



BEP

European Protected Species Risk Assessment for the Proposed Development at Kilmun Pier

Client: Arch Henderson / Western Ferries Ltd

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Acronyms

Acronym	Acronym description
CGNS	Celtic Greater North Sea
CIA	Cumulative Impact Assessment
CWSH	Coastal West Scotland and Hebrides
EPS	European Protected Species
FCS	Favourable Conservation Status
HF	High Frequency
HWDT	Hebridean Whale and Dolphin Trust
Hz	Hertz
IAMMWG	Inter-Agency Marine Mammal Working Group
JNCC	Joint Nature Conservation Committee
kHz	Kilohertz
km	Kilometre
LF	Low Frequency
MD-LOT	Marine Directive Licensing Operations Team
MMO	Marine Mammal Observer
MU	Management Unit
NAMMCO	North Atlantic Marine Mammal Commission
NCMPA	Nature Conservation Marine Protected Area
NMFS	National Marine Fisheries Service
PAM	Passive Acoustic Monitoring
PMF	Priority Marine Features
PTS	Permanent Threshold Shift
RA	Risk Assessment
SAC	Special Area of Conservation
SCANS	Small Cetaceans in the European Atlantic and North Sea
SEL	Sound Exposure Level
SEL _{cum}	Cumulative Sound Exposure Level
SPL	Sound Pressure Level
SPL _{peak}	Peak Sound Pressure Level
TTS	Temporary Threshold Shift
UK	United Kingdom
US	United States

VHF	Very High Frequency
WCC	West Coast Community
WS	West Scotland

1 Introduction and Project Information

This European Protected Species (EPS) Stage 1 Risk Assessment (RA) has been undertaken to support the consent applications regarding impact piling and vibro piling being undertaken to install a new berthing structure at Kilmun Pier (the proposed development).

The purpose of this RA is to determine whether there is potential for the proposed piling to cause deliberate harm, or inadvertently cause disturbance to cetaceans or other protected species and if mitigation would be required for the proposed development activities. The need for a Marine EPS Licence will be determined by the Marine Directorate Licensing Operations Team (MD- LOT), with advice from NatureScot, based on findings from the EPS RA. MD-LOT's consideration of whether an EPS Licence will be required will comprise three tests:

1. To ascertain whether the licence is to be granted for one of the purposes specified in the Regulation 44;
2. To ascertain whether there are no satisfactory alternatives to the activity proposed (that would avoid the risk of offence); and
3. That the licensing of the activity will not be detrimental to the maintenance of the population of the species concerned at a *Favourable Conservation Status* (FCS)¹.

1.1 EPS Protection

All species of cetacean (whale, dolphin, and porpoise) occurring in United Kingdom (UK) waters and otters are listed in Annex IV of the Habitats Directive as EPS, meaning that they are species of community interest in need of strict protection, as directed by Article 12 of the Directive.

This protection is afforded in Scottish territorial waters (out to 12 nautical miles (nm)) under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). Regulation 39(1) of these Regulations make it an offence to:

- a. Deliberately or recklessly capture, injure or kill a wild animal of an EPS;
- b. Deliberately or recklessly:
 - i. Harass a wild animal or group of wild animals of an EPS;
 - ii. Disturb such an animal while it is occupying a structure or place which it uses for shelter or protection;
 - iii. Disturb such an animal while it is rearing or otherwise caring for its young;
 - iv. Obstruct access to a breeding site or resting place of such an animal, or otherwise to deny the animal use of the breeding site or resting place;
 - v. Disturb such an animal in a manner that is, or in circumstances which are, likely to significantly affect the local distribution or abundance of the species to which it belongs;
 - vi. Disturb such an animal in a manner that is, or in circumstances which are, likely to impair its ability to survive, breed, or reproduce, or rear or otherwise care for its young; or
 - vii. Disturb such an animal while it is migrating or hibernating.

¹ The Habitats Directive defined the conservation status of a species to be taken as 'favourable' when population dynamics data on the species indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, when the natural range of the species is not being reduced for the foreseeable future and there is, a sufficiently large habitat to maintain its populations on a long-term basis.

Further protection is afforded through an additional disturbance offence given under Regulation 39(2) which states that “it is an offence to deliberately or recklessly disturb any dolphin, porpoise or whale (cetacean)”.

1.2 Proposed Development Scope

- Mobilisation and positioning of marine equipment
- Handling and vertical alignment of monopiles
- Driving of monopiles through soft strata and eating into bedrock
- Drilling of internal rock socket
- Installation and grouting of internal steel tube

The monopiles will be driven through soft material down to rock and rock-anchored using an internal steel tube grouted into a predrilled socket, to ensure structural integrity and long-term performance.

1.2.1 Proposed Development Methodology

- Mobilisation and Positioning
 - Bring and anchor barge at the installation point
 - Deploy spud legs or jack-up system to fix barge position
 - Verify barge position
- Lift and lower monopile through pile gate or guide
- Align pile vertically using survey equipment
- Drive pile through soft soil (Sandy GRAVEL and Sandy Gravelly Silt with pockets of CLAY) using vibro-hammer
- If rock level is uncertain, switch to impact hammer to confirm refusal level
- Monitor and log driving data in accordance with BS EN 1997
- Drilling Internal Rock Socket (5 no)
 - Position drill inside monopile
 - Borehole depth per design (6 m into rock)
 - Clean with water/air flushing
 - Confirm verticality and full depth
- Internal Steel Tube for rock socket Installation (5no)
 - Insert internal steel tube with spacer to guarantee central position
 - Place grout using tremie method from bottom up
 - Record grout volume and confirm no air voids
 - Allow grout to cure (minimum 48 hours unless otherwise approved)

At the proposed development, the main potential route to impact is considered to be underwater noise from impact pile driving. **Table 1-1** presents the peak sound pressure level (SPL_{peak}) and the sound exposure level (SEL) from underwater noise for impact pile driving. Underwater noise from other activities such as vibro piling is considered to be less in comparison to impact pile driving.

Table 1-1 Expected underwater vibration and noise levels as a result of the impact piling (1200 Kilojoules) (Dorrian, 2018)

Impact piling expected underwater vibration & noise output	Noise Levels
Sound pressure level at 1 metre over frequency band 10 Hertz (Hz) – 10 kilohertz (kHz)	200 dB re 1µPa (Peak)
Sound exposure level at 1 metre over frequency band 10Hz – 10 kHz	200 dB re 1µPa ² s.

