



Belmont Ferry Terminal Marine Mammal Risk Assessment

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EXECUTIVE SUMMARY

EnviroCentre Limited was commissioned by Arch Henderson to undertake a Marine Mammal Risk Assessment (MMRA) to inform an EPS licence for Bathymetric and Geophysical survey.

The Bathymetric and Geophysical survey of the seabed is required to determine rockhead levels and sediment profiles across the site for Belmont ferry terminal's construction and potential future harbour improvement works, including infrastructure renewal and extension.

Without mitigation, the noise generated by the geophysical surveys and increased vessel movement to undertake the surveys, produce some risk of death or injury to marine mammals.

The noise generated from the multibeam bathymetry survey is screened out based on the high frequency of noise being outwith the hearing band for cetaceans and the shallow depth of the water allows noise to attenuate more quickly.

Given the mitigation, as outlined in section 4 is employed and considering the short-term nature of the works producing underwater noise, the number of individuals affected will be negligible and any disturbance which may occur will not fall under the JNCC (2008) definition of significant disturbance.

Contents

Executive Summary	i
1 Introduction	1
1.1 Terms of Reference	1
1.2 Scope of Report	1
1.3 Proposed Development and Survey Works	1
1.4 Report Usage	2
2 Marine mammal Baseline	4
2.1 Desk Study Sources	4
2.2 Marine Protected Areas (MPAs)	5
2.3 Marine Mammal Baseline Summary	5
3 Marine Mammal Risk Assessment	11
3.1 Activities Affecting Marine Mammals	11
3.2 Impacts of Underwater Noise to Marine Mammals	12
3.3 Effects of Increased Vessel Movement	12
3.4 Assessment of Risk to Marine Mammals	13
4 Marine Mammal Mitigation Plan	14
4.1 Marine Mammal Observer	14
4.2 MMO Equipment	14
4.3 MMO Protocol	15
4.4 Vessel Movement Mitigation Protocol	16
4.5 Additional Good Practice Recommendations	16

Figures

Figure 1-1 Location of Proposed Survey Works	2
Figure 2-1: Predicted density surface for harbour porpoise in 2022 using SCANS IV survey data.	6
Figure 2-2: Predicted density surface for minke whale in 2022 using SCANS IV survey data	8

1 INTRODUCTION

1.1 Terms of Reference

EnviroCentre Limited was commissioned by Arch Henderson to undertake a Marine Mammal Risk Assessment (MMRA) to inform an EPS licence for Bathymetric and Geophysical Survey in relation to Belmont ferry terminal's construction and potential future harbour improvement works, including infrastructure renewal and extension.

1.2 Scope of Report

This study aims to establish which species are likely to present and could be impacted by the proposed seabed survey works to inform the requirements for a European Protected Species (EPS) licence from Marine Scotland. The objectives were as follows:

- Collate existing data in relation to designated sites, species records, distribution, population counts, habitat use and any other relevant information, to establish which species are likely to be present within the development site and the wider zone of influence of the development.
- Identify potential impacts to marine mammals which could occur as a result of the survey works.
- Provide a summary of species which are likely to be present and which may be subject to significant impacts.

1.3 Proposed Development and Survey Works

The proposed development works include the development of Belmont ferry terminal, and improvement works to the harbour. The terminal supports a lifeline transport link between two islands (Unst and Yell). This is part of the route between Unst and Mainland Shetland. The works will develop the terminal's existing infrastructure. The proposed development would improve terminal's operational capacity and supports the smooth functioning and longevity of terminal services.

The survey area is noted below in Figure 1-1, and is located on the Belmont ferry terminal, Unst Shetland. The survey area covers 6500m² / 0.65ha. The site is located within in an area of relatively shallow water, therefore, works will be limited to working over high water, during one day, ideally during a spring tide.

