

ANNEX IV SPECIES RISK ASSESSMENT
PROPOSED SITE INVESTIGATIONS - COURTMACSHERRY, CO CORK

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1 | INTRODUCTION

The Irish Whale and Dolphin Group (IWDG) was contracted by RPS Ireland Limited on behalf of RNLI to carry out an Annex IV Species Risk Assessment of the potential impact on these species by the proposed ground investigation works at Courtmacsherry, Co Cork in relation to the development of the lifeboat berth.

A ground investigation is required to characterise the ground conditions and to determine, if present, the levels of contamination within sediment material which will be dredged. The ground investigation is primarily required to provide information on the ground conditions at the site, which will facilitate the geotechnical design considerations of the proposed jetty and berth.

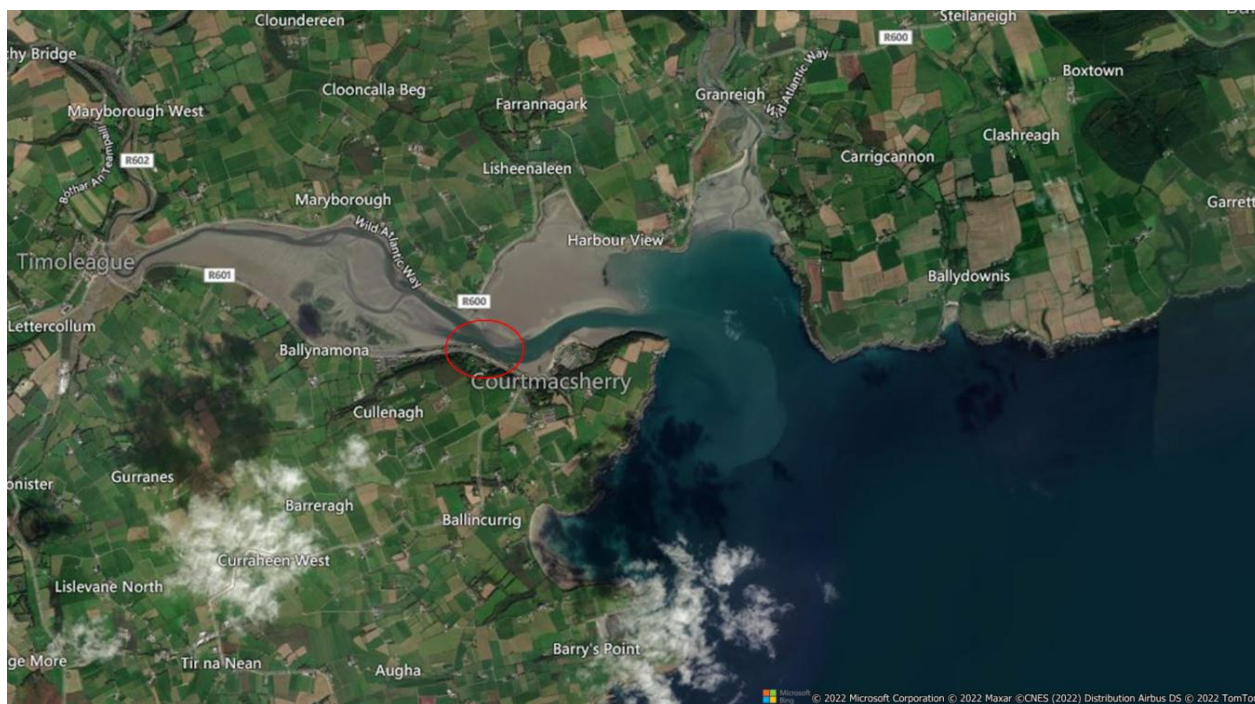


Figure 1. Courtmacsherry, Co Cork

Courtmacsherry is an extensive estuary which lies to the west of the Old head of Kinsale on the south coast of Ireland (Fig. 1). The estuary mainly runs east west and has extensive sand banks and shoals within the estuary. The village of Courtmacsherry lies on the southern shore of the estuary where there is a relatively deep-water channel, an existing pier and the RNLI station lifeboat house and mooring.

A Shannon Class lifeboat is due to come into service at Courtmacsherry and the RNLI prefers to moor 'All Weather Lifeboats' at an afloat / alongside berth, where possible, so that the power for these vessels can be shore connected. A concept project layout is shown in **Figure Error! No text of specified style in document..1**. The site currently consists of the RNLI lifeboat house and existing jetty.

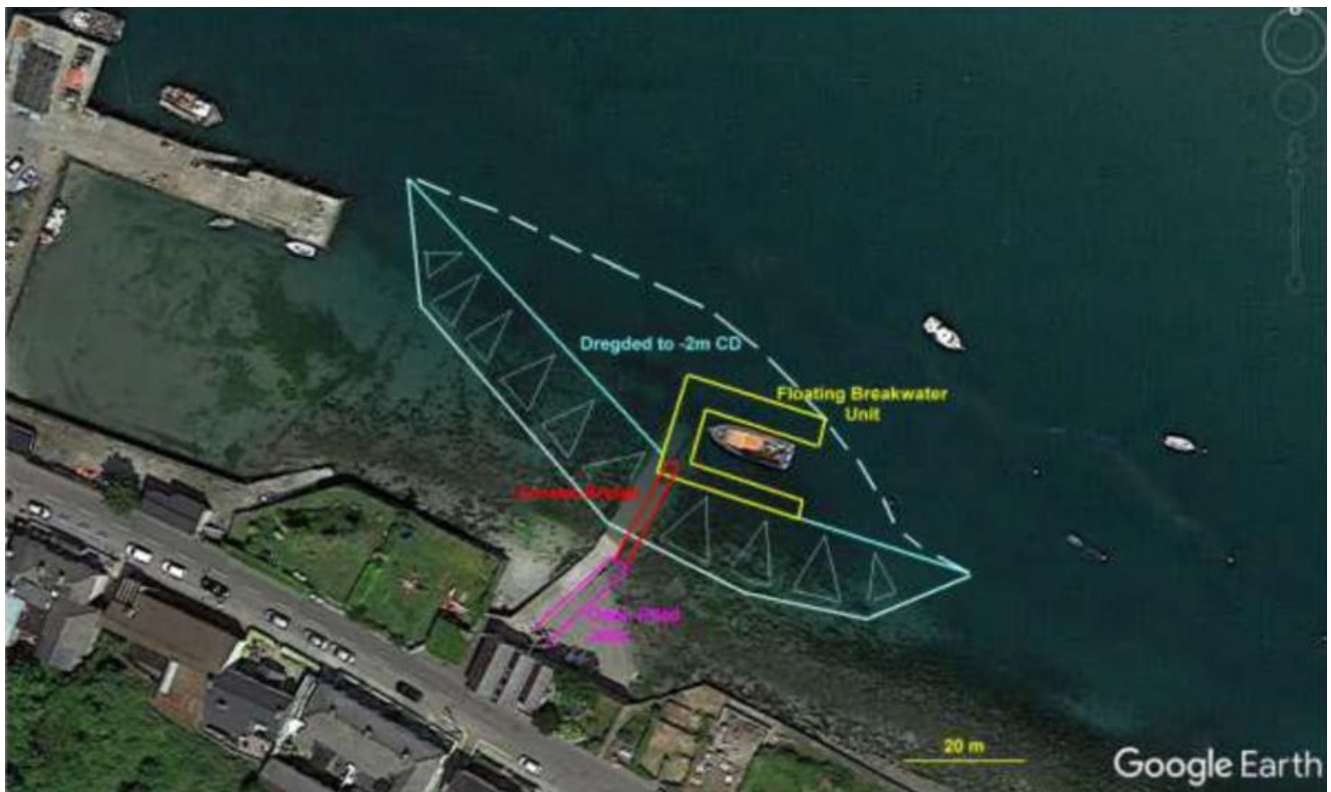


Figure Error! No text of specified style in document..1: Proposed Berth - Concept Layout

1.1 Proposed works

The reference specification for the ground investigation works shall be the Engineers Ireland 'Specification and Related Documents for Ground Investigation in Ireland, 2016' and the works shall be carried out in accordance with BS5930:2015+A1:2020, BS10175:2011+A2:2017 and with the requirements of Eurocode 7 Part 2. The extent of the site investigations is illustrated in Figure Error! No text of specified style in document..2.