1.2.2 Schedule and Duration

The proposed development is anticipated to be carried out in winter/spring 2025/2026. The installation of piles is estimated to be two days per pile, 10 days total, with a contingency of 5 days included for tool failure and rock refusal resulting in an overall programme of around 15 days.

2 Protected Species and Sites

2.1 Cetacean Species

All cetaceans are protected under Annex IV of the EC Habitats Directive, which lists species of community interest in need of strict protection. The proposed development is located off the west coast of Scotland. This is within Block CS-F of the Small Cetaceans in the European Atlantic and North Sea (SCANS)-IV survey (Giles *et al.*, 2023) which provide cetacean species density estimates. A review of the SCANS-IV surveys (Giles *et al.*, 2023), and of the data review by Waggitt *et al.* (2019) shows that there are seven cetacean species known to be present in the area, including: harbour porpoise *Phocoena phocoena*, bottlenose dolphin *Tursiops truncatus*, short beaked common dolphin *Delphinus delphis*, Risso's dolphin *Grampus griseus*, killer whale *Orcinus orca* and minke whale *Balaenoptera acutorostrata*.

A large-scale survey of the presence and abundance of cetacean species around the north-east Atlantic, undertaken in the summer of 2022 (SCANS-IV survey; Giles *et al.*, 2023), indicates harbour porpoise to be the most common cetacean species present in the relevant survey block CS-F (**Plate 2-1**).

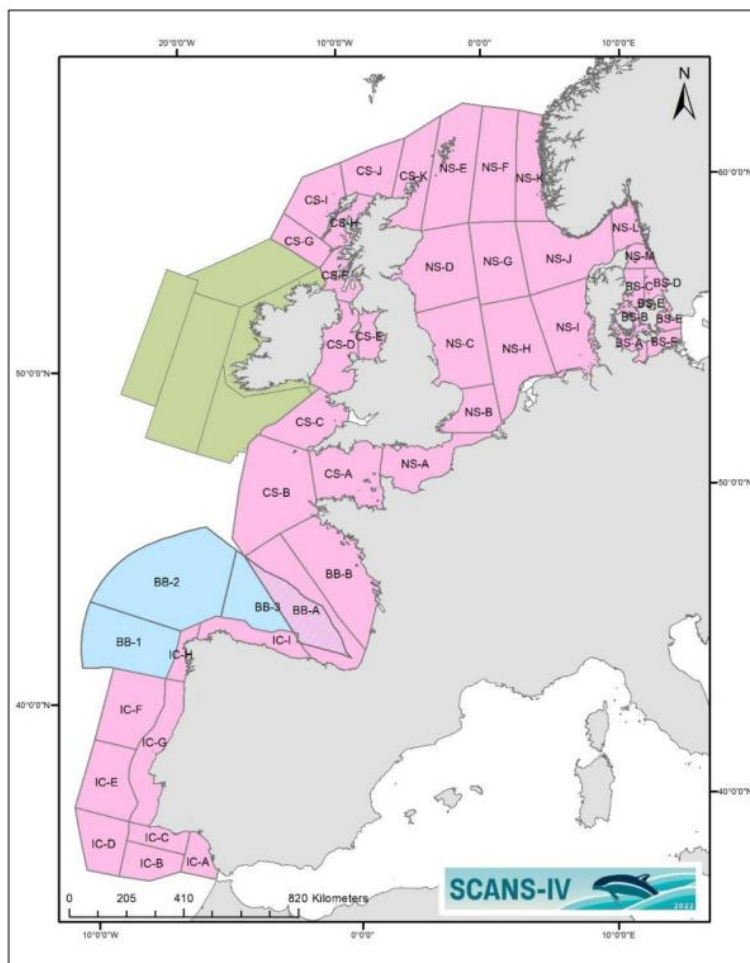


Plate 2-1 SACNS-IV survey blocks (Giles *et al.*, 2023)

Distribution maps of cetacean species within the north-east Atlantic also indicate that harbour porpoise is present off western Scotland in the highest densities, followed by, short-beaked common dolphin, bottlenose dolphin and while, killer whale and minke whale are present but in lower densities (**Plate 2-2**; Waggitt *et al.*, 2019).

