying of a new concrete slab. Associated works will include the installation of surface water drainage, lighting, fenders, bollards etc.

Importantly, the existing foul sewage system in place at Greenore will not be impacted by the proposed development.

Please refer to the Planning Statement prepared by McCutcheon Halley Chartered Planning Consultants and Byrne Looby's Design Report for detailed design information.

Construction Phase

A long reach excavator will be positioned to excavate any bed rock and seabed overburden for the foundation of the new quay wall. It is proposed to dredge the sea bed to -7.5m Chart Datum. A layer of limestone will require excavation to achieve the dredge levels. The rock breaking will be carried out from the dredge barge. The long reach excavator will be equipped with a rock breaking chisel. The excavated rock will be brought ashore for later installation behind the new quay wall. It is proposed that dredging activities will take place 24hrs per day, 7 days per week to achieve the maximum production rates within tidal envelopes. Subject to the quality of material dredged, it is estimated that 1,260m^3 of rock, and 3,410m^3 of gravel will be placed behind the new quay wall to fill the void created. Excess dredged material (c. 13, 350m^3) shall be disposed of in an approved facility. A waste management plan will be devised for the handling of same. Existing rails and pier furniture will be removed and recycled at a suitable facility. Works will be done both from the quay wall and from a barge at sea.

Potential impacts on the features of interest within identified designated sites include noise and the generation of sediment plumes in the marine environment.

Construction of the new quay wall will involve dredging and piling and associated noise generation.

The Contractor will mobilise the following plant to the site by sea:

- Floating barge
- Safety boat
- Barge crane

- Diving plant and equipment.
- Piling and excavating plant

Sequence of Works:

- Rock Socketing of circular steel piles into rock through soft overburden.
- Driving of sheetpile infill sections.
- Demolition and removal of old concrete apron slab behind wall.
- Installation of concrete bearing piles under new apron.
- Infilling of void between old wall face and new wall.
- Construction of concrete capping beam on top of combi wall.
- Construction of new reinforced concrete deck.
- Dredging/breaking of overburden and rock to form deeper berthing pocket.
- Installation of ancillary infrastructure and quay furniture.
- Upon completion of the works, the Contactor will demobilise and remove all temporary formwork and site fencing.

Schedule of Works (Preliminary)

- Week 1 Mobilisation.
- Week 2-7 Marine piling.
- Week 8-13 Wall infilling, landside piling and concrete slab construction.
- Week 14-20 Dredging.
- Week 20-22 Ancillary infrastructure installation and de-mobilisation

Please note that these dates are approximate and may change as operations proceed.

Operational Phase

The rehabilitation will not result in the intensification of vessel movements at Greenore Port, these are restricted due to channel depth, width and towage power within Carlingford Lough.

New surface water drainage shall be provided on the proposed Berth No. 2 deck. The quay deck shall drain to the gullies which will be provided with silt traps. Water will then be conveyed to a hydrocarbon interceptor before conveyance to sea.

Foul water will not be generated as part of these works.

Description of Development Site and Environmental Context

The development site consists of the inner berth of Greenore Port, a busy shipping port serving merchant-size ships, which covers approximately 20 metres by 150 metres by about 10 metres in depth. The landward part consists of a masonry quay wall topped by hard standing while the seaward side consists of mud and gravel at a depth of approx. 4.6 metres OD. The underlying bedrock, some of which will be broken, is limestone. The sand, mud and gravel substrate has been compressed by the action of ships and the berth is defined as NAABSA (Not Always Afloat But Safely Aground), meaning that on some tides ships can rest on the seabed without damage to their hull structure.

Approximately 50 metres to the south west is an area of mudflats and mixed sediment designated SPA, Carlingford Lough, and a SAC, Carlingford Shore. Three hundred and fifty metres to the east just around Greenore Point, the SAC continues to Balagan Point, see **Appendix 1.**

Approximately 350 harbour seals haul out in Carlingford Lough during their pupping and moulting periods, June to September, with up to 50 pups produced. A more variable population of grey seals use the lough with numbers reaching up to 80 at some times of the year. Grey seals are not known to breed in Carlingford lough (Wilson, 2012) (Martin, 2016). Both species are protected under the Irish Wildlife Act and the Habitats Directive. Grey seals are referenced in the identified Natura 2000 site synopsis and a map showing their distribution is provided in **Appendix 2**.

Black guillemots breed on the breakwater in nesting boxes provided by Greenore port, some 100 metres north of the development site. These birds occasionally also nest in crevices in the wall (no obvious nests were recorded on a visit on 18th April 2017). Black guillemots start to occupy their nesting holes several weeks before laying starts, typically towards the end of May. Black guillemots and their nesting places are protected by the Irish Wildlife Act and are referenced in the Natura 2000 site assessments.