The scope of these works will generally comprise the following:

- Provision of hand-dig inspection pits at each land based exploratory hole location to avoid buried services to 1.2m below ground level.
- The Ground Investigation contractor shall use a Cable Avoidance Tool (CAT) and Genny scans to check for buried services prior to the commencement of each land based exploratory hole.
- Sampling of sediment from vibrocores for laboratory testing. Environmental samples shall be taken from the vibrocores at the surface, at 0.5m, then every metre, or every change in strata or when contamination is suspected.
- Three (3) boreholes advanced to a depth of 25.00m bgl. The boreholes will be undertaken within the marine/water environment. There may be existing concrete to break through associated with the existing jetty and allowance should be made for this within the Bill of Quantities.
- Logging of the soil and vibrocores by an experienced engineering geologist or geotechnical engineer.
- In-situ and laboratory geotechnical testing.
- Chemical testing of subsoils at a UKAS and MCERTS accredited laboratory.
- Geotechnical factual reporting compliant with Eurocode 7. This report shall include the contractor's interpretation of the ground conditions with regard to the proposed development's foundations.



Figure Error! No text of specified style in document..2: Proposed Site Investigations Locations

Exploratory holes shall be progressed to the depth given in Table 1.

Exploratory holes must not be terminated without the prior approval of the Investigation Supervisor (RPS).

It is envisaged that the fieldworks will be completed within 10 days followed by laboratory testing and reporting within 6 weeks of the completion of the field works. Overall, the proposed timescale for the project will be 8 weeks from commencement to completion. However, this will be subject to client agreement.

Table 1: Exploratory Hole Details

Exploratory hole	Target depth (m)	Standpipe Installation	Comments
BH01 – BH03	25.00m	n/a	Target depth is 25m.
V01 – VB12	4.00m	n/a	Vibrocores to be retrieved at each location to a depth of 4m below seabed level.

1.2 Proposed construction

Progression of Boreholes

Initially boreholes advanced using the cable percussive method:



- A casing of 8" diameter is driven into the softer upper ground and a sampling baler with nonreturn flap is repetitively inserted into the casing to collect samples down to the bottom of the driven casing.
- The sampler is then returned to the working platform by winch and the collected material is flushed out and stored for testing.
- The casing shall then be advanced in 1.5m increments and the previous steps repeated until firmer ground is reached, and this method is no longer practical regarding advancing the casing and collecting samples.

Boreholes will then be further advanced to their scheduled depth by the rotary coring method:

- A drill-string is then inserted into the casing and extended down to the level achieved by cable percussion.
- A core sampler is inserted into the drill string and lowered by winch until it latches to the drill bit at the bottom.
- Once latched, standard rotary coring is carried out in 0.5-1.5m increments depending on the nature of the ground; rotation of the drill string and the application of downward pressure advances the core barrel through the various firmer ground, eventually coring through rock.
- As each rotary coring increment is completed, the core sampler is detached from the drill bit, collected by winch, and recovered to the working platform where the sample can be extracted.

Frequency of Sampling

The following sampling frequency will apply to the boreholes:

- In soft to firm alluvial deposits, open-tube samples are to be taken. In granular material, SPT testing is to be carried out. In stiff boulder clay, alternate open-tube samples and SPT testing. The following spacings should be used:
 - The first sample/test taken at 0.5 m below ground level
 - The next at 1.0 m deeper, thereafter at 1.0 m depth intervals to 5.5 m depth below ground level
 - Then at 1.5 m depth intervals to 25 m depth below ground level
- Where an open tube sample cannot be taken, an SPT is to be carried out.
- Small, disturbed samples shall be taken of the topsoil/seabed, at each change in soil type or consistency and midway between successive open-tube samples or SPTs.
- Bulk disturbed samples shall be taken of each soil type and where no sample is recovered with an SPT or U100.

Undisturbed Samples

Open Tube or Piston samples shall be taken using the sampling equipment and procedures as described in BS EN ISO 22475-1 and BS5930:2015. The nominal diameter shall be 100mm.

1.3 Receiving Environment

The receiving environment is restricted to the immediate harbour and adjacent Courtmacsherry Bay. The receiving environment includes the benthos, the benthic, demersal and pelagic fish in the area, marine



mammals and to a lesser extent seabirds. Here we only consider the risk to Annex IV species from the marine operations. As part of the proposed site works vibro-coring is most likely to impact on Annex IV Species.

2 | METHODS

The risk assessment was based on a review of the available literature and data sources. Maps of the distribution of cetacean sightings in and adjacent to Courtmacsherry and approaches, were prepared using data from the Irish Whale and Dolphin Group's casual sightings database (IWDG, accessed 31 August 2022) and data from a range of offshore surveys carried out by the IWDG and other sources. Other ETP (Endangered, Threatened and Protected) species recorded incidentally are also presented including data from the National Biodiversity Data Centre (accessed 5 September 2022).

3 | LEGAL STATUS

Irish cetaceans and pinnipeds are protected under national legislation and under a number of international directives and agreements which Ireland is signatory to. All cetaceans as well as grey and harbour seals are protected under the Wildlife Act (1976) and amendments (2000, 2005, 2010 and 2012). Under the act and its amendments it is an offence to hunt, injure or wilfully interfere with, disturb or destroy the resting or breeding place of a protected species (except under license or permit). The act applies out to the 12 nml limit of Irish territorial waters.

All cetaceans, pinnipeds, otter and Leatherback Turtle are protected under Annex IV of the EC Habitats Directive (92/43/EEC). The Directive lists Annex IV species of community interest 'in need of strict protection'. Under this Directive, the harbour porpoise (*Phocoena phocoena*), bottlenose dolphin (*Tursiops truncatus*), grey seal (*Halichoerus grypus*), harbour seal (*Phoca vitulina*), leatherback turtle (*Dermochelys coriacea*) and otter (*Lutra lutra*) are designated Annex II species which are of community interest and whose conservation requires the designation of special areas of conservation.

Ireland is also signatory to conservation agreements such as the Bonn Convention on Migratory Species (1983), the OSPAR Convention for the Protection of the Marine Environment of the northeast Atlantic (1992) and the Berne Convention on Conservation of European Wildlife and Natural Habitats (1979).

In 2007, the National Parks and Wildlife Service (NPWS) of the Department of Arts, Heritage and the Gaeltacht produced a 'Code of Practice for the Protection of Marine Mammals during Acoustic Seafloor Surveys in Irish Waters' (NPWS 2007). These were subsequently reviewed and amended to produce 'Guidance to manage the risk to marine mammals from man-made sound sources in Irish waters' (NPWS 2014) which include mitigation measures specific to piling. The guidelines recommend that listed coastal and marine activities be subject to a risk assessment for anthropogenic sound-related impacts on relevant protected Annex IV species to address any area-specific sensitivities, both in timing and spatial extent, and to inform the consenting process.

Once the listed activity has been subject to a risk assessment, the regulator may decide to refuse consent, to grant consent with no requirement for mitigation, or to grant consent subject to specified mitigation measures.

4 | BASELINE ENVIRONMENT

4.1 | Ambient Noise Levels

The ambient noise levels at the site are not known. Ambient noise in Courtmacsherry Bay is not known but is expected to be very low with only the occasional fishing vessel and recreational craft using the immediate area.