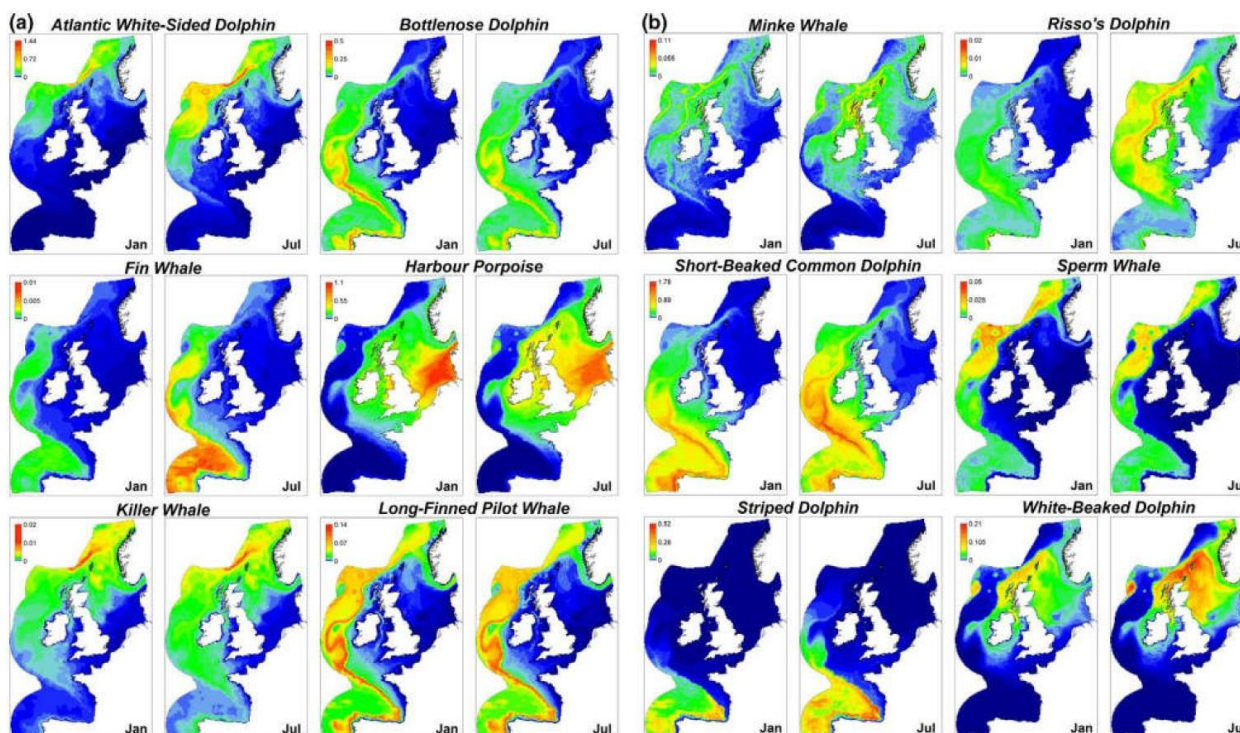


Plate 2-2 Modelled densities for marine mammal species (per km²) in the north-east Atlantic (for January (a) and July (b)). Note that the densities for bottlenose dolphin represent the offshore ecotype, and do not represent the inshore resident populations (Waggitt *et al.*, 2019)

Based on the above, the cetacean species that could be present in and around the proposed development area include:

- Harbour porpoise
- Bottlenose dolphin
- Short beaked common dolphin
- Risso's dolphin
- Killer whale
- Minke whale

Both bottlenose dolphin and harbour porpoise are listed on Annex II of the Habitats Directive which lists species whose conservation requires the designation of Special Areas of Conservation (SAC).

Management Units (MUs) provide an indication of the spatial scales at which any impact should be assessed for the key cetacean species (Inter-Agency Marine Mammal Working Group (IAMMWG), 2015). MUs, and the latest population estimate for each marine mammal species, have been determined based on the most relevant information, and scale at which potential impacts could occur.

For harbour porpoise, the relevant MU is the West Scotland (WS) MU, and for short beaked common dolphin, Risso's dolphin and minke whale, there is just one MU that covers the north-east Atlantic; the Celtic and Greater North Seas (CGNS) MU (**Plate 2-3**; IAMMWG, 2023).

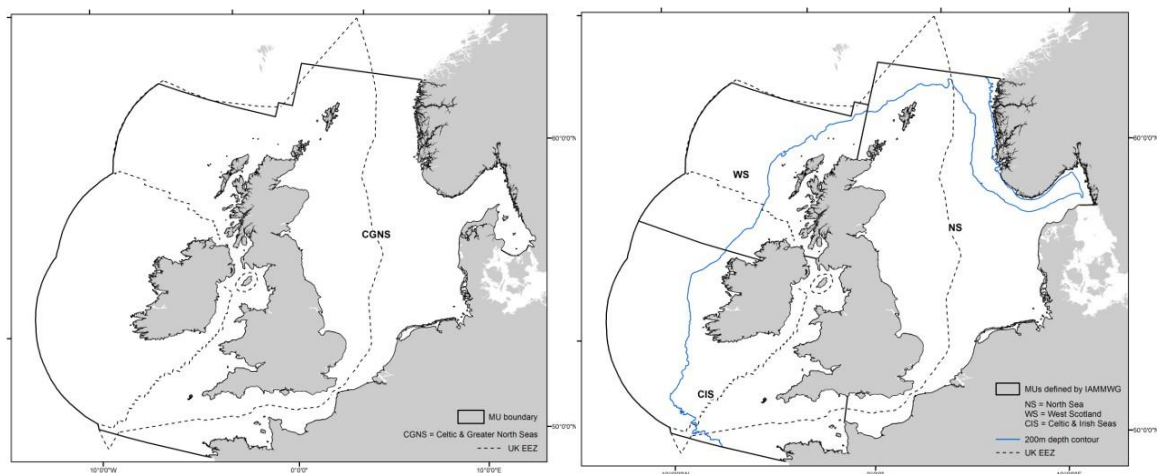


Plate 2-3 The MUs for harbour porpoise (left), and Atlantic white-sided dolphin, short beaked common dolphin, Risso's dolphin and minke whale (right); IAMMWG, 2023

For bottlenose dolphin, there are seven MUs within the north-east Atlantic (**Plate 2-4**; IAMMWG, 2023). There are two eco-types of bottlenose dolphin present in Europe; the coastal type and the pelagic type, and that these types are genetically and ecologically different from each other (Louis *et al.*, 2014). For the proposed development it is likely for any bottlenose dolphin within the area would be the inshore ecotype and would therefore be part of the Coastal West Scotland and Hebrides (CWSH) MU.

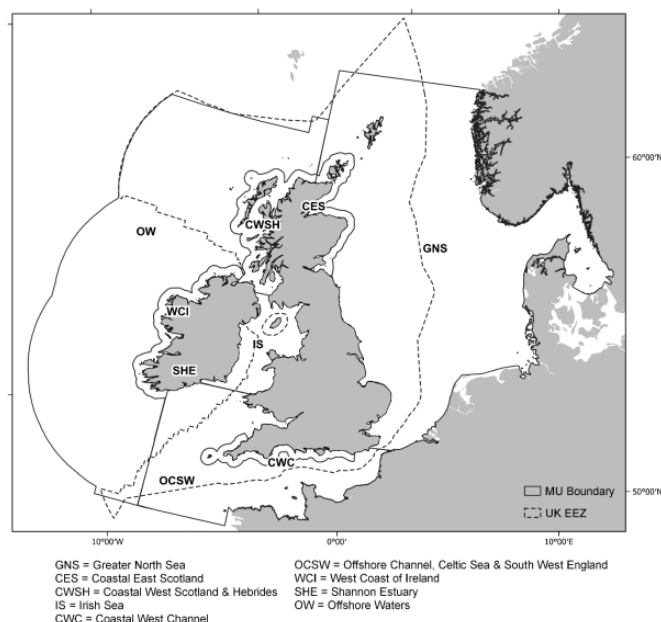


Plate 2-4 The MUs for bottlenose dolphin; IAMMWG, 2023

There is no estimated MU for killer whales from IAMMWG, however the North Atlantic Marine Mammal Commission (NAMMCO), estimate the MU for killer whales in the Northeast Atlantic to be 15,014 (NAMMCO, 2025), or a MU of <10 for the individuals regularly sighted off Scotland (Beck *et al.*, 2014), where the group

has been recorded to be eight individuals (Hebridean Whale and Dolphin Trust (HWDT, 2023)). As the proposed development location is very much inshore, the assessment would be undertaken against the West Coast community (WCC) population estimate of eight.