Because of the proximity of these sites Screening for Appropriate Assessment was requested. The sites are described in further detail below.

Natura 2000 Sites

Carlingford Lough SPA

Carlingford Lough SPA is bounded by Carlingford to the west and Greenore to the east. The area is designated for the presence of significant numbers of pale-bellied brent geese (*Branta bernicla hrota*).

The Conservation Objectives are listed as follows:

- Brent Goose (*Branta bernicla hrota*): To maintain the favourable conservation condition of Light-bellied Brent Goose in Carlingford Lough SPA, which is defined by favourable population trend and distribution.
- Wetlands: To maintain the favourable conservation condition of the wetland habitat in Carlingford Lough SPA as a resource for the regularly-occurring migratory waterbirds that utilise it. This is defined by maintenance of the habitat area.

The site synopsis is included in **Appendix 3.**

Carlingford Shore SAC

Carlingford Shore SAC is an extensive area of mixed shoreline habitat stretching from the Newry River all the way to Balagan Point, a length of c.15 kilometres. This area is designated for the perennial vegetation of stony banks and drift lines, both habitats listed on Annex I of the E.U. Habitats Directive. The synopsis goes into some detail in regard to flora growing in the area, as well as making reference to Grey Seals, which fish along the channel and haul out on rocks 500 metres or more north of the development site at low tide. Up to 25 common seals also use this area. The seals typically haul out at "The Black Rock" at high tide; the Black rock is a basalt intrusion off-shore about half way between Carlingford and Greenore and about 900 metres distant from the port. More recently the population of harbour seals has been estimated at up to 350 animal with up to 50 pups and up to 80 grey seals. This site synopsis also refers to several species of diving bird including red-breasted merganser (*Mergus serrator*), great crested grebe (*Podiceps cristatus*) and black guillemot (*Cepphus grylle*). The latter species breeds in small numbers on the breakwater at the port (five pairs in 2009).

The Conservation Objectives are listed as follows:

- Annual vegetation of drift lines: To maintain the favourable conservation condition of Annual vegetation of drift lines in Carlingford Shore SAC.
- Perennial vegetation of stony banks: To maintain the favourable conservation condition of Perennial vegetation of stony banks in Carlingford Shore SAC.

The status of both the above habitats are defined which is defined by area, distribution, physical structure, vegetation structure, and vegetation composition.

The full site synopsis is included in **Appendix 4.**

Cetaceans

Cetaceans are not referred to in the Natura 2000 site synopses but are protected in all EU waters and are particularly susceptible to underwater noise. Cetaceans are rare in Carlingford Lough, however, the following species are possible.

Harbour Porpoise: Widely recorded on the east coast, with a regular pod of 4 – 6 individuals in the vicinity of Clogherhead (authors observation), they are not recorded in Carlingford lough though due to their small size and surfacing behaviour they may be difficult to detect. They are very sensitive to submarine noise and activity and are unlikely to approach areas of high activity.

Bottlenose Dolphin: Bottlenose dolphins are commonly sighted in western Irish waters with the nearest concentration to Carlingford Lough being a resident community present year-round in the waters of Cardigan Bay in Wales. A group of up to 20 individuals have been recorded in Carlingford Lough in Summer 2008 (authors observation) and 2009 (Irish Whale and Dolphin Group).

Risso's Dolphin, Common Dolphin, and Minke Whale are more remote possibilities with some records in the Irish Sea. In 2016 a vagrant Bow-head whale was observed in Carlingford Lough, though this species is more than 2000 km from its typical range.

The above species are annex II and IV per the Habitats Directive and are protected by the Wildlife Act.

Stage I - Appropriate Assessment Screening

Screening determines whether appropriate assessment is necessary by examining:

Step 1

The first step is to determine if the proposed development is directly connected with or necessary to site management for nature conservation. The main purpose of the proposed development is to facilitate safe berthing at the port; it is therefore not connected with or necessary for nature conservation.

Step 2

The second step is to determine if the plan or project (alone or in combination) is likely to have a significant effect on the conservation objectives of the designated site, or more specifically on the integrity of the site in terms of its structure and function, with reference to the site synopses and, where available, more recent information. To this end the possible significant effects of the development are reviewed below.

Potential Significant Effects

Dredging/Breaking

Dredging including rock breaking will be necessary to lower the seabed level to -7.5 CD along approximately 40m by 90m. An examination of the substrate at low tide showed that the material has no ecological value whatsoever so its extirpation is unlikely to have any direct impact. However, dredging activities cause underwater noise, and typically release a plume of suspended material in the water column that is carried with the tide and currents. This material may be hazardous due to contaminants associated with shipping, and may smother important benthic species which may have knock on effects on designated species. For example, it is possible that such material could smother or contaminate Zosteria sp. growing in the Carlingford Lough SPA upon which pale-bellied brent geese feed.