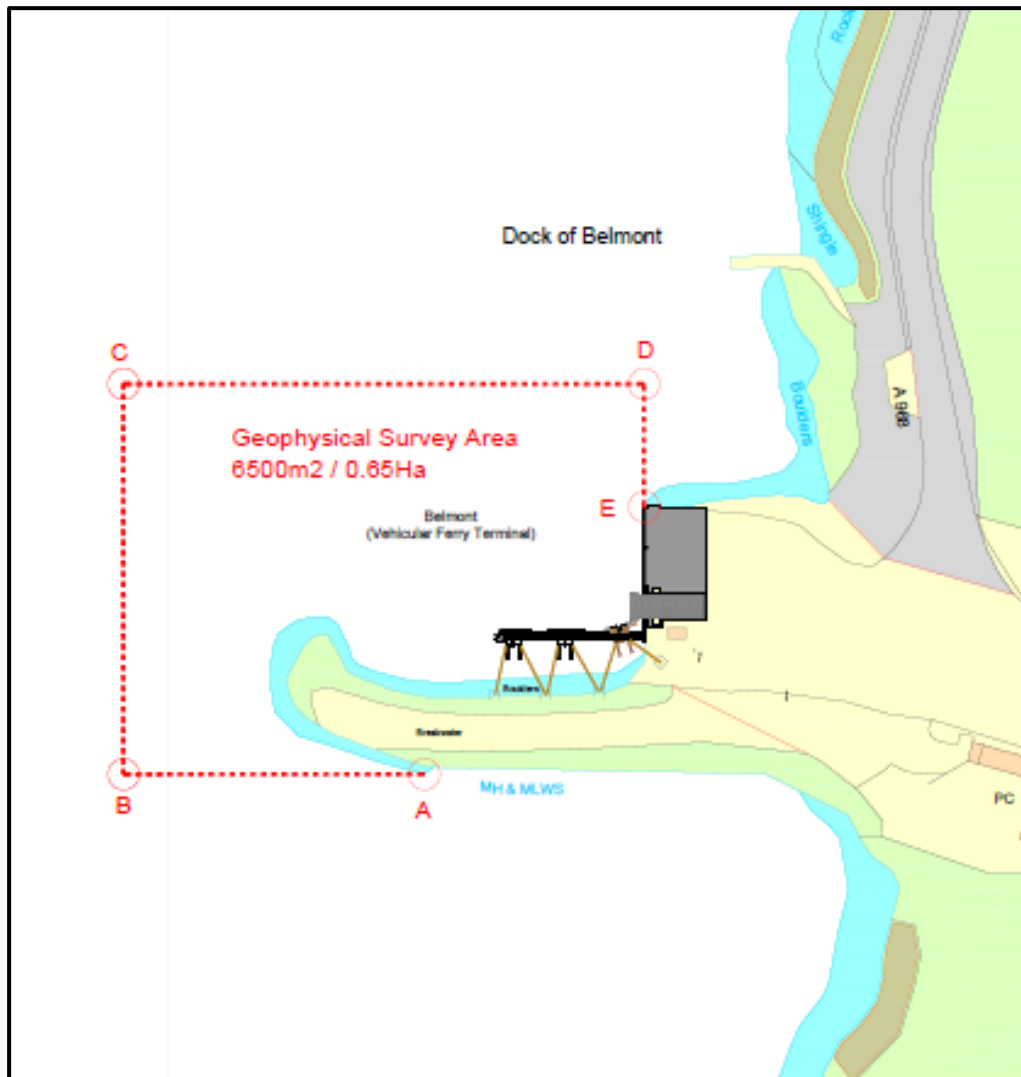


Figure 1-1 Location of Proposed Survey Works

The survey works assumed to be include:

- A geophysical survey will be undertaken to determine the depth of sediment overlay/ subsurface, using seismic reflection technique.
- A multibeam bathymetry, the use of multiple, simultaneous sound waves, to provide a map of the sea floor profile.

1.4 Report Usage

The information and recommendations contained within this report have been prepared in the specific context stated above and should not be utilised in any other context without prior written permission from EnviroCentre Limited.

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2 MARINE MAMMAL BASELINE

2.1 Desk Study Sources

In order to anticipate the potential marine mammal ecological sensitivities at the site, a desk study was conducted. The following sources were checked:

- Marine Directorate National Marine Plan interactive (NMPi) for
 - Location of marine designated sites;
 - Distribution of Priority Marine Features
- Marine Scotland (MS) Regional baselines for marine mammal knowledge across the North Sea and Atlantic areas of Scottish waters¹²;
- JNCC Report No 680: Updated abundance estimates for cetacean management units in UK waters³;
- Sea Watch Foundation (SWF) website for recent sightings of marine mammals from the Shetland region⁴;
- Scottish Marine Animal Stranding Scheme (SMASS) for records of strandings between 2001 and 2020⁵;
- ORCA website for recent records⁶
- JNCC website for Marine Protected Areas⁷

2.1.1 Disclaimer

It should be noted that the baseline is limited by the reliability of third-party information and the geographical availability of biological and/or ecological records and data. The absence of species from biological records cannot be taken to represent actual absence. Species distribution patterns should be interpreted with caution as they may reflect survey/reporting efforts rather than actual distribution.