4.2 | Cetaceans

This risk assessment was based on original data collected by the IWDG and a review of the available literature. The IWDG Sightings dataset, which is validated and updated daily, was accessed (on 31 August 2022) and data over a 10-year period (2012 to 2021) was exported and mapped. Marine mammals are highly mobile, and recent advice suggests considering the wider area and the potential for impacts on SACs with marine mammal as qualifying interests up to 100km from these protected areas.

A review of validated cetacean (whale, dolphin and porpoise records) submitted to the IWDG accessed 174 records of cetaceans. Seven cetacean species were recorded with 35 (20.1%) not recorded to species level (Table 2). Surprisingly fin whale was the most frequently recorded with 26.6% of all records, followed by common dolphin (23.7%) and minke whale (23.7%). harbour porpoise, humpback whale, Risso's and bottlenose dolphin were also recorded (Table 2).

Table 2: Cetacean sightings (including IWDG downgrades) recorded in Courtmacsherry Bay and adjacent waters from 2012-2021.

Species	No. sightings	No. individuals	% of records
Fin whale	37	111	26.6
Common dolphin	33	1578	23.7
Minke whale	26	67	18.7
Harbour porpoise	22	94	15.8
Humpback whale	11	19	7.9
Bottlenose dolphin	7	44	5.0
Risso's dolphin	3	13	2.2
Dolphin species possibly harbour porpoise	3	4	8.1
Dolphin species	9	178	7.0
Large whale species	9	19	0.5
Whale sp.	7	16	
Cetacean species	7	24	1.6
Total	186	1416	100

4.2.1 Common dolphin (*Delphinus delphis*)

Common dolphins are distributed around the entire Irish coast with highest concentrations are off the southwest and west coasts (Berrow *et al.* 2010). They were the most frequently recorded dolphin species (27% of all records) are frequently recorded in outer Courtmacsherry Bay but rarely enter the harbour (Fig. 2.1) Common dolphins were mainly distributed in the outer bay area (Fig. 2.1).

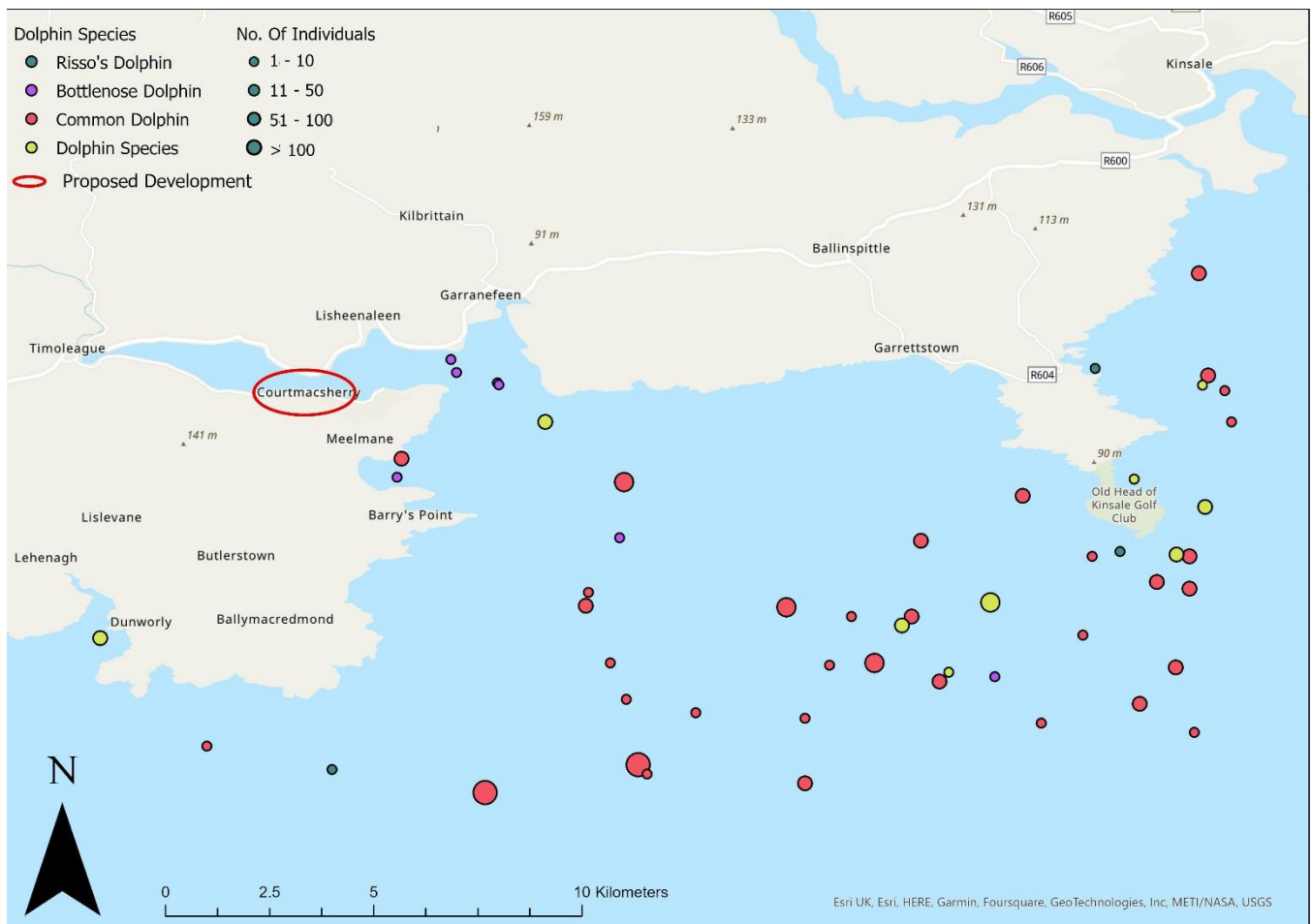


Figure 2.1. Distribution of dolphin species off Courtmacsherry and adjacent waters

4.2.2 Bottlenose (*Tursiops truncatus*)

Bottlenose dolphins only accounted for 5% of all cetacean records (Table 1) but they are the dolphin species most likely to enter the harbour area (Fig. 2.1). This species is however highly mobile and are likely to be part of the inshore population which has been recorded off all Irish coasts (O'Brien *et al.* 2009). They are unlikely to remain in the area for extended periods.

4.2.3 Risso's dolphin (*Grampus griseus*)

There were three sighting records of Risso's dolphin all in the outer bay area (Fig 2.1). Sightings were made during summer months.

4.2.4 Harbour porpoise (*Phocoena phocoena*)

Harbour porpoise are the most widespread cetacean species in inshore Irish waters, with highest abundances in the Irish Sea (Berrow *et al.* 2010). Harbour porpoise were frequently sighted in Courtmacsherry Bay (Fig. 2.3), accounting for 16% of all cetacean records, including at the mouth of the harbour with more sightings during spring and summer. They are known to particularly associate with areas of strong tidal currents for foraging (Berrow *et al.* 2014).