2.1.1 Summary of Cetacean Species

Assessments have not been undertaken for cetacean species that are considered to be rare or infrequent in the area, as the potential for these cetacean species to be impacted is considered unlikely.

However, if individuals of other cetacean species (EPS species) were present in the area, then the mitigation measures will be suitable for these species, as the assessments have been carried out on all the representative functional hearing groups for porpoise, dolphin and whale species. **Table 2-1** summarises the cetacean species, density estimates, and reference populations used in the assessments.

All cetacean densities have been taken from the most recent SCANS survey in summer 2022 (Giles, *et al.*, 2023). However, no killer whales were recorded in block CS-F, therefore average Waggitt *et al.*, (2019) densities across the area of the SCANS-IV block CS-F have also been calculated to show the density of killer whale that will be used for the assessment (**Table 2-1**).

Table 2-1 Cetacean species density estimates and reference populations based on the UK portion of the wider MU

Species	Density Estimate	Reference population (UK portion)
Harbour porpoise	0.2010/km ² (Giles <i>et al.</i> , 2023)	24,305; WS MU (IAMMWG, 2023)
Bottlenose dolphin	0.425/km ² (Giles <i>et al.</i> , 2023)	45; CWSH MU (IAMMWG, 2023)
Common dolphin	0.0544/km ² (Giles <i>et al.</i> , 2023)	57,417; GNS MU (IAMMWG, 2023)
Risso's dolphin	0.0027/km (Giles <i>et al.</i> , 2023)	12,262 GNS MU (IAMMWG, 2023)
Killer whale	0.0005/km ² (Waggitt <i>et al.</i> , (2019) densities over SCANS-IV CS-F block (annual density))	8 (WCC, HWDT 2023)
Minke whale	0.0137/km ² (Giles <i>et al.</i> , 2023)	10,288; CGNS MU (IAMMWG, 2023)

2.1.2 Marine Mammal Survey

Haskoning marine mammal observers (MMO) carried out a marine mammal baseline survey on the 25th June 2025 at Kilmun Pier. A total of two grey seals were recorded during the baseline monitoring (PC7624-HAS-XX-KP-RP-EV-0001). No cetaceans were observed during the survey.

2.2 Other Protected Species and Sites

2.2.1 Basking Shark

Within UK waters, the basking shark is a seasonal visitor, arriving in significant numbers in May and remaining until October, with areas attracting higher abundancies, such as the Hebrides (particularly off the islands of Skye and Mull), the Isle of Man, Malin Head, and south-west England. In the early spring and summer months, warmer waters move from the Atlantic into the coastal waters of west Scotland, England,

and Wales, which encourages greater marine productivity. It is thought that this increase is the reason for the higher abundances of basking sharks during these months (The Shark Trust, 2018).

The basking shark is an elasmobranch (sharks and rays) which is a group with generally low sensitivity to noise vibrations due to the fact they do not have a swim bladder (Popper *et al.*, 2014). The hearing range of basking sharks is not known; however, five other elasmobranchs have been found to have a hearing range between 20 Hz to 1 kHz with greatest sensitivities at lower frequencies (Mickle *et al.*, 2020). This may or may not be transferable to basking sharks (Macleod *et al.*, 2011). As 20 Hz to 1 kHz encompass a large proportion of the noise emitted during piling at the proposed development, and the activities will be intermittent, any disturbance would be temporary.

Vessel collision also poses a threat to this slow-moving species and basking sharks have a medium sensitivity to collision (NatureScot, 2020). Collision risk increases with increasing vessel speed; as the construction vessels will be moving slowly, collision risk is generally low. Risk will be reduced further on the basis of mitigation measures implemented for the proposed development (Section 5).

The Shark Trust has recorded 99 sightings off the west coast of Scotland between 2003 – 2022, there is an estimated abundance of 112 individuals (Shark Trust, 2020).

2.2.2 Pinnipeds

Harbour seal (*Phoca vitulina*) and grey seals (*Halichoerus grypus*) are common throughout UK waters. Although both species are Annex II species, they are not listed on Annex IV of the Habitats Directive, and as such are not classified as EPS. Seals are protected in the UK under the Conservation of Seals Act 1970 and in Scotland the Marine (Scotland) Act 2010. Both species are listed under Annex II of the EU Habitats Directive and are considered Scottish Priority Marine Features (PMFs). The Protection of Seals (Designated of Haul-Out Sites) (Scotland) Order 2014 introduces additional protection for seals at 194 designated haul-out sites, where harbour seal and grey seal come ashore to rest, moult or breed.

2.3 Designated Sites

2.3.1 Special Areas of Conservation (SACs)

SACs are designated under Regulation 33(2) of the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended in Scotland). Part II of the Habitats Regulations sets out the provisions for the selection of Special Areas of Conservation (SACs) for Annex I habitats and Annex II species. Key to the designation of SACs is Paragraph 7 (2), the relevant part of which states: “...For aquatic species which range over wide areas, such sites will be proposed only where there is a clearly identifiable area representing the physical and biological factors essential to their life and reproduction”.

There are no marine mammal SAC's within 100 km of the proposed development, therefore no SACs have been included in the assessment.

2.3.2 Nature Conservation Marine Protected Area (NCMPA)

Under Section 82 of the Marine (Scotland) Act 2010, MD-LOT is required to consider whether a licensable activity is capable of affecting (other than insignificantly) a protected feature in a Nature Conservation Marine Protected Area (NCMPA), or any ecological or geomorphological process on which the conservation of any protected feature in an NCMPA is dependent. If MD-LOT determine there is or may be a significant risk of a project hindering the achievement of the conservation objectives, then they must notify the relevant conservation bodies. It is an offence to intentionally or recklessly kill, remove, damage, or destroy any

protected feature of an NCMPA. Marine Scotland must be sure that consenting/licensing decisions do not cause a significant risk to the conservation objectives of any NCMPA. No NCMPA's have been included in the assessment, due to none being in the vicinity of the proposed development.

2.3.3 Protected Seal Haul-Out Sites

Seal haul-out sites are coastal locations that seals use to breed, moult and rest. Almost 200 seal haul-out sites have been designated through The Protection of Seals (Designation of Haul-Out Sites) (Scotland) Order 2014 which was amended with additional sites in 2017. These haul-out sites are protected under Section 117 of the Marine (Scotland) Act 2010. The Act is designed to assist in protecting the seals when they are at their most vulnerable, and as such provide additional protection from intentional or reckless harassment.