¹ Marine Scotland Regional baselines for marine mammal knowledge across the North Sea and Atlantic areas of Scottish waters, Scottish Marine and Freshwater Science, Vol 11 No 12, available at: <https://data.marine.gov.scot/sites/default/files/Scottish%20Marine%20and%20Freshwater%20Science%20%28SMFS%29%20Vol%2011%20No%2012%20Regional%20baselines%20for%20marine%20mammal%20knowledge%20across%20the%20North%20Sea%20and%20Atlantic%20areas%20of%20Scottish%20waters.pdf> (Accessed 07/06/2024)

² Regional baselines for marine mammal knowledge across the North Sea and Atlantic areas of Scottish waters: Appendix 3 - SCANS surveys Scottish Marine and Freshwater Science Vol 11 No 12, available at: <https://data.marine.gov.scot/sites/default/files/Scottish%20Marine%20and%20Freshwater%20Science%20%28SMFS%29%20Vol%2011%20No%2012%20Regional%20baselines%20for%20marine%20mammal%20knowledge%20across%20the%20North%20Sea%20and%20Atlantic%20areas%20of%20Scottish%20waters%20-%20Appendix%203%20SCANS%20surveys%20%281%29.pdf>

³ IAMMWG. 2022. Updated abundance estimates for cetacean Management Units in UK waters. JNCC Report No. 680 (Revised March 2022), JNCC Peterborough, ISSN 0963-8091. Available at: <https://data.jncc.gov.uk/data/3a401204-aa46-43c8-85b8-5ae42cdd7ff3/jncc-report-680-revised-202203.pdf>

⁴ Sea Watch Foundation Recent Sightings Shetland available at: <https://www.seawatchfoundation.org.uk/recent-sightings/> (Accessed 25/03/2025)

⁵ Species reported within a 10km (sea route) from 2001-2020 to Scottish Marine Animal Stranding Scheme (SMASS) available at: <https://strandings.org/map/>

⁶ ORCA Whale and Dolphin Sightings interactive map, available at: <https://orca.org.uk/whale-dolphin-sightings>

⁷ <https://www.nature.scot/professional-advice/protected-areas-and-species/protected-areas/marine-protected-areas-mpas/> NatureScot

2.2 Marine Protected Areas (MPAs)

Marine Protected Areas (MPAs) in Scottish waters safeguard a diverse array of habitats, species, geological features, and underwater landforms.

The Belmont Ferry Terminal is located adjacent to the Fetlar to Haroldswick MPA, which covers the nearby coastal waters to the south. This MPA has been established to protect a range of biodiversity and geodiversity features. Key biodiversity features include black guillemots, circalittoral sand and coarse sediment communities, horse mussel beds, kelp and seaweed communities on sublittoral sediment, maerl beds, and shallow tide-swept coarse sands that support burrowing bivalves.⁸

2.3 Marine Mammal Baseline Summary

All cetaceans present in Scottish waters are European Protected Species (EPS) and all the species highlighted below are as Priority Marine Features⁹ (PMFs).

Harbour Porpoise

The harbour porpoise (*Phocoena phocoena*) is widely distributed and common throughout the Shetland region. Harbour porpoise are predominantly confined to shelf waters, although sightings have occurred in deep water. Although present throughout the year, most sightings associated with Shetland region occur during summer-autumn (June to October), with peak number of records occurring July-August.

Harbour porpoise eat a variety of fish, cephalopods and crustaceans, determined by local availability. Prey species including herring (*Clupea harengus*), sprat (*Sprattus sprattus*), pouting (*Trisopterus luscus*), sandeel (*Ammodytes tobianus*), gobies (*Gobiidae*), cod (*Gadus morhua*), saithe (*Pollachius virens*) and whiting (*Merlangius merlangus*)¹⁰.

No sightings of harbour porpoise have been recorded within the proposed development site. However, 65 individual harbour porpoises were reported across 7 sightings submitted by 3 observers to SWF in 2023 from South Nesting Bay, approximately 46 km south of the site. One sighting of two porpoises, confirmed by multiple observers were submitted from Ulsta, Shetland 22km southwest of the site, in 2023.

A total 23 sightings of harbour porpoise comprising 16 sources have been submitted to ORCA between 2017-2021, predominantly to the southeast of the development site.