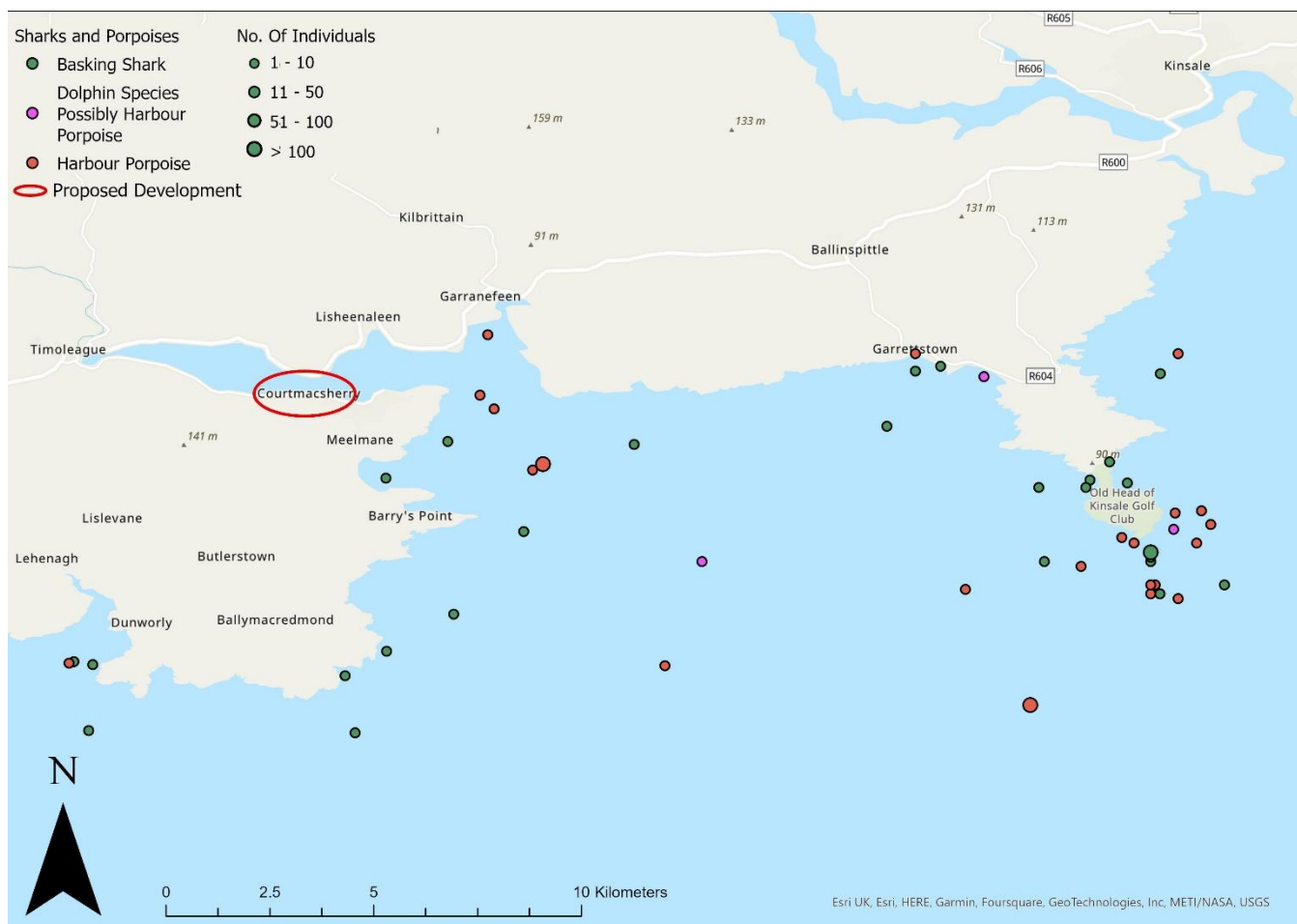


Figure 2.2. Distribution of harbour porpoise off Courtmacsherry and adjacent waters

4.2.5 *Fin whale (Balaenoptera physalus)*

Surprisingly fin whales were the most frequently recorded baleen whale species and indeed the most frequently recorded cetacean species accounting for 26.6% of all records identified to species level (Table 2). However, all records are in Courtmacsherry Bay and they do not enter the harbour.

4.2.6 *Minke (Balaenoptera acutorostrata)*

Minke whale with 26 records (18.7%) was the second most frequently recorded baleen whale, occurring during summer months (Fig. 2.3). Sightings were well scattered around the site with some at the entrance to Courtmacsherry Harbour (Fig. 2.3).

4.2.7 *Humpback whale (Megaptera novaengliae)*

There were 11 sightings of humpback whales accounting for 7.6% of all sighting records. All sightings were in the outer bay and off the Old Head of Kinsale (Fig 2.3)

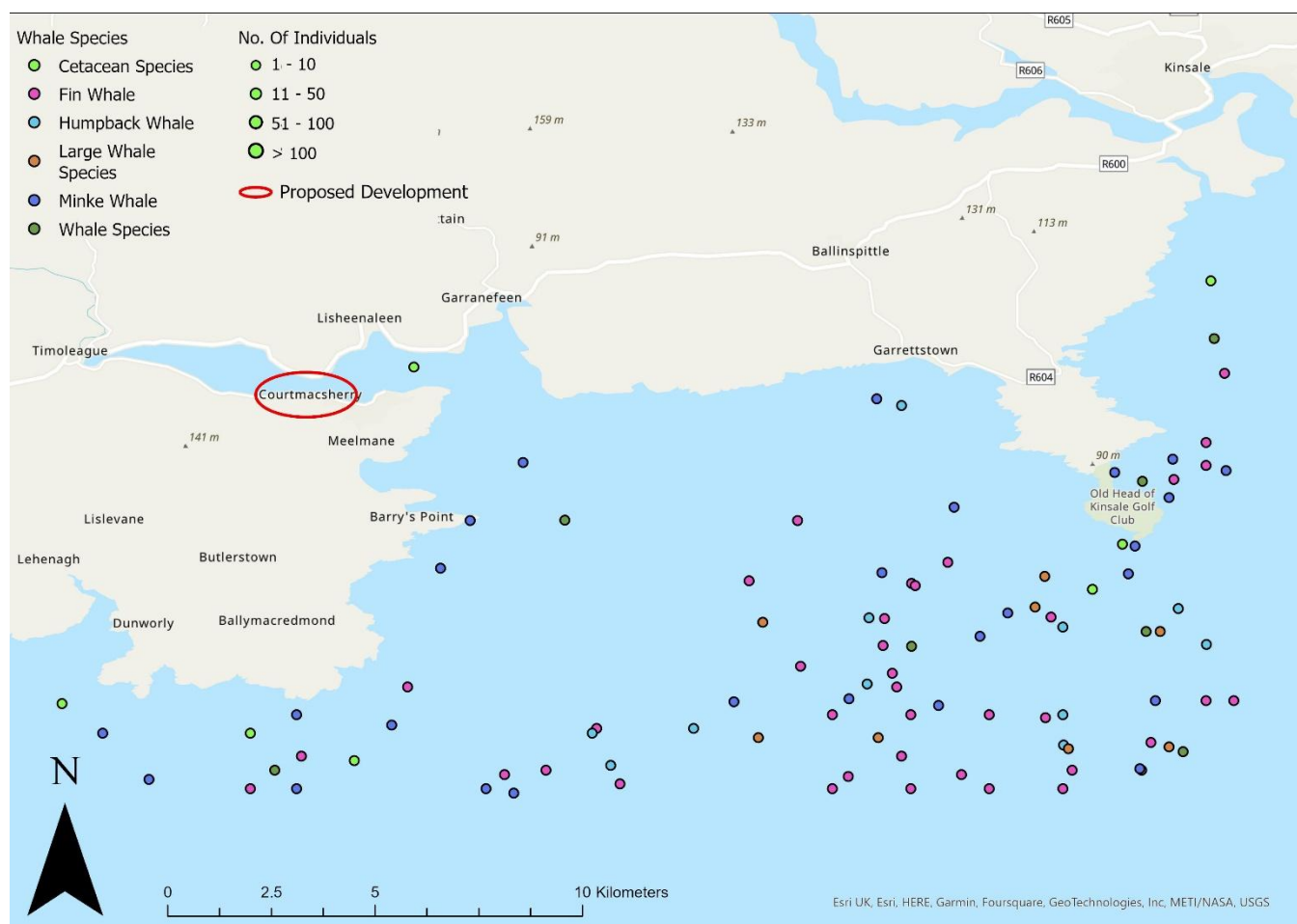


Figure 2.3. Distribution of whale species off Courtmacsherry and adjacent waters

4.2.8 Other ETP species

Other ETP species of interest included the basking shark, marine turtles and rare seal species (Table 3). Basking sharks were observed along the coast and off the Old Head of Kinsale, including at the mouth of the harbour (Fig. 2.4).