The Carlingford Shore SAC is designated for habitats with vegetation present on the tidal drift line and stony banks above the high water mark. Since both of these habitats are in effect at or above the tideline they are not likely to be affected by the plume of material dislodged by the breaking/excavating activity.

In effect the speed of the current (up to 5 knots) and its scouring effect is likely to disperse the material with the tide making it unlikely to settle in significant amounts on the eel grass beds given the relatively small amount excavated, the particle size distribution profile and distance from the development site, 1400 metres – see **Appendix 5**.

An assessment of the composition of the dredge material made by taking samples from several locations in the development site showed the material to be absent of any hazardous substances “All of the samples are classified as non-hazardous and the appropriate LoW Code is 17 05 06 (Dredging spoil other than those mentioned in 17 05 05)” (OCM, 2017) meaning that no toxic effect is likely.

Underwater noise from dredging may adversely impact marine mammals such as seals and cetaceans both by impacting their hearing, by displacing them from areas normally used and by displacing prey items. A large population of seals live and breed in the lough. Records of cetaceans are much sparser with very occasional records of bottlenose dolphins and harbour porpoises. These species are much more susceptible to hearing damage from underwater noise than seals.

The issue of underwater noise is assessed separately below.

Modification of tidal processes

The relatively small change in sea level and quay configuration will impact tidal processes which may increase the speed and scouring effect of the tide. However, this impact is considered insignificant in the context of extensive sub-aquatic rocky habitat of this kind all along the channel, and in view of the regular berthing of ships etc. Furthermore the black guillemots that use the breakwater and quay wall for nesting are not observed to hunt in this area, preferring the open channel to the east and south.

Noise and Vibration from Drilling/Piling/Excavating/Breaking

The work will involve the use of piling, drilling, and excavating plant, as well as rock breaking. The associated noise and vibration could impact on birds, mammals and fish present in the area. While the nearby Natura sites are not designated for fish, it is possible that an impact on fish could have anindirect effect on both birds (particularly diving species) and aquatic mammals (seals, otters, cetaceans).

Noise

Underwater noise will be generated from excavating, dredging, rock breaking, piling and other activities associated with the development. This is assessed by Irwin Carr Consulting (Pederson, 2017). While the underwater noise levels are challenging to anticipate given the many variables at play, including the transmission of noise through various substrates and water, the configuration of the seabed, breakwater, and quay wall, the state of the tide, weather conditions, existing background noise etc., they are not expected to exceed underwater sound pressure levels of 190 dB. Characteristics of sound generating activities are tabulated below:

Table 1 Underwater noise generated by various activities

Sound Source	Equipment	Source level	Unit	Bandwidth	Duration	Energy	Source
Breaking (chisel hammer)	Typical[12]	127-177	dB dB re 1µPa rms	12.5 Hz - 168 kHz	Continuous or 16-23 Hz impact rate	<315 Hz	ICC recordings and HSE on jackhammers

[1] This measure may not be appropriate for an impulsive noise like a sperm whale click; a peak-peak value may be more appropriate, for example Mohl et al. (Mohl, 2003) suggests that the levels is RMS of signal within 3dB from peak value, giving a 239 dB zero-peak or 245 dB peak-peak (pers. comm. RS Pederson).

[2] Specific model of equipment not yet known.

Sound Source	Equipment	Source level	Unit	Bandwidth	Duration	Energy	Source
Piling - percussive	Typical	215-237	dB zero-peak	12.5 Hz - 10 kHz	<1 second	<1.5 kHz (-3 dB)	Modelling from collated noise data
Drilling	Typical	120	dB dB re 1µPa rms	12.5 Hz - 168 kHz	Continuous	<32 Hz (-3 dB)	(Buckle, 2015) (Willis, 2010)
Construction ships	na	140-185	dB re 1µPa rms	0Hz-20kHz	Continuous	<1kHz	(Arveson, 2000)
Sperm whale click	na	226-236	dB re 1µPa rms	5kHz-40kHz	100µs	15kHz	(Thomsen., 2009); Møhl et al. 2003

The underwater noise may adversely impact aquatic mammals such as cetaceans and pinnipeds.

A typical merchant ship undertaking various operations generates noise in the range of 140 to 185 re dB 1µPa rms (Arveson, 2000). Furthermore when loading and offloading into and out of the metal hold of ships, typically done using a large grab, very significant noise is often generated through the impact of the grab on the ships hold or hull and noise generated by other machinery in the hull and on the quay side. Therefore a degree of habituation to typical noise levels generated by a working port may be expected for seals in particular.