In the 2023 report on estimates of cetacean abundance in European Atlantic waters in summer 2022 from the SCANS-IV aerial and shipboard surveys, the most recent harbour porpoise abundance estimates for the assessment unit covering Shetland (North Sea (NS)) based on SCANS-IV data, are 338,918 individuals (95% confidence interval: 243,063 – 476,203). Figure 2-1 shows the predicted density surface for harbour porpoise in 2022 using SCANS-IV survey data. The predicted density around the development site is within the range of 0.40–0.77 animals per km², consistent with values reported for the broader North Sea assessment unit.

⁸ NatureScot, Fetlar to Haroldswick MPA available at <https://www.scotlink.org/link-campaigns/save-scottish-seas/scottish-marine-protected-area-network/fetlar-to-haroldswick-mpa/>

⁹ Priority Marine Features in Scotland's seas - Habitats | NatureScot

¹⁰ SWF, harbour Porpoise fact sheet (2020), available at: <https://www.seawatchfoundation.org.uk/wp-content/uploads/2020/07/Harbour-Porpoise.pdf> (Accessed 02/04/2025)

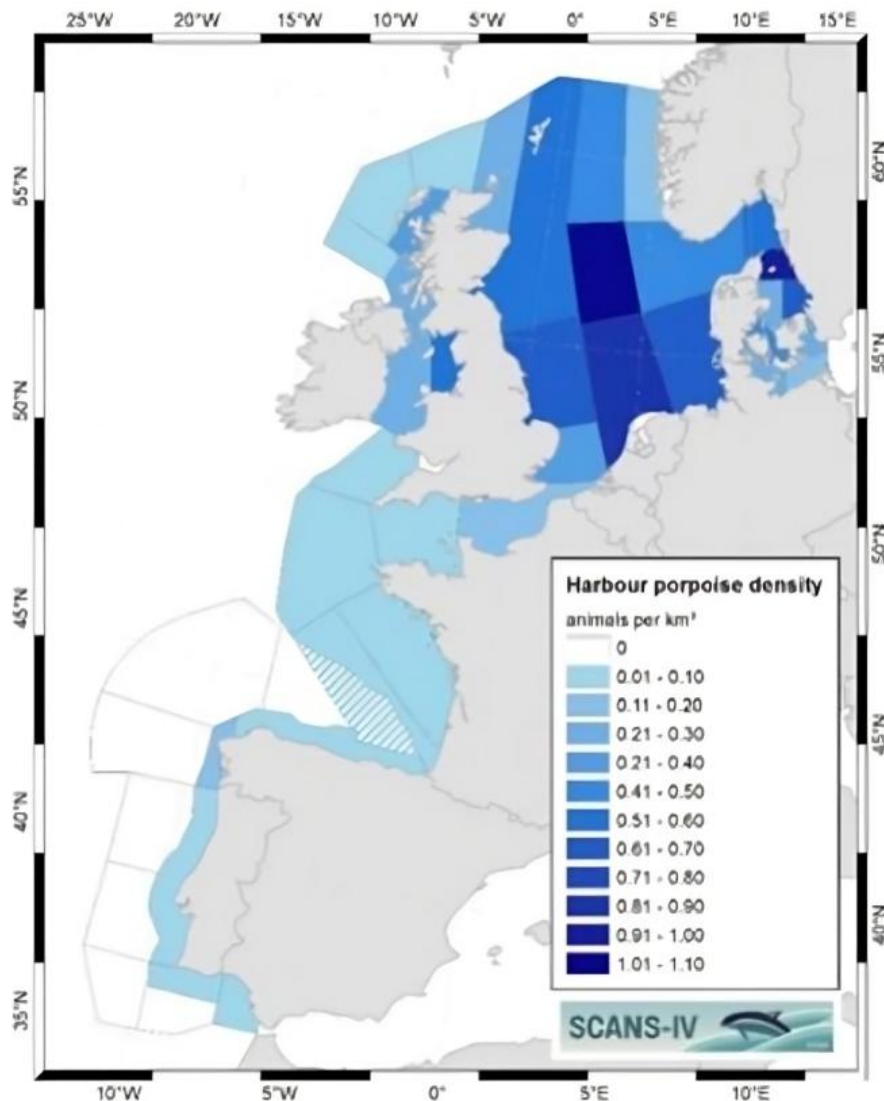


Figure 2-1: Predicted density surface for harbour porpoise in 2022 using SCANS IV survey data.