A bearded seal was observed hauled out near off Timoleague on 4 August 2017 which is only the second record of this species in Ireland and was clearly a vagrant. A walrus was also observed hauled out in Courtmacsherry Bay on 8 August 2021. Walrus sightings are more common in Ireland but are still rare (Cotton 2007) and both species occurrence in the area of interest must be considered very unusual.

Table 3. ETP species recorded in Courtmacsherry Bay and adjacent waters from 2012-2021.

Species	No. sightings	No. individuals
Basking shark	26	79
Bearded seal	1	1
Walrus	1	1
Total	28	81

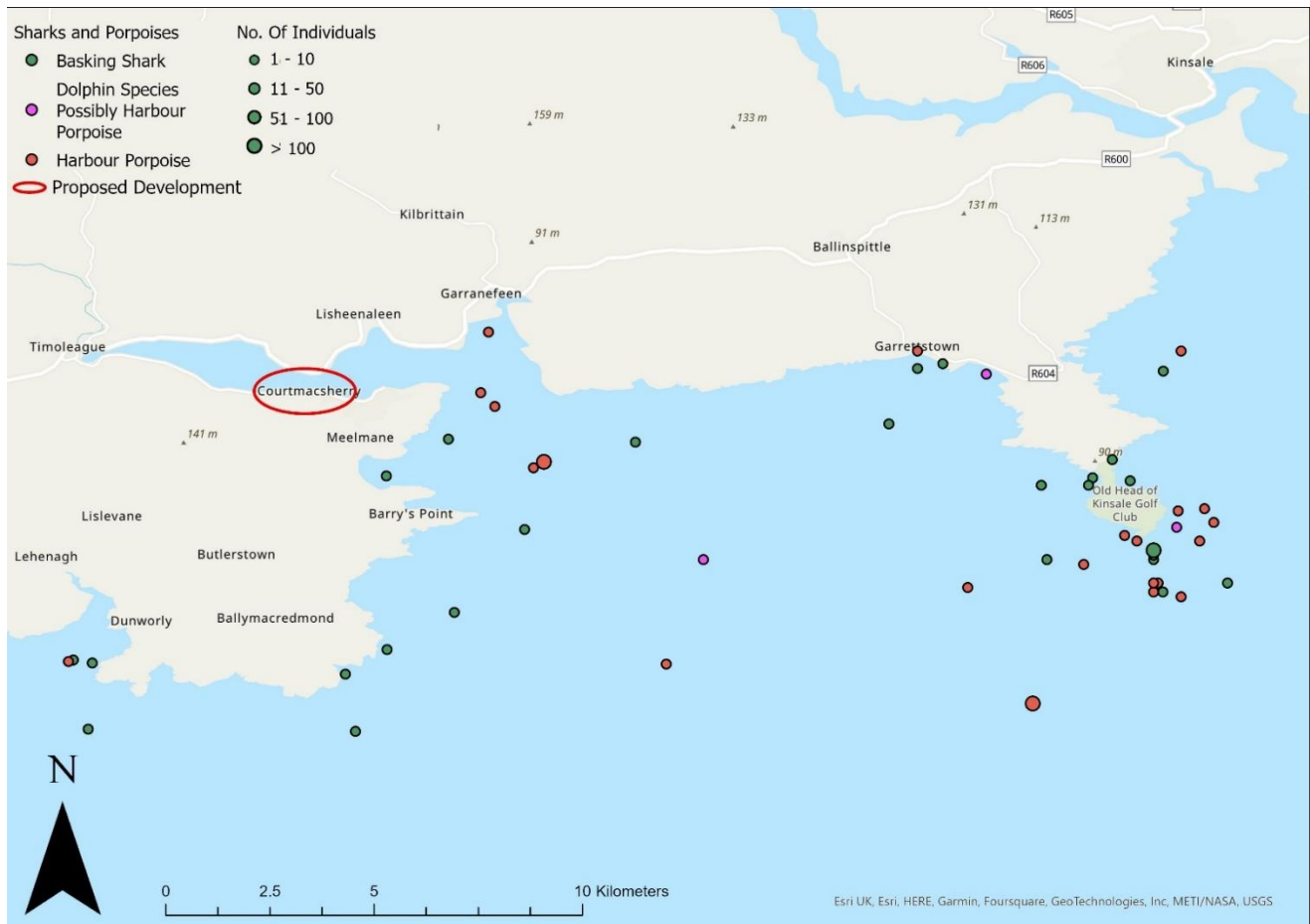


Figure 2.4. Distribution of basking shark off Courtmacsherry and adjacent waters

Leatherback turtles *Dermochelys coriacea* have been recorded regularly off southwest Cork including in Courtmacsherry Bay (Fig 2.5) over the years (Sleeman and Dorman 1984; Dorman 1992), with all records between April to October, peaking in June to September (King and Berrow 2009). Other species of marine turtle such as loggerhead *Caretta caretta* and more occasionally Kemps Ridley *Lepidochelys kempii* have also been reported from adjacent waters (King and Berrow 2009).

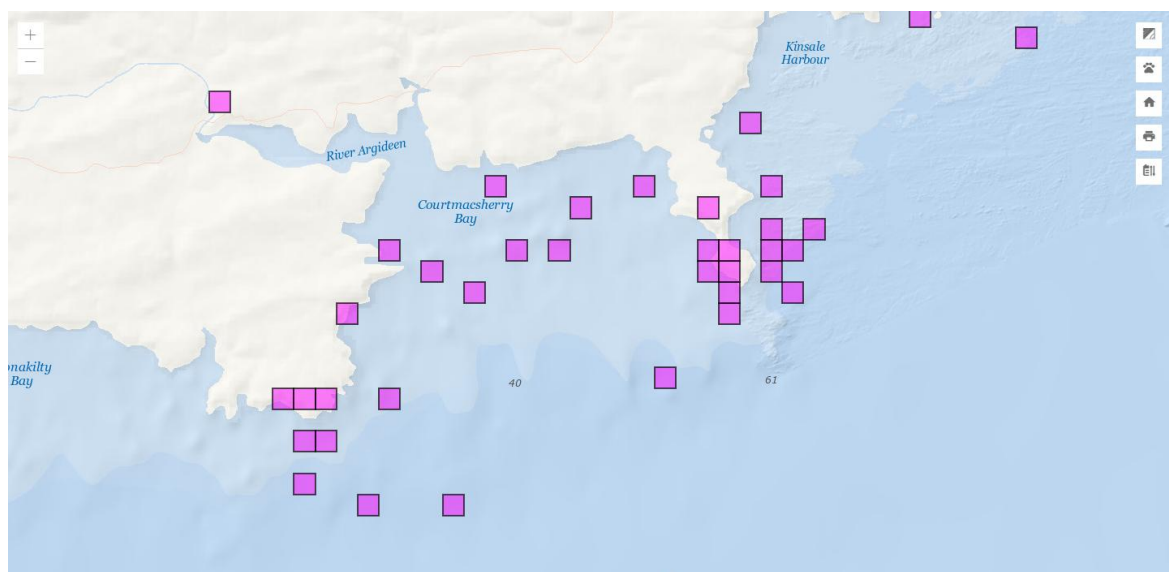


Figure 2.5. Records of leatherback turtle around Courtmacsherry Bay (map courtesy of the National Biodiversity Data Centre).