Nevertheless given the fact that underwater noise may affect species covered by the designation, or have knock-on effects, this impact must be assessed.

Given the sensitivity of various species to sub-aquatic noise, it may be concluded that sound levels at 500 metres from the site are so attenuated by dispersal as not to adversely affect fauna. To mitigate against the possible effects of species within the 500 metre zone, a Marine Mammal Observer will be in place. The MMO methodology is provided in the Foreshore License conditions.

The impact on birds and mammals is likely to be as follows:

Seals

Both grey seals (*Halichoerus grypus*) and harbour seals (*Phoca vitulina*) frequent the Lough, notably the channel, and haul out on the Black Rock. Seals may exhibit a graduated range of responses to the noise:

- ignore it

- show some curiosity, even approaching the area
- show alarm, enter the water, swim away

Otter

Otters typically hunt at night and would therefore not be unlikely to be exposed to the noise at start-up, and in any case could easily avoid it.

Cetaceans

Both bottle-nosed dolphins (Tursiops truncatus) and porpoises (Phocoena phocoena) have been recorded in the Lough, but these sightings are very rare. These and other cetacean species are highly susceptible to loud anthropogenic underwater sound (Hildebrandt, 2006) and due to their natural curiosity, may be attracted to underwater activity, particularly bottlenose dolphins.

Birds

Waterbirds including waders, waterfowl, gulls, terns and divers use both the nearby mudflats as well as the channel (divers). The impact of the noise on the birds, including pale-bellied brent geese for which the site is designated, using the mudflats will be negligible given the distance (200 metres) and their habituation to various background noise already existing at the port and other activities (aquaculture). Furthermore, given the proposed "soft start" to piling operations, birds near the source of the sound will have an opportunity to fly to another location before any possible hearing damage. While this displacement may result in lack of access to food or roosting resources, these opportunities are minimal within 200 metres, and effects are transitory. Piling will not take place at night so disturbance of night roosts is unlikely.

It is possible that sediments from the excavating operations may have the effect of smothering eel grass beds on which pale bellied brent geese feed. This is considered unlikely due to the characteristics of Carlingford Lough as assessed by both the Environmental Protection Agency (EPA) and DAFM – in effect cultivation of oysters and other sea food is permitted in Carlingford Lough due to the fact that tidal velocity in Carlingford lough is such that such material is unlikely to settle particularly in the intertidal area.

Divers including black guillemot, guillemot, razorbill, great crested grebe, red-throated diver and great northern diver use the channel. Little is known about the effect of sound and noise on diving birds as little research has been done in this area. This is partly because diving birds use sight rather than sound to hunt and it is unclear how birds perceive underwater sound. In a single study carried out on a species of tubenose (fulmar), gull (kittiwake) and thick-billed murre in Canada; no adverse effects were identified on these species as a result of seismic survey-generated sound (Turnpenny, 1994). In this study the sound level at source was several orders of magnitude higher than what is proposed at Greenore. Thick-billed murres are auks, like black guillemots, and dive and hunt for fish in the same way.

Black guillemots breed on the breakwater and in some crevices on the quay wall. Their breeding season starts in May and continues through July. Because there is a possibility that the noise and vibration stemming from the proposed development may disturb the breeding birds, particularly between May and end June, when they may be incubating eggs, work should be avoided during this period.

Otherwise birds, being highly mobile, are likely to simply fly away to alternative habitats if disturbed by sound during the soft start. The mudflats in the SPA are well below typical carrying capacity for brent geese.

Fish

Fish may be affected by loud underwater sound depending on species. For example flat fish are relatively unaffected while cod (who have a swim bladder in close proximity to their inner ear) are more sensitive (Turnpenny, 1994). In the case of the proposed development the sound levels are not sufficient to have any significant effect either on fish directly, or knock-on effect on their predators, diving birds.

Vibration

The activity will generate some vibration through the solid substrate. This vibration may transmit to the breakwater and disturb birds nesting there. Though this is an unlikely scenario, it cannot be ruled out, therefore breaking should be avoided during the breeding season of black guillemots using the breakwater.

Mitigation

Avoiding underwater noise-generating work during May through June is likely to eliminate any impact on incubating black guillemots.

Maintaining an MMO in place in accordance with the guidance entitled *Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters* during all works is likely to minimise any impact on aquatic mammals. The conditions for MMO mitigation, should it be required, will be set forth in the Foreshore License.

In Combination Effects

It is a requirement of the Birds and Natural Habitats Regulations, 2011 that when considering whether a plan or project will adversely affect the integrity of a European site the assessment must take into account in-combination effects with other current or reasonably foreseeable plans and projects.