From the information gathered (number and locations of records) it is considered that harbour porpoise are present occasionally within the vicinity of the site and may be impacted by the survey works.

Risso's Dolphin

Risso's dolphins (*Grampus griseus*) in the north-east Atlantic are primarily found from the tropics to the Shetland Isles, Scotland. Major populations are concentrated in the Hebrides, with regular sightings in small numbers in Shetland, Orkney, and NE Scotland, as well as in the Irish Sea, particularly off the coasts of Co. Wexford, west of Pembrokeshire, around NW Wales, and the Isle of Man. In recent years, they have been observed regularly off east Scotland.

Sightings generally occurring between April and November, with peak number of records occurring in August. Strandings have occurred between November and March and individuals have also been observed off north-east Scotland and Shetland in winter, suggesting that the species may be present in the area year-round.

Risso's dolphin predominantly eat cephalopods, specifically octopus (*Octopoda*), cuttlefish (*Sepiida*) and various small squid (*Decapodiformes*), but will occasionally eat small fish, including cod¹¹.

No sightings of Risso's dolphin have been recorded within the proposed development area, however records of Risso's dolphin are present within Shetland region.

In 2023, five records from Yell, approx. 16.5km southwest of the site, were submitted to SWF. 10 records from Kirkabister, Shetland, approximately 64 km south of the site, were also submitted.

The most recent harbour porpoise abundance estimates for the assessment unit covering Shetland (North Sea (NS-E)) based on SCANS-IV data, are 4,589 individuals (95% confidence interval: 31-16,458). Risso's dolphin density estimate for the North Sea (NS-E) block based on SCANS-IV aerial survey data is 0.0702 animals per km², with a mean group size of 15.5.

For Risso's dolphins, the minimum recorded was 1 individual, while the maximum sighting were of at least 5 Risso's dolphins.

From the information gathered (number and locations of records) Risso's dolphin are considered to be present occasionally within the vicinity of the site and may be impacted by the survey works.

Minke Whale

Minke whale (*Balaenoptera acutorostrata*) are widely distributed in relatively small numbers, usually observed singly or in pairs. They tend to reside mainly on the continental shelf in water depths of 200m or less, often being observed close to land, however have been recorded at depths of 500m. Minke whales are frequently seen in coastal and inshore waters and are widely distributed throughout the North Sea. The minke whale is the most frequently observed species in Shetland coastal waters. It is most often seen off north Unst, between the Out Skerries, Fetlar and Whalsay, and off the east side of Yell and Mainland. Most sightings occur between April and October, particularly from July to September¹².

Minke whale are both meso- and benthic-pelagic feeders, with those in the northern hemisphere, mainly taking fish including sandeel, herring, mackerel (*Scombrus scombrus*), sprat, capelin (*Mallotus villosus*), cod, whiting, haddock (*Melanogrammus aeglefinus*), but will also take euphausiids and copepods, especially at higher latitudes¹³.

No sightings of Minke whale have been recorded within the proposed development area, however records have been recorded within Shetland region.

In 2024, one record of a Minke whale sighting from Kirkabister, Shetland, approximately 63 km south of the site, was recorded. In 2023, another sighting was reported from Tangwick, Shetland, located about 40 km southwest of the site. Additionally, multiple observers submitted a record from Papa Little, Shetland, which is around 44 km southwest of the site. A further sighting was also reported from Whalsay, Shetland, approximately 35 km south of the site.

¹¹ SWF, Risso's dolphin fact sheet (2020), available at: <https://www.seawatchfoundation.org.uk/wp-content/uploads/2020/10/Rissos-Dolphin.pdf>

¹² Whales and dolphins - Cetaceans - Nature in Shetland, available at: [https://www.nature-shetland.co.uk/whales-dolphins#:~:text=Minke%20Whale%20\(Balaenoptera%20acutorostrata\)&text=It%20is%20most%20often%20seen,particularly%20from%20July%20to%20September](https://www.nature-shetland.co.uk/whales-dolphins#:~:text=Minke%20Whale%20(Balaenoptera%20acutorostrata)&text=It%20is%20most%20often%20seen,particularly%20from%20July%20to%20September)

¹³ Whales and dolphins - Cetaceans - Nature in Shetland, available at: [https://www.nature-shetland.co.uk/whales-dolphins#:~:text=Minke%20Whale%20\(Balaenoptera%20acutorostrata\)&text=It%20is%20most%20often%20seen,particularly%20from%20July%20to%20September..](https://www.nature-shetland.co.uk/whales-dolphins#:~:text=Minke%20Whale%20(Balaenoptera%20acutorostrata)&text=It%20is%20most%20often%20seen,particularly%20from%20July%20to%20September..)