The closest protected seal haul-out site, Lady Isle and Sound of Pladda Skerries, is approximately 60 km from Kilmun pier (**Figure 2-1**).

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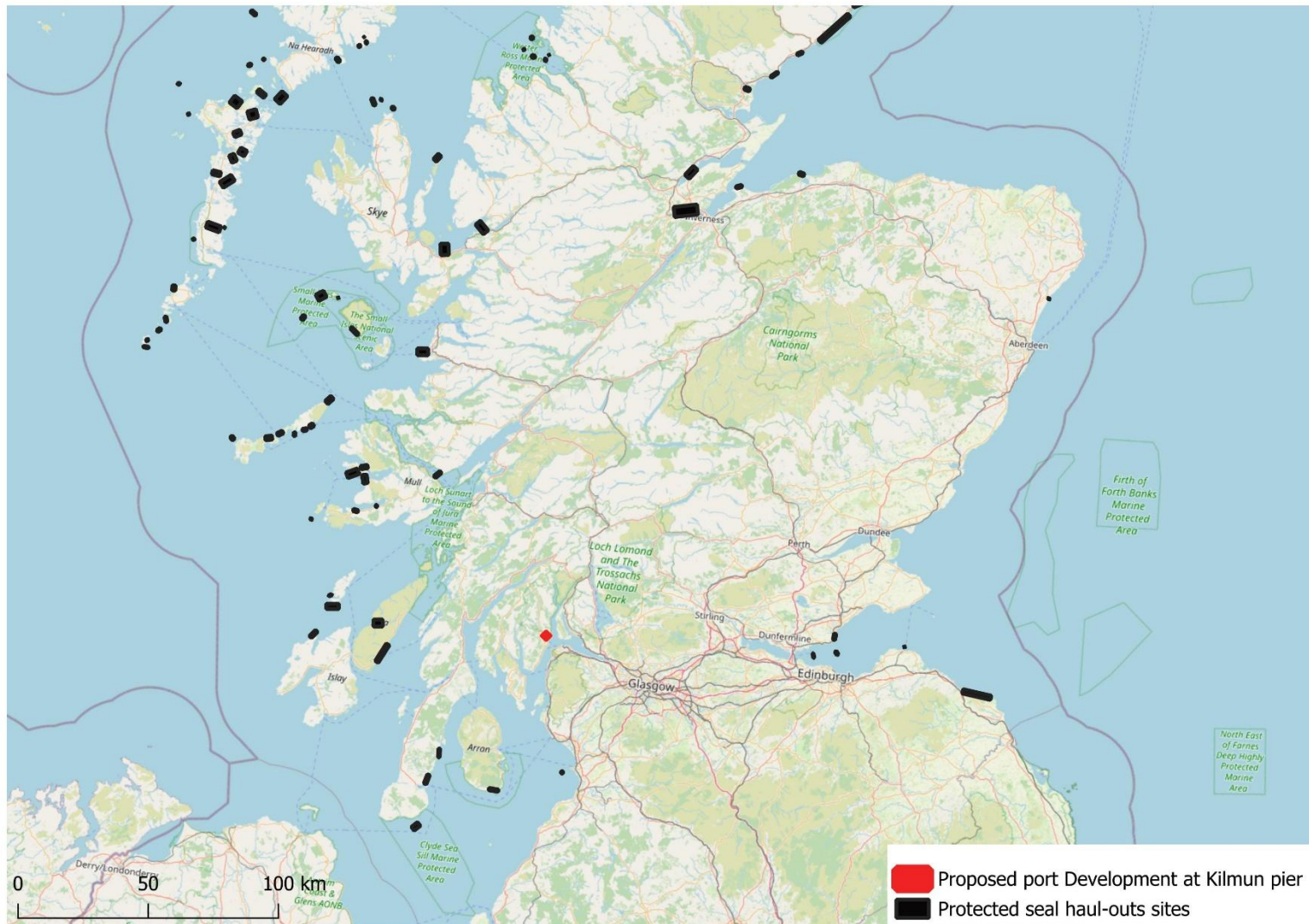


Figure 2-1 Location of protected seal haul-out sites (black) in relation to proposed port development area (red)

3 European Protected Species Assessment

3.1 Potential Impacts

Potential impacts to cetaceans during the proposed development is:

- permanent and/or temporary change in hearing sensitivity / auditory injury (Permanent Threshold Shift (PTS)/Temporary Threshold Shift (TTS)) from underwater noise;
- disturbance from underwater noise;
- disturbance from presence of vessels; and
- increased collision risk with vessels.

Underwater noise has the potential to impact cetaceans if the frequency is within their hearing range (**Table 3-1** and / or the sound levels are greater than thresholds for the species (**Table 3-2**) (Southall *et al.*, 2019).

Table 3-1 Cetacean and basking shark hearing ranges (from Southall *et al.*, 2019 and Mickle *et al.*, 2020)

Species Hearing Group	Generalised Hearing Range
Harbour porpoise Very high-frequency cetaceans (VHF)	275 Hz to 160 kHz
Bottlenose dolphin, common dolphin, and Risso's dolphin High-frequency cetaceans (HF)	150 Hz to 160 kHz
Minke whale Low-frequency cetaceans (LF)	7 Hz to 35 kHz
Basking shark	20 Hz to 1 kHz

Table 3-2 Cetacean threshold and criteria for underwater noise (from Southall *et al.*, 2019)

Species Hearing Group	Unweighted SPL _{peak} (dB re 1 µPa)		Weighted SEL _{cum}	
	Impulsive		Non impulsive	
	PTS	TTS	PTS	TTS
Harbour porpoise VHF cetaceans	202	196	155	140

Dolphin species HF cetaceans	230	224	185	170
Minke whale LF cetaceans	219	213	183	168

The potential for auditory injury is not just related to the level of the underwater sound and its frequency relative to the hearing bandwidth of the animal but is also influenced by the duration of exposure. Southall *et al.* (2019) gives individual criteria based on whether the noise source is considered impulsive or non-impulsive. Southall *et al.* (2019) categorises impulsive noises as having high peak sound pressure, short duration, fast rise-time and broad frequency content at source, and non-impulsive sources as steady-state noise. Impact pile driving is considered as impulsive noise sources. Whereas vessels and other low-level continuous noises such as vibro piling are considered non-impulsive.