- If it can be clearly demonstrated that the plan or project will not result in any effects on the integrity of a European site then the plan or project may proceed without considering the in-combination test, further;
- If there are identified effects arising from the plan or project (even if they are perceived as minor and not likely to have a significant effect on the integrity of a European site), then these effects must be considered 'in-combination' with the effects arising from other plans and projects.

The currently projected window for the development is November 2018 to April 2019.

Carlingford Lough is a busy place with activities associated with the two ports (Warrenpoint and Greenore) dominating, but with aquaculture (mussels, oysters etc), water sports (sailing, boating, swimming etc), and other activities and processes (eg discharge of sewage, storm water, maintenance dredging etc) continuously ongoing. These activities and processes are not assessed as in combination ex situ impacts but rather as part of the settle environment of the lough.

An examination of the Louth County Council planning system, the County Development Plan, Local Area Plans and other sources did not suggest any development ex situ that is likely to have any in-combination or cumulative impact with the proposed development on the conservation objectives of the Natura 2000 sites.

Two in situ projects, the proposed construction of a grain silo (planning ref 16842) in the port area, and the construction of a slipway to service a car ferry (planning ref: 15105) are unlikely to cumulatively impact the Natura 2000 site objectives with the proposed development. This is due to the fact that the silos will be constructed on land at a location too distant to have any impact, direct or indirect, on brent geese or annual or perennial vegetation of drift lines and stony banks. Since the construction work on the ferry terminal is being complete at present (May 2016) it is likely to be complete by the time any activities associated with the present development start.

There are no other currently known in situ developments in Greenore port or its immediate vicinity that are likely to give rise to in-combination effects on the identified designated sites.

Appropriate Assessment Matrix

Factor	Impact	Significance
Extirpation of sub-aquatic habitat	Area affected is insignificant relative to overall area and of no ecological value.	Nil
Contamination of sandflats, mudflats, benthos	Material is non-toxic and tidal velocity likely to disperse it	Nil
Modification of tidal processes	Change affects only immediate area of quay wall	Nil
Noise and vibration – under water	Possible impact on marine mammals	MMO in place
Noise and vibration – above water	Possible impact on foraging/roosting /breeding birds	Soft-start Avoid working May- June
Creation of suspended sediment in the water column and deposition nearby on mudflats	Amount of sediment generated extremely small, particularly when compared to possible background turbidity levels in the Lough. No smothering or deposition at or above high water mark expected. No significant deposition or smothering is expected in the subtidal or intertidal area. The sediment is non-toxic.	Nil

Conclusion

The proposed work is expected to have no significant effect, direct, indirect or in-combination, on the conservation objectives of the designated areas or on any annex II species using the area. In order to mitigate any possible impact on seals or cetaceans, an MMO will be in place to monitor any impact and take remedial action if any effect is observed. Work will be avoided in the months of May to June to avoid any impact on breeding black guillemots.