In 2023, sightings of two minke whales were reported to ORCA by two individuals, with one sighting occurring southeast and the other northeast of the development site.

The most recent minke whale abundance estimates for the assessment unit based on SCANS-IV data are 12,417 individuals, with a 95% confidence interval ranging from 7,038 to 26,943. Equating to approximately 0.0085 animals per km, in Scottish waters. Although no density is shown immediately around the development area, predicted density around Shetland is generally within the range of 0.011–0.015 animals per km². (see the image below) .

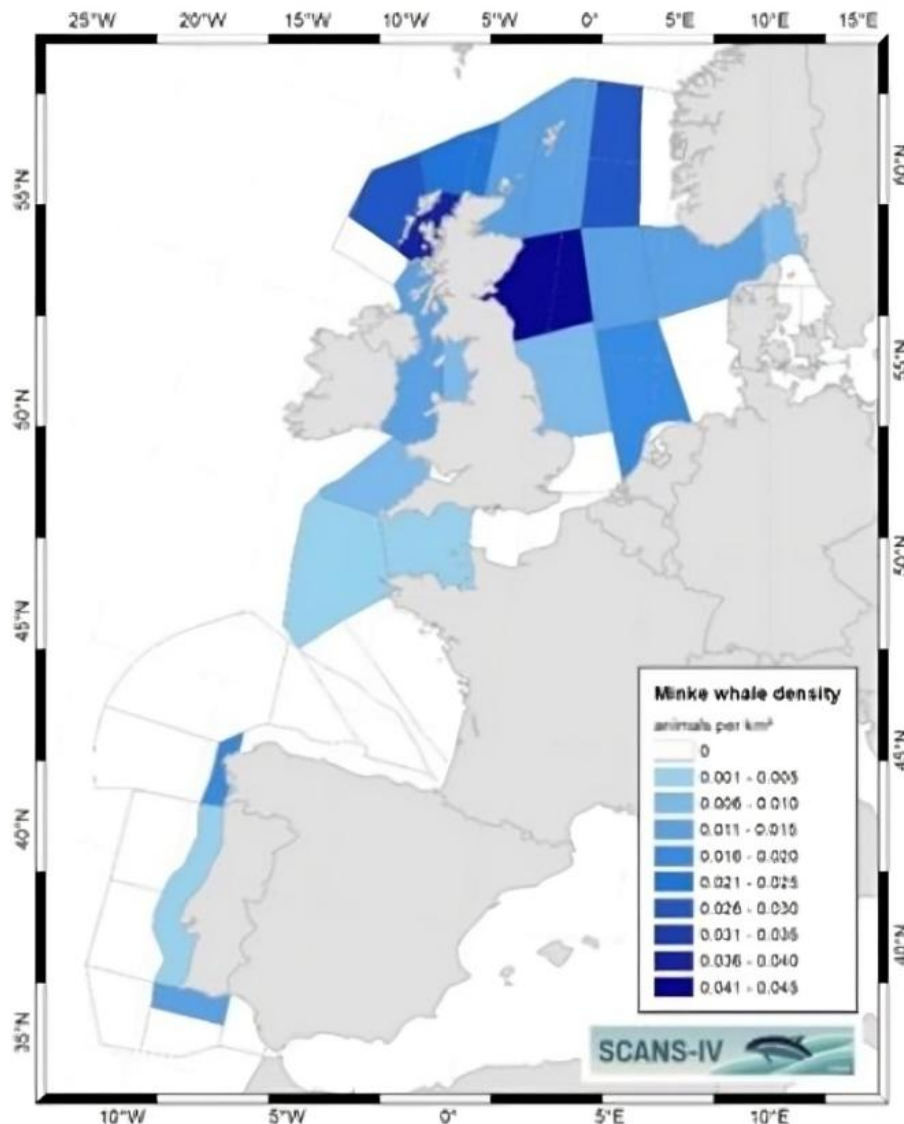


Figure 2-2: Predicted density surface for minke whale in 2022 using SCANS IV survey data.

From the information gathered (number of records and locations of records) minke whale may be impacted by the survey works.