4.3 | Otter

No site-specific survey of otters was undertaken but it is likely otters occur in good numbers in Courtmacsherry Bay. Reid *et al.* (2013) reported positive occurrence during rapid assessments between 2010 and 2011 with otters occurring at 68% of sites surveyed in the southwest region. Reid *et al.* (2013) categorised the southwest region of Co Cork as having intermediate densities of otters (0-10-0.15 females per km²) compared to other parts of Ireland.

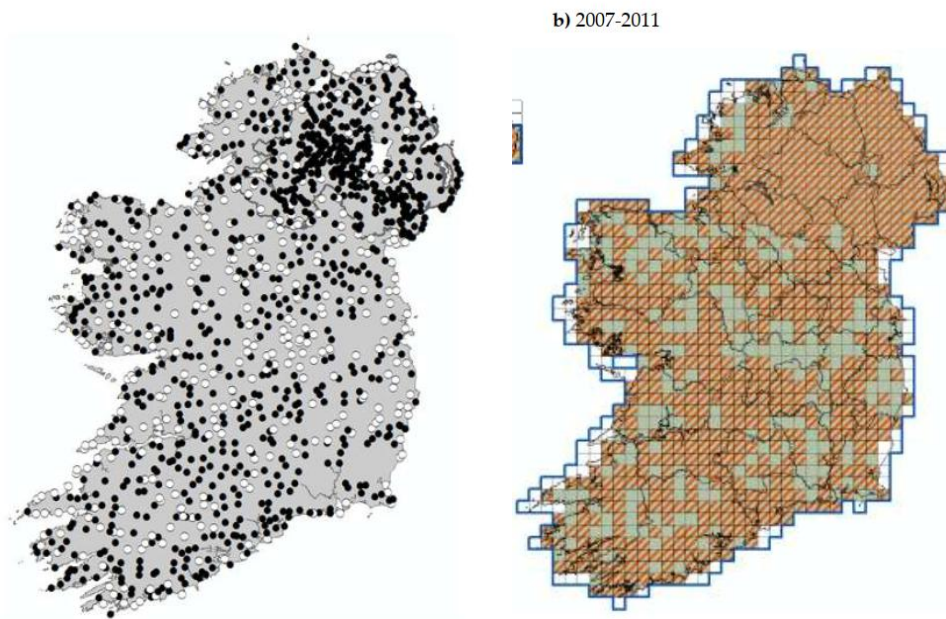


Figure 2.6. Distribution of otters between 2010/11 (from Reid *et al.* 2013)

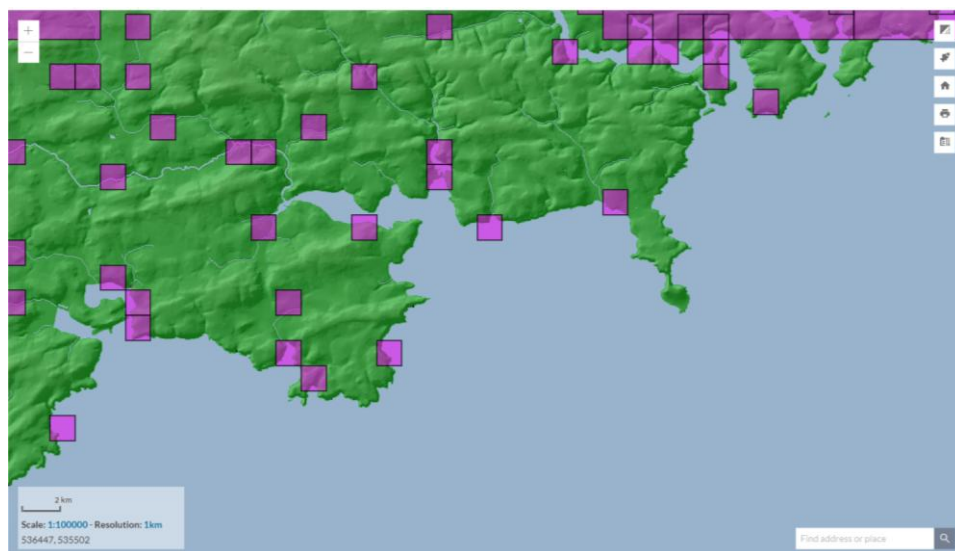


Figure 2.7. Map of otter distribution around Courtmacsherry Harbour (map courtesy of the National Biodiversity Data Centre).

Coastal dwelling otters require access to a freshwater source as they must regularly cleanse their fur of salt as this can affect its insulating properties and therefore their territorial range will be directed by access to



freshwater. In Ireland, the territory of female otters is $6.5 \pm 1.0\text{km}$ in coastal environments (de Jongh *et al.* 2010) and for males it may be a larger extent, where for both females and males a total width of coastal water body would be 80m (NPWS, *Lutra lutra* (1355) Conservation Status Assessment Report). Underwater, hearing sensitivity is significantly reduced when compared to sea lions and other pinniped species, demonstrating that otter hearing is primarily adapted to receive airborne sounds (Ghoul *et al.* 2014).

4.4 | Pinnipeds

Grey and harbour seals are distributed around the entire Irish coast with grey seals being more abundant along the western seaboard (Cronin *et al.* 2004; O’Cadhla *et al.* 2007; O’Cadhla and Strong 2007).

Grey Seal (Halichoerus grypus)

There are no recorded grey seal breeding sites in Courtmacsherry Bay (O’Cadhla *et al.* 2007; Morris and Duck 2019), however grey seals have been noted hauled out. Grey seals are regularly observed off the coast (Fig. 2.5) and range long distances while foraging (Cronin *et al.* 2016) and may be expected to be encountered regularly within the harbour.

Harbour or Common Seal (Phoca vitulina)

There were no harbour seal haul-out sites or breeding sites recorded within Courtmacsherry Bay during National Parks and Wildlife Service (NPWS) surveys (Cronin *et al.* 2004; Morris and Duck 2019) though they have occasionally been recorded hauled (Cronin *et al.* 2004). Harbour seals pup in June-July and the moulting period occurs after breeding, starting in June and ending in November, with a peak in mid-September (Cronin *et al.* 2014).

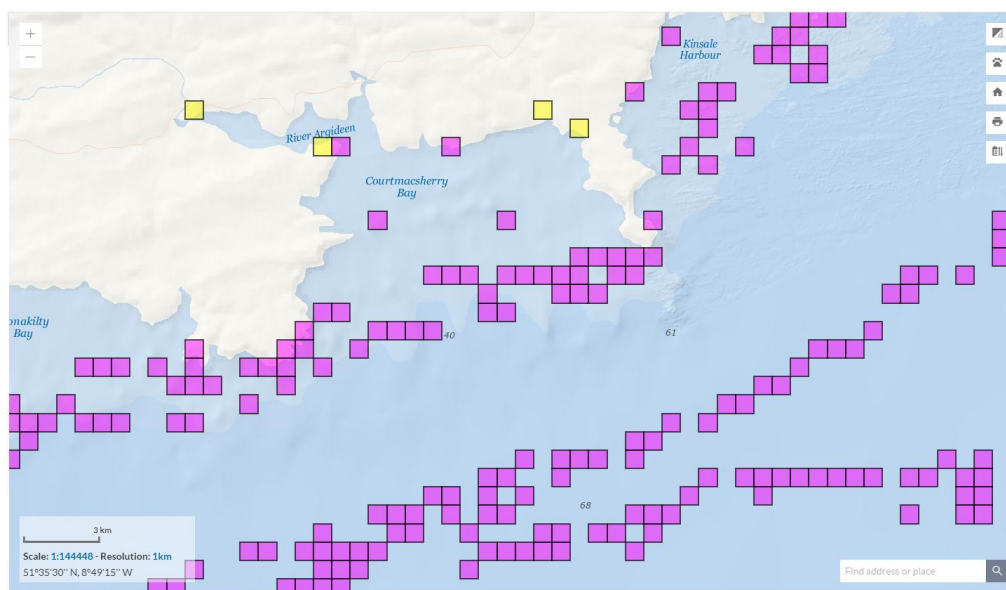


Figure 2.8. Records of grey seals (purple) and harbour/common seals (yellow) around Courtmacsherry Bay (courtesy Harbour (map courtesy of the National Biodiversity Data Centre).