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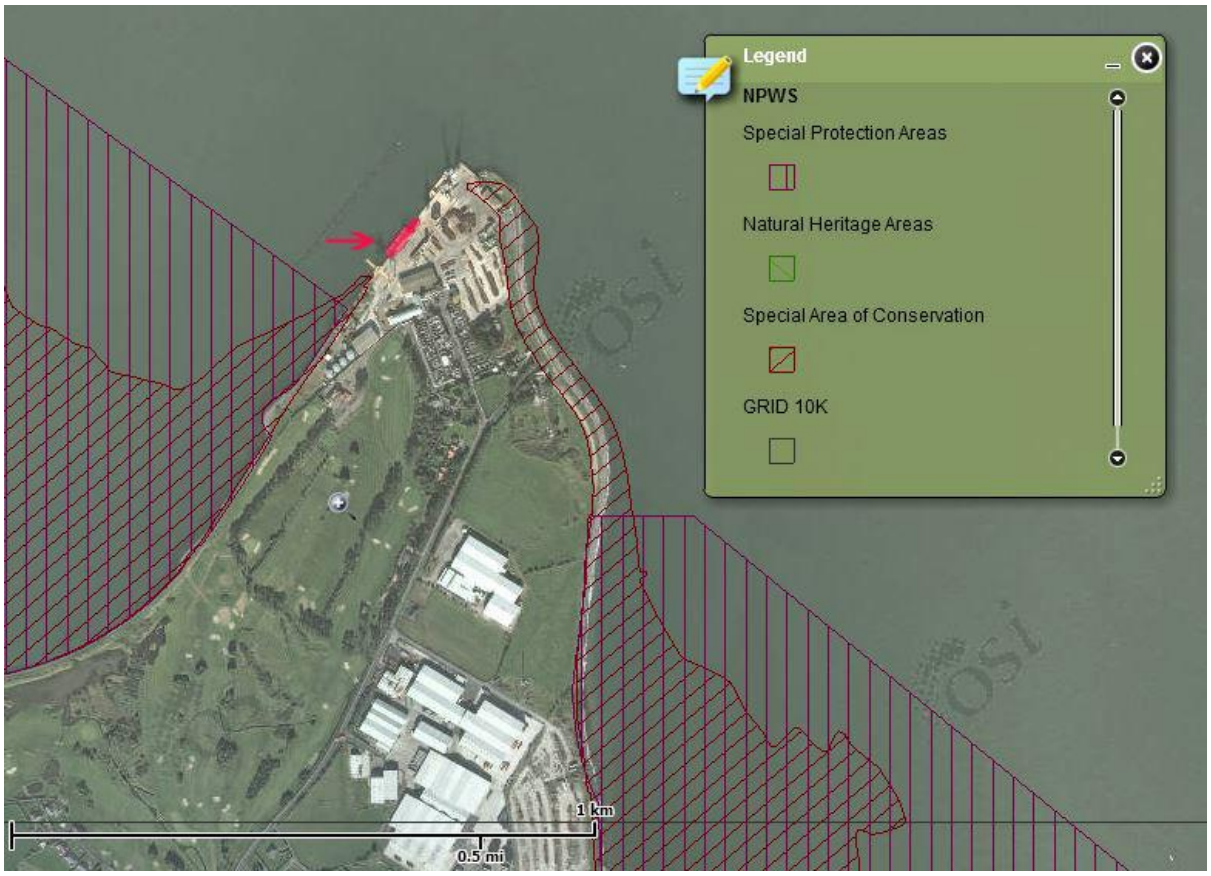
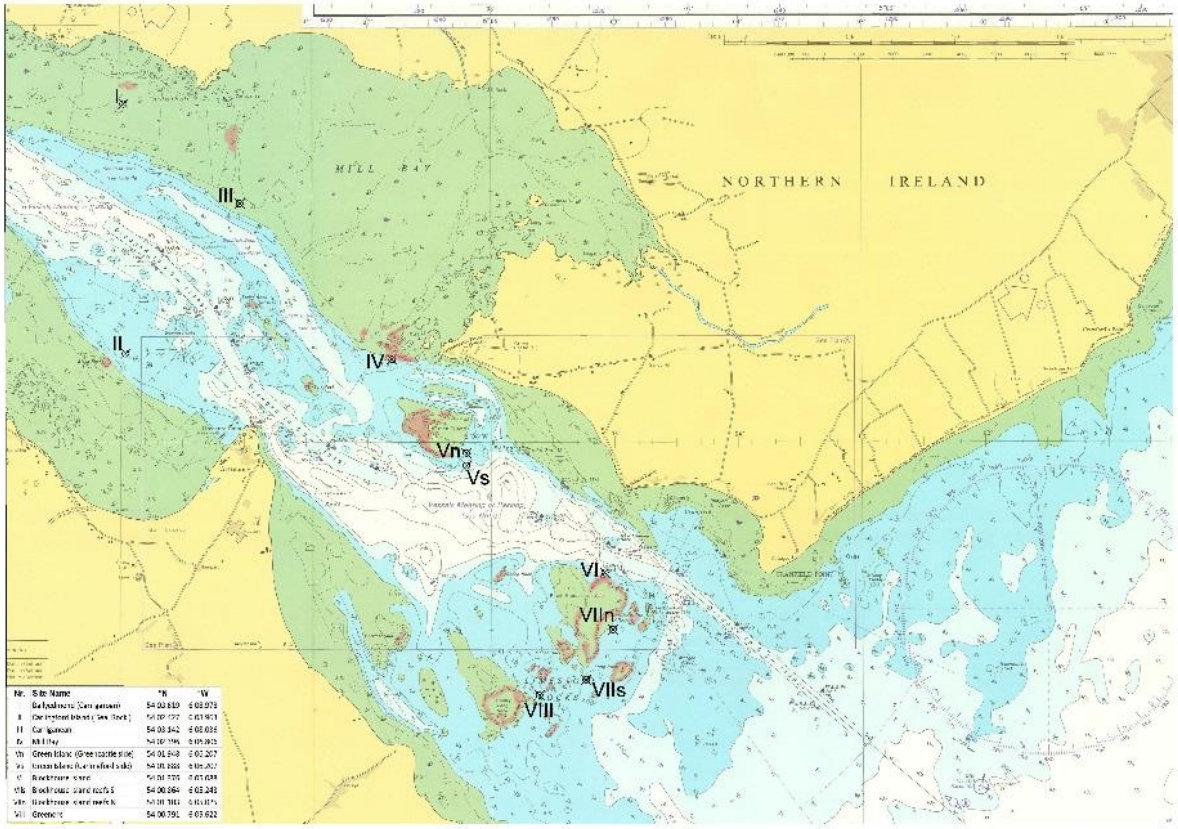
Appendix 1 Designated Sites