Long-finned Pilot Whale

Long-finned pilot whale (*Globicephala melas*) mainly occur in deep waters (200-3,000m), although have occasionally been observed in shallower coastal waters around northern Scotland, the northern North Sea and the Channel. Long-finned pilot whales occur in greater numbers to the north of Scotland, with little seasonality in the pattern of sightings. Long-finned pilot whale are infrequently observed in nearshore waters, but sightings have been recorded year round, with no particular area

favoured, although greater sightings are recorded between November and March, when several mass strandings have also occurred.

Long-finned pilot whale are benthic and pelagic feeders, with a diet consisting predominantly of squid, with some fish, including mackerel, hake (*Merluccius hubbsi*), cod, whiting, pollack (*Pollachius pollachius*), scad (*Selar crumenophthalmus*), sea bass (*Dicentrarchus labrax*) and sandeels ¹⁴.

No sightings of long-finned pilot whale have been recorded within the development area, however records are present within Shetland region.

One record of one long-finned pilot whale in Uista, Shetland, approximately 23km southwest of the development site, was submitted to SWF in 2023.

Estimates for the assessment unit based on SCANS-IV data are 3,314 individuals, with a 95% confidence interval ranging from 1,456 to 7,541. The estimated density for this species is 0.0023 animals per km² in Scottish waters. This figure includes both long-finned and short-finned pilot whales, as they could not be distinguished during the survey.¹⁵

From the information gathered (number and locations of records) long-finned pilot whale are considered to be present rarely within the vicinity of the site and are unlikely to be impacted by the survey works

Common Dolphin

Common dolphin (*Delphinus delphis*) are recorded frequently in the North Sea and are fairly common and widely distributed around Shetland waters. In recent years, the species has occurred further north and east in shelf seas - around Shetland, and in the northern North Sea, reflecting changes in the strength of the Gulf Stream, peak number of records of the species generally occur between July and October.

Common dolphin are mainly pelagic, opportunistic feeders consisting chiefly of small schooling fish. Other prey items include cod, scad, sandeel, herring, whiting and blue whiting, as well as squid, the type of food taken depending on local availability.¹⁶

No sightings of common dolphin have been recorded within the development area, however records are available within the waters surrounding Shetland.

In the year 2023, one sighting of five common dolphin was submitted to SWF, approximately 20.2km south of the development site.

The most recent common dolphin abundance estimates for the assessment unit based on SCANS-IV data are 439,212 individuals, with a 95% confidence interval ranging from 309,153 to 623,987. The estimated density for this species is 0.259 animals per km².

From the information gathered (number and locations of records) common dolphin are considered to be present occasionally within the vicinity of the site and are unlikely to be impacted by the survey works.

Killer Whale

¹⁴ SWF, long-finned pilot whale fact sheet (2020), available at: <https://www.seawatchfoundation.org.uk/wp-content/uploads/2020/07/Long-finned-Pilot-Whale.pdf>

¹⁵ Estimates of cetacean abundance in European Atlantic waters in summer 2022 from the SCANS-IV aerial and shipboard surveys (2023), available at: [SCANS-IV design-based estimates](#)

¹⁶ SWF, killer whale fact sheet (2020), available at <https://www.seawatchfoundation.org.uk/wp-content/uploads/2020/07/Common-Dolphin.pdf>

Killer whale (*Orcinus orca*) are widely distributed in the northern Scottish waters and specifically throughout Shetland waters. Killer whales are most commonly observed in coastal waters during the summer months (May to September), but they have been recorded throughout the year, in Shetland. Groups ranging from 100 to 300 individuals have been sighted in the northern North Sea and east of Shetland, often associated with trawling activities.

Killer whale use a wide variety of foraging methods and thus have a very variable diet, including fish, such as herring, mackerel, salmon (*Salmo salar*), cod, halibut (*Hippoglossus stenolepis*), squid, rays (*Batoidea*), marine mammals, and occasionally turtles (*Testudines*) and birds¹⁷.

No sightings of Killer whale have been recorded within the development area, however records are available within the waters surrounding Shetland.

In 2023, a group of five killer whales was reported from Sellafirth, Yell, Shetland, approximately 8 km southwest of the site. Another group of five individuals was recorded from Burravoe, Yell, around 22 km southwest of the site. Multiple sightings were reported from Brae, Shetland—located approximately 40 km southwest of the site—with group sizes of three, five, and three individuals. A group of four killer whales was observed off Olna, Shetland, approximately 41 km southwest of the site. Additional records came from Busta Voe, Shetland, about 42 km southwest of the site, with sightings of five and six individuals. Finally, a group of five killer whales was observed off Papa Little, Braewick, Shetland, approximately 44 km southwest of the site.