3.2 Assessment of Potential Effects of Piling

3.2.1 Auditory Injury

Impact pile driving is a source of high-intensity underwater noise, which can cause both physiological (e.g. lethal, physical injury and auditory injury). Should any marine mammal be very close to the source, the high peak pressure sound levels have the potential to cause death or physical injury, with any severe injury potentially leading to death, if no adequate mitigation is in place. High exposure levels from underwater noise sources can cause auditory injury or hearing impairment, taking the form of a permanent loss of hearing sensitivity (PTS), or a temporary loss in hearing sensitivity (TTS). The potential for auditory injury is not just related to the level of the underwater sound and its frequency relative to the hearing bandwidth of the animal but is also influenced by the duration of exposure. The level of impact on an individual is a function of the Sound Exposure Level (SEL) that an individual receives as a result of underwater noise.

The potential impact of underwater noise will depend on a number of factors which include, but are not limited to:

- The source levels of noise;
- Frequency relative to the hearing bandwidth of the animal (dependent upon species);
- Propagation range, which is dependent upon:
 - Sediment/sea floor composition;
 - Water depth;
 - Duration of exposure;
 - Distance of the animal to the source; and

- Ambient noise levels

3.2.1.1 Permanent Threshold Shift

Table 1-1 presents the SPL_{peak} and the SEL from underwater noise for impact pile driving. Looking at the SPL of 200 dB re 1 μPa , it is likely to be indicating that no exceedance is expected for the given criteria which means that noise levels from piling is proposed to have minimal risk of permanent auditory injury (PTS) to cetaceans. However, the weighted SEL_{cum} of 200 dB re 1 μPa^2s exceeds all cetacean PTS ranges for all marine mammals. The SEL_{cum} is a measure of the total received noise over the whole piling operation. The SEL_{cum} range indicates the distance from the piling location a receptor would have to be, if it were to start fleeing in a straight line from the noise source, for that receptor to not receive a noise exposure in excess of the criteria threshold; and if the receptor were to start fleeing from a location closer to the modelled range, it would receive a noise exposure above the criteria threshold. As no underwater noise modelling has been conducted, the impact ranges from impact piling is unknown. It could be over 100m or less than 100m, most likely to be less than 500m as underwater noise will propagate less in shallow waters compared to deeper offshore waters.

Therefore with mitigation measures in place, following the JNCC (2010) 'Guidelines for Minimising the Risk of Injury to Marine Mammals from piling' (see section 5); there would be no potential to commit an offence with regards to injury or to affect the FCS of any cetacean species and, therefore, there is **no requirement for a Marine EPS licence**.

3.2.1.2 Temporary Threshold Shift

TTS can occur instantaneously from acute exposure to high noise levels, such as single strike (SPL_{peak}) of the maximum hammer energy applied during impact pile driving. TTS can also occur as a result of prolonged exposure to increased noise levels, such as during the duration of pile installation (SEL_{cum}). The source levels for impact pile driving presented in **Table 1-1** exceeds marine the Southall *et al.*, (2019) cetacean threshold criteria for TTS from impulsive noise. For that reason, any marine mammal within the proximity to the impact pile driving operations is at risk of TTS, however, they would be required to remain in close proximity for some time which is unlikely as any marine mammal would move away. However the mitigation measures described in Section 5 to minimise the risk of PTS will also minimise the risk of TTS. Therefore, there would be no potential to commit an offence with regards to injury or to affect the FCS of any cetacean species and, therefore, there is **no requirement for a Marine EPS licence**.

3.2.2 Disturbance from Impact Pile Driving

For marine mammal species, there is currently no agreed threshold for disturbance from underwater noise. The United States (US) National Marine Fisheries Service (NMFS) guidance (sets the Level B harassment threshold² for marine mammals at 160 dB re 1 μPa (root mean square (rms)) for impulsive noise and 120 dB re 1 μPa (rms) for continuous noise. However, Southall *et al.* (2021) found that simple all-or-nothing thresholds such as these, that attempt to relate single noise exposure parameters (e.g., received noise level) and behavioural response across broad taxonomic grouping and sound types, can lead to severe errors in predicting effects.

During a harbour development project in Scotland, the behavioural response of harbour porpoise and bottlenose dolphin was recorded, both for impact piling and vibro-piling, using an array of acoustic recording devices (Graham *et al.*, 2017). Monitoring was undertaken for a year prior to construction, and during construction. The impact piling sound level was recorded as being 240 dB re 1 μPa , higher than piling at

² Level B Harassment is defined as having the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioural patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering but which does not have the potential to injure a marine mammal or marine mammal stock in the wild

the proposed development. Neither harbour porpoise nor bottlenose dolphins were excluded from the area as a result of the piling, but fine-scale changes in the local abundance were detected, and bottlenose dolphins were present in the area less often when impact piling was occurring, compared to where no activity was occurring (Graham *et al.*, 2017). This indicates that harbour porpoise and bottlenose dolphin can be disturbed from a very localised area, and for a short-period of time. While there is the potential for a displacement response from the area for any marine mammal species, it is predicted that they would return once the activity has been completed, and therefore any impacts from underwater noise as a result of piling will be both localised and temporary. Therefore, there is unlikely to be the potential for any significant impact on marine mammals. Any disturbance would be temporary, and they would be expected to return to the area once the noise had ceased, or they had become habituated to the sound.

3.2.3 Disturbance from Vibro Piling or the Presence of Vessels

Without any known disturbance ranges of vessel activity or vibro piling to cetaceans, a 2km disturbance range and area of 12.57km² has been applied as previous studies by Brandt *et al.* (2018) and Benhemma-Le Gall *et al.* (2021) show that harbour porpoise could be disturbed up to 2km from construction vessels in renewables, therefore this disturbance range has been applied to all cetaceans. A 2km disturbance range might be over precautionary as noise from the presence of vessels and vibro piling is anticipated to be a low-level non-impulsive noise. Both noise sources will be localised in effect and short in duration with animals returning to the area shortly after the sound source is stopped or completion of the works. **Table 3-3** presents the assessment for any potential disturbance from dredging activities or the presence of vessels using a 2km disturbance range.

Table 3-3 Impact ranges and areas, and maximum number of individuals (and % of reference population) that could be at risk of disturbance from the presence of vessels using a 2km disturbance range

Marine mammal species	Maximum number of individuals (% of reference population (UK portion))	Magnitude
Harbour porpoise	<3 (0.01% WS MU)	Negligible
Bottlenose dolphin	<1 (1.2% CWSH MU)	Negligible
Common dolphin	<1 (0.001% CGNS MU)	Negligible
Risso's dolphin	<1 (0.0004% CGNS MU)	Negligible
Killer whale	<1 (0.8% WCC)	Negligible
Minke whale	<1 (0.002% CGNS MU)	Negligible

3.2.4 Increased collision risk

Any increased collision risk with vessels is unlikely, as the additional vessel to the Proposed development will be stationary during the works, and would be relatively slow moving in between and maintaining a fixed route during the proposed development.