CURRENT SCENARIO
OVERHANGING SHIP
CARGO SHIP
UNLOADING OF SHIP
BERTH 1
GAP TO QUAY WALL
BERTH 2


PROPOSED SCENARIO
UNLOADING BACK OF SHIP
BERTH 1
CARGO SHIP
UNLOADING FRONT OF SHIP
UPGRADED QUAY WALL
BERTH 2

Appendix 2 – Seal Haul Outs



Appendix 3 - Carlingford Lough SPA Site Synopsis

SITE SYNOPSIS

SITE NAME: CARLINGFORD LOUGH SPA

SITE CODE: 004078

The site comprises part of the southern sector of Carlingford Lough, Co. Louth, extending from the harbour at Carlingford to Greenore Point. It includes all of the intertidal sand and mud flats to the low tide mark. Much of the shoreline is artificially embanked.

The site supports part of a nationally important population of wintering Cormorant (233 average maximum, 1995/96-1999/00). A range of other waterfowl species occurs, notably Brent Goose (175), Oystercatcher (172), Dunlin (267), Bar-tailed Godwit (25), Redshank (35) and Turnstone (19). The intertidal flats provide feeding areas for the wintering birds.

While the numbers of wintering birds are relatively low, the site does support a good range of species. The presence of Bar-tailed Godwit is of particular note as this species is listed on Annex I of the E.U. Birds Directive.

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Appendix 4 Carlingford Shore SAC Site Synopsis

SITE SYNOPSIS

SITE NAME: CARLINGFORD SHORE

SITE CODE: 002306

Carlingford Shore stretches for approximately 15 km along the shoreline to the LWM of Carlingford Lough which is also the estuary of the Newry River. It is flanked by glacial moraines and mountains - the Mourne Mountains to the north and Carlingford Mountain to the south-west. The underlying rock within the SAC is mainly carboniferous limestone. This outcrops over sections of the SAC in the form of bedrock shore or reefs. Granite boulders are occasionally found. Intertidal mudflats and sand/gravel banks also occur.

The site is a candidate SAC selected for perennial vegetation of stony banks and drift lines, both habitats listed on Annex I of the E.U. Habitats Directive.

The stony banks or shingle found along much of the site vary in width from less than a meter to approximately 50 m south of Ballagan Point. The best examples are found in this area. The perennial vegetaion of the upper beach of these shingle banks is widely ranging, well developed and often stable. In places lichens encrust the stones farther back from the sea. Typical species present throughout the site include Oraches (*Atriplex* spp.), Sea Beet (*Beta vulgaris*), Wild Carrot (*Daucus carota*), Red Fescue (*Festuca rubra*), Sea-milkwort (*Glaux maritima*), Lyme-grass (*Leymus arenarius*) and Wild Radish (*Raphanus raphanistrum*). This grades landward into lowland dry grassland mainly though there are patches of wet grassland.

The vegetation of the stony banks is often interspersed with the vegetation occupying accumulations of drift material and gravels rich in nitrogenous organic matter. The vegetation is sparse. Species seen include Saltwort (*Salsola kali*), Sea Rocket (*Cakile maritima*), Sea Sandwort (*Honkenya peploides*), Sea Spurge (*Euphorbia paralias*), Sea Mayweed (*Matricaria maritima*)and Oraches. The Red Data Book Species the Oyster Plant (*Mertensia maritima*) is also found. This plant is protected under the Flora Protection Order 1999.

There are small patches of saltmarsh on the drier sections of outcropping reefs and at the landward edge of the site. Species present include Sea Aster (*Aster tripolium*), Sea Purslane (*Halimione portulacoides*), Lax-flowered Sea Lavender (*Limonium humile*), Common Saltmarsh-grass (*Puccinellia maritima*), Sea Arrowgrass (*Triglochin maritima*) and Sea Plantain (*Plantago maritima*). In areas which are more regularly flooded is Sea Blite (*Suaeda maritima*). A small brackish lake is present on the landward side of the railway line.