4.5 | Bats

Bats are also protected under the EU Habitats Directive (92/43/EEC). The lesser horseshoe bat which is found in the Republic of Ireland only is listed in Annex II of the EU Habitats Directive, while all bat species are listed

in Annex IV of the Directive. This Annex IV Species Risk Assessment has also considered the potential for any impacts from the proposed activities in Courtmacsherry on any of the ten species of bat that are confirmed as resident in Ireland (Kelleher & Marnell, 2006) and have been observed as present on the site.

5 | IMPACT ASSESSMENT

5.1 | Description of Activities

The relevant marine activities include vibro-core sampling, rotary coring, SPT/hammer sampling and breakthrough of existing concrete. The potential effects of these activities on Annex IV species was addressed by assessing the likelihood that Annex IV species would be exposed, or interact, with the activity. Impacts assessed include likelihood of temporary or permanent threshold shift and disturbance from noise emitted during operations. Acoustic disturbance includes the ability of the individual to detect increased noise levels over ambient levels, masking, Temporary Threshold Shift (TTS) and Permanent Threshold Shift (PTS) and behavioural impacts, i.e. resulting in a behavioural change by individuals.

All vibro and rotary coring activities will be limited to a short 10-day period.

5.1.1 Vibro and rotary coring

- Sampling of sediment from vibro-cores for laboratory testing. Environmental samples shall be taken from the vibro-cores at the surface, at 0.5m, then every metre, or every change in strata or when contamination is suspected.
- Three (3) boreholes advanced to a depth of 25.00m bgl. The boreholes will be undertaken within the marine/water environment. There may be existing concrete to break through associated with the existing jetty and allowance should be made for this within the Bill of Quantities.

5.1.3 SPT/hammer sampling

Standard Penetration Testing (SPT) uses a drop hammer to drive a split-spoon sampler into the bottom of a borehole, measuring soil resistance and recovering samples. This would only be used as a last resort if coring did not obtain the appropriate depth of sample.

5.1.4 Breakthrough of Concrete

Breakthrough of concrete will involve a tracked vehicle and take place at low tide with no noise entering the marine environment.

5.2 | Risk Assessment

The NPWS '*Guidance to manage the risk to marine mammals from man-made sound sources in Irish waters – January 2014*' recommends that listed coastal and marine activities, undergo a risk assessment for anthropogenic sound-related impacts on relevant protected Annex IV species to address any area-specific sensitivities, both in timing and spatial extent, and to inform the consenting process. It is required that such an assessment must competently identify the risks according to the available evidence and consider (i) direct, (ii) indirect and (iii) cumulative effects of anthropogenic sound (NPWS 2014).

5.3 | Literature Review of Impacts and Mitigation

5.3.1 Vibro and rotary coring



Vibro-coring is a technology and a technique for collecting core samples of underwater sediments. The vibrating mechanism of the vibro-corer will be powered by two large electrical motors. The nominal frequency of the motors is approximately 50 Hz. Rotary coring and drilling sounds combine high-speed motor whir, heavy mechanical grinding, and rhythmic percussive or cutting impact. There is little information on the sound profile of rotary coring underwater but it is likely to be similar to vibro but much lower intensity. The acoustic profile of rotary coring above water was considered by Reidel *et al.* (2025):

- Motor/Drive/Whir: High-RPM electric or diesel motor hum, gear whine, and hydraulic/pneumatic pressure loops.
- Bit-to-Surface Contact: High-frequency metallic/diamond-grit grinding, scraping, and screeching as the annular bit cuts rock or concrete.
- Perforating/Hammering (if rotary-hammer or percussive): Rhythmic heavy thuds, clacks, or high-impact hammering pulses.
- Debris/Coolant/Water: Slurry sloshing, water-flush trickling or spraying, and fine grit or core-barrel clatter.
- Resonance/Casing: Deep rumbling or metal vibration when coring into dense foundations or deep boreholes

Coring use would only be after cable persuasion method until, or if they hit rock or concrete and only then would they use the coring method. Similarly Standard Penetration Testing (SPT) with a drop hammer to drive a split-spoon sampler into the bottom of a borehole, would only be used after the vibro and rotary coring had failed to obtain the appropriate samples.

If a marine mammal's received sound exposures, irrespective of the anthropogenic source (pulse or nonpulse), exceed the relevant criterion, auditory injury (PTS) is assumed to be likely. The measured effects on Annex IV species are largely based on work by Southall *et al.* (2007), who proposed a dual criterion based on peak sound pressure level (SPL) and sound exposure level (SEL), where the level that is exceeded first is what should be used as the working injury criterion (i.e. the precautionary of the two measures).

As all marine mammals do not hear equally across all frequencies, the use of frequency weightings is applied to compensate for differential frequency responses of their sensory systems. The M-weighting (for marine mammals) is similar to the C-weighting for measuring high amplitude sounds in humans. At present there are no data available to represent the onset of PTS in marine mammals but Southall *et al.* (2007) estimated it as 6 dB above the SPL (unweighted) and 15 dB above the SEL (M-weighted according to the relevant marine mammal functional group, see Figure 1) based on the onset of TTS. Therefore, Southall *et al.* (2007) proposed SPL criteria of 230 dB re 1 μ Pa (peak broadband level) for PTS onset in cetaceans and 218 dB re 1 μ Pa for pinnipeds. They also recommended TTS can occur at 224 dB re 1 μ Pa (peak broadband level) for cetaceans and 212 dB re 1 μ Pa for pinnipeds (Southall *et al.* 2007). While the SEL criteria proposed by Southall *et al.* (2007) include TTS onset at 183 dB re 1 μ Pa² -s for cetaceans and 171 dB re 1 μ Pa² -s for pinnipeds, and PTS onset is expected at 15 dB additional exposure (Bailey *et al.* 2010).

Given that the proposed works will be restricted to a small area in Courtmacsherry for a short period (10 days), the sound exposure to cetaceans, marine turtles and otters is very minimal. It is highly unlikely any species other than otters will occur near the site. Even if they did occur, with a sound frequency emitted of 50 Hz, the sensitivities of these species to such low frequency is very low and they will hardly be able to perceive the sound.

It is also concluded that the proposed works will have no impact on the terrestrial Annex IV species, bats as the sound produced will be restricted to the shallow waters around the coring sites.



5.3.3 SPT/hammer sampling

The acoustic and vibratory noise signature of Standard Penetration Test (SPT) hammer sampling is classified as a series of high-energy, impulsive, broadband transient events. Because the test involves dropping a 140 lb (63.5 kg) weight from a height of 30 inches (750 mm) onto an anvil connected to drill rods, each blow generates distinct airborne, structural, and underwater noise profiles.

When geotechnical investigations take place over water (such as from a jack-up rig or barge), the noise signature traveling into the water column is typically (Erbe and MacPherson 2017):

- Source Level (SL): 151 to 160 dB re 1 $\mu\text{Pa}^2\text{s}$ @ 1 m expressed as Sound Exposure Level (SEL).
- Frequency Bandwidth: Extremely broadband, spanning from 20 Hz to 24,000 Hz.
- Waveform Profile: Highly impulsive. The energy mimics a down-scaled marine pile driver, spiking up to 35 dB above ambient sea noise at close range before quickly attenuating

5.3.4 Breakthrough of Concrete

Ground works typically produce low frequency low intensity noise which is extremely unlikely to enter the marine environment.