Therefore, given that there is predicted to be no risk of injury to any species of cetacean or to basking shark as a result of collision risk, there is no potential to commit an offence with regards injury. There will, therefore, be no impact on the FCS of any species. As such, there is no offence and therefore **no requirement for a Marine EPS licence in this respect.**

4 Cumulative Impact Assessment

For wide ranging species such as marine mammals and basking sharks, it is important to consider other projects and activities over a wider area. Taking into account the potential impacts associated with the proposed development (Section 3), this has been based on the Scottish west coast area.

Based on currently available information, there is very little information on activities and projects in the Scottish west coast area that could have potential cumulative impacts with the proposed development activities. There is a potential geophysical survey at Kintyre Hunterston HVAC cables for which has been included into the Cumulative Impact Assessment (CIA) (**Table 4-1**) and it is acknowledged that there is the potential for additional cumulative effects to arise from other surveys, construction works, operational surveys / works and decommissioning at nearby assets if they were to coincide with the proposed survey activities. However, as described in Section 3, disturbance to EPS from the proposed development activities is expected to be both spatially and temporally limited with only a very low number of individuals being disturbed, and therefore significant cumulative effects on EPS are not expected.

Table 4-1 presents the overall conclusion is that there would be no potential for a population level impact to harbour porpoise, bottlenose dolphin, common dolphin, killer whale and minke whale. Taking into account that dolphin species are not as sensitive to disturbance impacts as they are to the potential for injury, and that they would not be permanently disturbed from any area (as the impact is temporary and individuals will return to the area once the relevant activity has ceased).

As noted above, the cumulative assessment indicates no significant disturbance of cetaceans at a population level. It is possible that a small number of individual animals may experience some level of disturbance while they encounter noise emissions. The characterisation of effects as presented in this report has identified that the potential for impact will be highly localised and short term in nature, and not result in significant effects. The potential for the proposed works contributing to cumulative impacts is, therefore, highly unlikely. It is, therefore, predicted that the relatively localised areas of disturbance, and the short period of time that cumulative impacts could arise, are such that they will not cause an impact that will affect the FCS of any EPS. Potential disturbance impacts will be minimised with the implementation of mitigation measures set out in Section 5.

Based on the assumption that all the planned projects and activities with the potential for injury will have mitigation in place, which is similar to or more extensive than the measures being undertaken for the proposed development, no EPS will be at risk of injury from these activities.

Table 4-1 Potential for Cumulative Impacts

Cumulative impacts	Potential area of impact	Number of harbour porpoise (% of reference population)	Number of bottlenose dolphin (% of reference population)	Number of common dolphin (% of reference population)	Number of Risso's dolphin (% of reference population)	Number of killer whale (% of reference population)	Number of minke whale (% of reference population)
Proposed development	12.57km ²	<3 (0.01% WS MU)	<1 (1.2% CWSH MU)	<1 (0.001% CGNS MU)	<1 (0.0004% CGNS MU)	<1 (0.08% WCC)	<1 (0.002% CGNS MU))
Kintyre Hunterston HVAC Geophysical survey³ *	0.02km ²	0.007 (0.00003% of the WS MU)	0.2 (0.4% of the CWSH MU)	Not assessed	Not assessed	Not assessed	0.0005 (0.0000005% of the CGNS MU)
Total	12.6km²	<3 (0.01% NS MU)	<1 (1.6% of the CWSH MU)	<1 (0.001% CGNS MU)	<1 (0.0004% CGNS MU)	<1 (0.08% WCC)	<1 (0.002% CGNS MU))

*Information taken from Kintyre Hunterston HVAC EPS RA

³ https://marine.gov.scot/sites/default/files/a-200409-s04-rept-002_a02_redacted_0.pdf

5 Mitigation Strategy

The following mitigation measures, as outlined within the JNCC (2010) '*Guidelines for Minimising the Risk of Injury to Marine Mammals from piling*'⁴ would apply for piling at the proposed development.

At least one dedicated Marine Mammal Observer (MMO) can be used.

- A dedicated MMO means a trained MMO; who is employed for the sole purpose of undertaking visual observations to detect marine mammals and advising on and monitoring the implementation of the guidelines. Note that the pre-piling search can only be undertaken in periods of daylight and good visibility.

If piling is to start at night, i.e. hours of darkness or in poor visibility, Passive Acoustic Monitoring (PAM) shall be deployed as an additional mitigation measure. Note that PAM will be used for pre-piling searches for piling commencing in hours of darkness or poor visibility.

Prior to any piling commencement (impact or vibro), a 30 minute pre-piling search of a 500m mitigation zone around the piling event is required. If a marine mammal or basking shark is sighted or detected within the mitigation zone during the pre-piling search, piling cannot commence until:

- until the 30 minute pre-piling search is complete; and
- the mitigation zone has been clear of marine mammals and basking sharks for a period of at least 20 minutes prior to start of survey.

A **soft-start** must be undertaken (wherever practical) once the pre-piling search of 30 minutes has been completed and there have been no marine mammal or basking shark sightings for at least 20 minutes. The soft-start will consist of a gradual and consistent ramp-up of hammer energy and/number of strikes over a minimum of a 20 minute period. Once soft-start has commenced, there is no requirement to stop or delay piling due to marine mammal or basking shark presence within the 500m mitigation zone.

For unplanned breaks:

- If there is an unplanned break in piling of less than 10 minutes; piling can resume if no marine mammals or basking sharks have been detected.
- If there is an unplanned break in piling greater than 10 minutes, then the pre-piling search and soft-start procedure should be repeated before piling recommences.

Whilst not considered specifically in this assessment due to their low likelihood of occurrence, any assessment of, or mitigation measures put in place for the species assessed, are considered to be appropriate/relevant for other less commonly occurring species of cetacean that may be present in the survey area. These mitigation measures for cetacean EPS (JNCC, 2010) are also deemed to be appropriate for seals, turtles and basking sharks, and would reduce the potential for impact to all species.