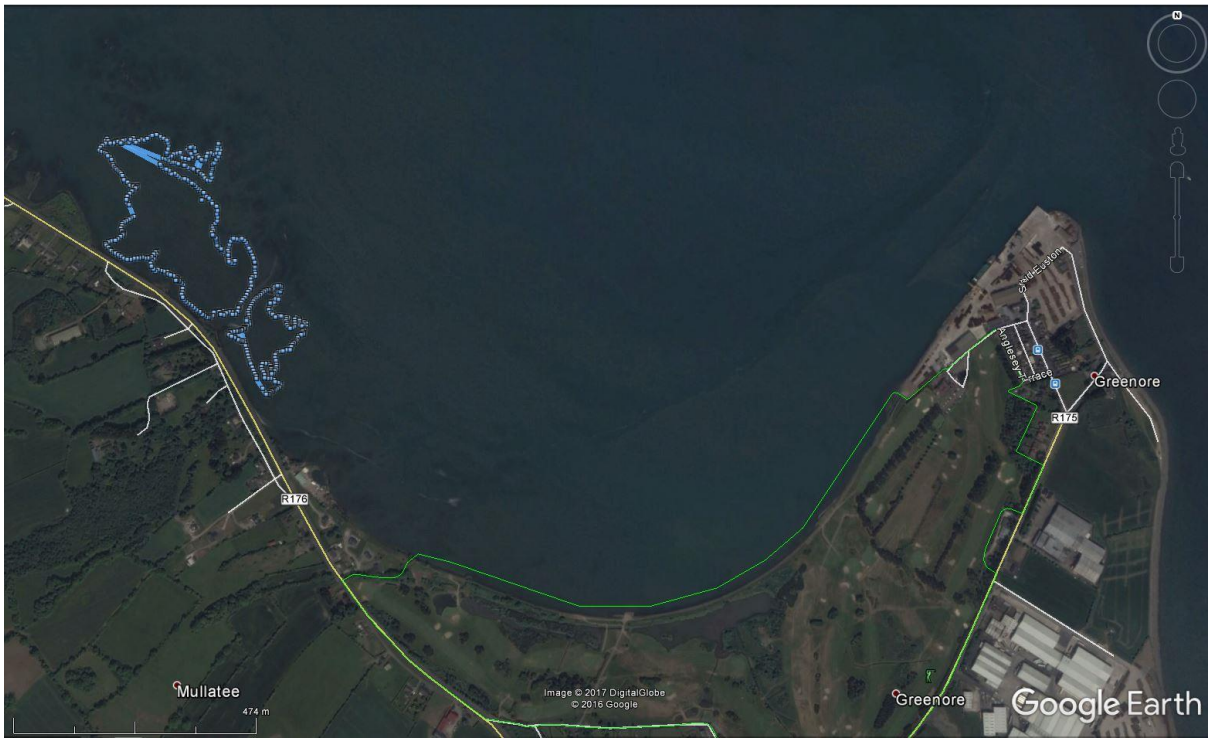
Relatively extensive expanse of intertidal flats - more a sand rather than mud dominant type - occur, particularly between Greenore Point and Carlingford Harbour. The flats in this area are broken by outcropping reefs and some shingle deposits and saltmarsh on the drier higher rocks. These flats are very important feeding grounds for wildfowl and waders. Patches of green algae (filamentous, *Ulva* sp. And *Enteromorpha* sp.) and Lugworm casts occur in places, while fucoid seaweeds are common on the more stony flats. Abundant Barnacle shells and Lichens are also present on many of the rocks. Eelgrass (*Zostera*) beds are found on the flats – the main food source for the internationally important population of Pale-bellied Brent Geese at the site. Small tufts of Cord-grass (*Spartina*) are also found.

The threshold for internationally important numbers of birds within the site has been exceeded in single years, by some species such as Pale-bellied Brent Geese in the 80's and 94/95. The site is nationally important for a number of species such as Great Crested Grebe, Cormorant, Ringed Plover and Red-Breasted Merganser. This classification is based on species which attained interim all-Ireland importance on the basis of the three year mean maximum counts for the winters 94/95-96/97. There are a number of bird species recorded including, Golden Plover and Bar-tailed Godwit, which are listed under Annex I of the E.U. Birds Directive. The intertidal flats between Greenore and Carlingford have been designated a Special Protection Area under the EU Birds Directive.

Black Guillemots (6) were recorded in pairs nesting in wooden breakwater in Greenore and 8 birds were seen at the breakwater. A colony of Terns in Northern Ireland feed in the SPA particularly Sandwich Tern with some Common Tern.

Grey Seals also use the site. Approximately 25-30 haul out on reefs between Greenore and Carlingford. This seal is listed in Annex II under the E.U. Habitats Directive.
The principal activity in the site is recreational usage and shellfish production.
Almost the entire area at the MLWM between Carlingford Harbour and Greenore is under production of Oyster and some small amount of Clams.
Carlingford Shore has a wide diversity of habitats including very good examples of perennial vegetation of stony banks and drift lines. The presence of the Red Data Book Species adds to the ecological interest. The wide area of mud and sand flats within the site is internationally important for birds and is designated as a Special Protection Area. Grey Seal, an Annex II species under the E.U. Habitats Directive adds to the conservation value of the site.
23.10.2002

Appendix 5 Eel Grass Beds



Note: Eel grass beds are illustrated in blue