5.3.5 Indirect impacts on prey

No adverse effects on fish species are expected from coring operations and associated activities as any impacts will be very restricted to the site in Courtmacsherry

5.3.6 Cumulative Effects

There will be no cumulative effects as all coring activities will be carried out over a 10-day period.

5.5 | Mitigation Measures

No mitigation measures are proposed as the potential impacts are so unlikely and if they do occur will have no impacts.

5.5.1 Disturbance

Due to the low frequency sound emitted (50Hz) and the unlikely occurrence of Annex IV species no disturbance will occur.

5.5.2 Injury and mortality

Due to the low frequency sound emitted (50Hz) and the unlikely occurrence of Annex IV species no injury or mortality will occur.

5.5.3 Disruption of normal behaviors

Due to the low frequency sound emitted (50Hz), short duration and the unlikely occurrence of Annex IV species no disturbance will occur.

5.6 | NPWS Assessment Criteria

1. Do individuals or populations of marine mammal species occur within the proposed area?

The likelihood of cetaceans being in the area is very low. Although a number of cetacean species have been recorded in adjacent areas, their abundance is generally low and they are highly mobile. All cetaceans and seals are part of a larger population and very mobile

2. Is the plan or project likely to result in death, injury or disturbance of individuals?

The project does not have the potential to cause injury or death as potential impacts are very limited and extremely unlikely to occur. .

3. Is it possible to estimate the number of individuals of each species that are likely to be affected?

No abundance estimates for cetaceans in Courtmacsherry Bay or harbour are available but their presence is rare in the harbour although they do occur regularly adjacent to the site.

4. Will individuals be disturbed at a sensitive location or sensitive time during their life cycle?

Coring (both vibro and rotary) may be carried out for a very limited period (10 days) which if it did expose Annex IV species would only be for a very short period.

5. Are the impacts likely to focus on a particular section of the species' population, e.g., adults vs. juveniles, males vs. females?

There is no data to suggest that any particular Annex IV species, gender or age group are more likely to occur in the vicinity of the site compared to other ages/sex and thus all must be expected to occur.

6. Will the plan or project cause displacement from key functional areas, e.g., for breeding, foraging, resting or migration?

While a range of Annex IV species have been reported in Courtmacsherry Bay, they are very rare in the harbour and thus it does not provide any important habitats.

7. How quickly is the affected population likely to recover once the plan or project has ceased?

Any disturbance of marine mammals in the very unlikely event it occurs would be very short term and have no impact.

5.7 | Mitigation

As the potential exposure of Annex IV species to the proposed activities and the potential impact even if they were exposed is so extremely low, no mitigation is required. Based on this Annex IV species risk assessment, no Regulation 54 derogation licence is required as no impact on Annex IV species is envisaged.

5.8 | Residual Impacts

It is very unlikely that there will be negative residual impacts from the proposed marine activities even in the absence of mitigation

6 | SUMMARY

Although sightings of Annex IV species occur frequently within Courtmacsherry Bay and occasionally within the harbour the potential for exposure to, or impacts from, the proposed marine activities is extremely low. Thus we recommend that no mitigation is required in the case of the proposed site investigations by RNLI and no derogation license is required.

7 | REFERENCES

- Berrow, S.D., Whooley, P., O'Connell, M. and Wall, D. (2010). Irish Cetacean Review (2000-2009). Irish Whale and Dolphin Group, Kilrush, Co. Clare. 60pp.
- Cotton, D. C. F. (2007). A Critical Review of Irish Records of Walrus *Odobenus rosmarus* (L.) with Some Unpublished Observations from Cos Donegal, Sligo, Mayo and Galway. *The Irish Naturalists' Journal*, 28(9), 349–355.
- Cronin, M., Duck, C., Ó Cadhla, O., Nairn, R., Strong, D. and O' Keeffe, C. (2004). Harbour seal population assessment in the Republic of Ireland: August 2003. Irish Wildlife Manuals, No. 11. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.
- Cronin, M. A., Kavanagh, A. and Rogan, E. (2008) The foraging ecology of the harbour seal (*Phoca vitulina vitulina*) in Ireland. *Final Report to the Marine Institute. Project ST05/12. 145 pp*
- Cronin, M.A., Zuur, A.F., Rogan, E. and McConnell, B.J. (2009) Using mobile phone telemetry to investigate the haul-out behaviour of harbour seals *Phoca vitulina vitulina*. *Endang Species Res* 10:255-267. <https://doi.org/10.3354/esr00170>
- Dorman, J. A. (1982) Leathery turtle *Dermochelys coriacea* L. *Irish Naturalists' Journal* 24(1), 39.
- Duck, C. and Morris, C. (2013) An aerial survey of harbour seals in Ireland: Part 2: Galway Bay to Carlingford Lough. August-September 2012. Unpublished report to the National Parks & Wildlife Service, Department of Arts, Heritage & the Gaeltacht, Dublin.
- Erbe, C. and McPherson, C. (2017) Underwater noise from geotechnical drilling and standard penetration testing. *The Journal of the Acoustical Society of America*. 142. 10.1121/1.5003328.
- Morris, C.D. and Duck, C.D. (2019) Aerial thermal-imaging survey of seals in Ireland, 2017 to 2018. Irish Wildlife Manuals, No. 111 National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Ireland.
- NPWS (2013) The Status of EU Protected Habitats and Species in Ireland. Species assessment Volume 3, Version 1.0. Unpublished Report, National Parks and Wildlife Services. Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.
- NPWS (2014) Guidance to manage the risk to marine mammals from man-made sound sources in Irish waters – January 2014. National parks and Wildlife Service, 7 Ely Place, Dublin 2.
- O'Brien, J.M., Berrow, S.D., Ryan, C., McGrath, D., O'Connor, I., Pesante, P., Burrows, G., Massett, N., Klötzer, V. and Whooley, P. (2009) A note on long-distance matches of bottlenose dolphins (*Tursiops truncatus*) around the Irish coast using photo-identification. *Journal of Cetacean Research and Management* 11(1), 71-76.
- Ó Cadhla, O., Strong, D., O'Keeffe, C., Coleman, M., Cronin, M., Duck, C., Murray, T., Dower, P., Nairn, R., Murphy, P., Smiddy, P., Saich, C., Lyons, D. and Hiby, A.R. (2007). An assessment of the breeding population of grey seals in the Republic of Ireland, 2005. Irish Wildlife Manuals No. 34. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland.



O’Cadhla, O. and Strong, D. (2007) Grey seal moult population survey in the Republic of Ireland, 2007. CMRC.

Reidel, J., Beer, G., Froschmeir, F., Uhlemann, T. and Becker, S. (2025) Psychoacoustic investigation of the sound radiation of rotary drilling rigs. In Forum Acusticum Euronoise 2025. 11th Convention of the European Acoustics Association. Malago, Spain 23-26 June 2025.

Sleeman, D.P. and Dorman, J.A. (1984) Records of leathery turtles *Dermochelys coriacea* (L.) from Co. Cork. Irish Naturalists’ Journal 21(8), 371.

Southall, B.L., Bowles, A.E., Ellison, W.T., Finneran, J.J., Gentry, R.L., Greene Jr., C.R., Kastak, D., Ketten, D.R., Miller, J.H., Nachtigall, P.E., Richardson, W.J., Thomas, J.A., Tyack, P.L. (2007) Marine mammal noise exposure criteria: initial scientific recommendation. *Aquatic Mammals* 33, 411–521