In addition to the mitigation outlined in the JNCC Guidance (2010), additional mitigation measures include:

All vessels working within the Proposed port development will adhere to both the Scottish Marine Wildlife Watching Code⁵ and the Shark Trust's Basking Shark Code of Conduct⁶ during all operations and transits, including, but not limited to

- the Master of the vessel ensuring that marine mammals and basking shark are avoided to a safe distance (100m or more) in all possible circumstances (or 500m in the case of large aggregations of basking shark);
- reducing vessel speeds to less than 6 knots when basking shark are sighted in the vicinity of the vessel (wherever possible taking into account vessel safety); and
- the Master of the vessel minimising high powered manoeuvres where this does not impair safety.

All vessels transiting to the port development will remain at a distance of at least 500m from the protected seal haul-out sites and will use existing shipping lanes and transit routes wherever available (and safe to do so).

⁵ Available at: <https://www.nature.scot/professional-advice/land-and-sea-management/managing-coasts-and-seas/scottish-marine-wildlife-watching-code>

⁶ <https://www.sharktrust.org/Handlers/Download.ashx?IDMF=6137b1a1-8518-4327-9922-7b280acb8336>

6 Assessment of Potential Offence

Following the Marine Scotland (2020) guidance, relevant to the proposed development activities which occur in waters within the 12nm limit, it can be concluded that, with mitigation for the proposed development activities, potential impacts from the proposed development activities work are unlikely to result in the harassment, disturbance, injury or killing of an EPS as defined under regulation 39(1) of the Conservation (Natural Habitats &c.) Regulations 1994 (as amended in Scotland) (referred to as the Habitats Regulations).

In relation to regulation 39(2) of the Habitats Regulations, the percentage of the reference population of each species, which has the potential to be disturbed by use of impact piling, is considered to be negligible less than 2% for bottlenose dolphin of the CWSH population and less than 1% for all other cetacean species which occur in the area) and therefore not detrimental to the maintenance of the population of the species concerned at a FCS. Any disturbance is likely to be localised and short-term, and with mitigation is considered to be negligible. Disturbance will not be sufficient to cause any population level effects, and thus it is considered that an EPS licence (to disturb) can be issued under Section 39 of The Conservation (Natural Habitats, &c) Regulations 1994 (as amended in Scotland).

With regard to basking sharks, there is limited potential for injury and with the mitigation measures that will be in place; the JNCC (2010) guidelines for piling and in addition adherence to the Basking Shark Code of Conduct, there is no potential for population level impacts to basking shark as a result of injury, therefore no need for an EPS licence.

6.1 EPS and Basking Shark Licensing Tests

The purpose of the EPS and Basking Shark Risk Assessment presented in this report is to determine whether, when considering appropriate mitigation as presented in Section 5, there is still potential for piling at the proposed development to cause deliberate harm, or inadvertently cause disturbance to cetaceans or other protected species. The need for a Marine EPS Licence and Basking Shark Licence will be determined by MD-LOT, with advice from NatureScot, based on findings from this EPS and Basking Shark Risk Assessment.

MD-LOT's consideration of whether an EPS Licence will be required will comprise three tests:

1. To ascertain whether the licence is to be granted for one of the purposes specified in the Regulation 44;
2. To ascertain whether there are no satisfactory alternatives to the activity proposed (that would avoid the risk of offence)⁷; and
3. That the licensing of the activity will not be detrimental to the maintenance of the population of the species concerned at a *Favourable Conservation Status* (FCS)⁸.

Test 1: The licence must relate to one of the purposes referred to in Regulation 44.

The Scottish Government can only issue licenses under Regulation 44(2) of the Regulations (as amended) for specific purposes. These purposes include:

⁷ There is also a requirement for the basking shark licence to provide detail on any 'Satisfactory alternatives'; therefore, question 2 is relevant for both the EPS licence and basking shark licence

⁸ The Habitats Regulations defined the conservation status of a species to be taken as 'favourable' when population dynamics data on the species indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, when the natural range of the species is not being reduced for the foreseeable future and there is, a sufficiently large habitat to maintain its populations on a long-term basis.

- 44(2)(e) preserving public health or public safety or 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 development of the proposed port development meets the requirements of Regulation 44 (2) (e) by, preserving public safety, removing the risk associated with berthing ferries against the ageing Kilmun pier.

Test 2: There must be no satisfactory alternative (Regulation 44, 3a).

Alternative options were considered prior to the inclusion of impact pile driving with regards to the scope and extent of the of the proposed port development. The installation of monopiles and pin piles will enhance Kilmun pier in order to meet the demands of the ferry service and route infrastructure.

As described above, there are no satisfactory alternatives to the installation of monopiles and pin piles required during the Proposed port development. Although vibro piling will be used a first option, where possible, impact piling will be used if vibro piling cannot complete the installation. Other methods considered were deemed unsuitable, therefore these works are required to improve the ferry terminal at Kilmun pier, by meeting the demands of the ferry service and route infrastructure.

Test 3: The action authorised must not be detrimental to the maintenance of the population of the species concerned at a FCS in their natural range (Regulation 44, 3b).

The percentage of the reference population of each species, which has the potential to be temporary disturbed, over a relatively small area for a short period of time, based on the predicted noise from the piling and the presence of vessels, is considered to be low for bottlenose dolphin (with less than 2% of the reference population impacted) and negligible for all other cetaceans (less than 1% of the reference population impacted) for all the cetacean species which occur in the proposed port development areas, and therefore not detrimental to the maintenance of the population of the species concerned at a FCS level.

7 Conclusion

The assessment above demonstrates that, with the implementation of the mitigation measures detailed in Section 5 there will be no injury resulting from the proposed activities due to underwater noise and, thus, no offence related to injury of any cetacean species under either the inshore or offshore regulations. In this context, a Marine EPS Licence would not be required.

It is possible that a small number of animals may experience some level of disturbance for the short period they may encounter noise emissions from the proposed port development construction activities. Given the short term and temporary impacts of the piling to cetaceans, it is considered that there is no potential for a significant impact on the CWSH population of bottlenose dolphin with a low risk of disturbance and populations of harbour porpoise, common dolphin, Risso's dolphin, killer whale and minke whale, with a negligible risk of disturbance and to any species of cetacean.

A Marine EPS Licence is thus required for activities where there is potential for disturbance to cetaceans and basking shark (if the proposed works overlap with the seasonal presence of basking shark (May to October)) as per Regulation 39(2); this disturbance will not be sufficient to cause any population level effects, and thus it is considered that an EPS licence to disturb can be issued.

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