For killer whales sightings submitted to SWF, the minimum recorded was three individuals and the maximum was five.

From the information gathered (number of records and locations of records) killer whale may present within the vicinity of the proposed development site occasionally and therefore could be impacted.

Other Cetaceans

Unusual cetacean sightings have included fin whale (*Balaenoptera physalus*), humpback whale (*Megaptera novaeangliae*), White-beaked dolphin (*Lagenorhynchus albirostris*), Atlantic White-sided dolphin (*Lagenorhynchus acutus*), and Beluga (*Delphinapterus leucas*).

It is not considered these species would be impacted by the proposed survey works.

¹⁷ SWF, killer whale fact sheet (2020), available at: <https://www.seawatchfoundation.org.uk/wp-content/uploads/2021/03/Killer-Whale.pdf>

3 MARINE MAMMAL RISK ASSESSMENT

3.1 Activities Affecting Marine Mammals

Proposed activities which will introduce underwater noise into the marine environment include multibeam bathymetry survey, geophysical survey and any associated vessel movement.

The Marine Directorate 'Guidance for Scottish Inshore Waters: The Protection of Marine European Protected Species from Injury and Disturbance' defines what disturbance means to cetaceans as: 'Changes in behaviour which may not appear detrimental in the short-term, but may have significant long-term consequences. Additionally, the effects may be minor in isolation, but may become more significant in accumulation'. Disturbance may be identified via the following behaviour:

- Changes in (direction or speed of) swimming or diving behaviour;
- Bunching together or females shielding calves;
- Certain surface behaviours such as tail splashes and trumpet blows; and
- Moving out of a previously occupied area.

The following negative effects are linked to disturbance:

- Displacement from important feeding areas;
- Disruption of feeding;
- Disruption of social behaviours such as communication, calving, breeding, nursing, resting and feeding;
- Increased risk of injury or mortality;
- Increased vulnerability of an individual or population to predators or physical stress; and
- Changes to regular migration pathways to avoid human interaction.

The exact details (or as close to those as possible) of the equipment to be used have been provided. The three methods below are considered the most significant:

3.1.1 Geophysical Survey

A geophysical survey of the area adjacent to the dock will be undertaken to determine the depth of sediment overlay and rockhead profile. The sub-bottom profiling element of the survey will be conducted utilising seismic reflection techniques, with an acoustic boomer system. A short duration, high power electrical pulse discharges to an electrical coil and the resultant magnetic field explosively repels the metal plate, generating a broad band acoustic pressure pulse in the water column. The frequency of this pulse of the AA201 Boomer system is in the range of 400Hz to 22kHz, with most of the energy being directed vertically downward at a maximum output of 300 joules per pulse. The system is mounted on a catamaran, towed off a vessel at 10m line spacing over the proposed survey area, with cross lines run at 20m intervals.

3.1.2 Multibeam Bathymetry Survey

The multibeam bathymetry survey works, if required, include the use of multiple, simultaneous sound waves, to provide a map of the sea floor profile. The equipment proposed will operate between 200kHz and 400kHz.

3.2 Impacts of Underwater Noise to Marine Mammals

The way in which noise affects marine mammals is dependent on several factors, including the type of noise generated, the noise level, the species of marine mammal and the distance between the animal and the source of the noise. The National Oceanic and Atmospheric Administration (NOAA) describes how different groups of marine mammals hear and are affected by sounds, which can be found in the '*Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing*'¹⁸. The effects can be described as either a Permanent Threshold Shift (PTS), where an animal experiences irreversible damage to their hearing which can in turn affect their ability to forage and reproduce and in extreme circumstances result in death; or a Temporary Threshold Shift (TTS) which an animal can recover from, but may experience 'masking' which reduces its ability to communicate with other animals and locate prey, resulting in fatigue¹⁹.

Cetaceans rely on their hearing for foraging, navigation and mating. The impact of noise to a population level is difficult to determine, however, the expected impact on an individual animal's hearing ability and potential damage that could be caused by noisy activities during works is assessed by modelling representative scenarios, taking into account environmental variables and the animal's hearing capabilities.

Three noise sources were considered for this assessment, as outlined below.

3.2.1 Multibeam Bathymetry Survey

The multibeam bathymetry survey equipment operates between 200kHz and 400kHz. As the survey is proposed for shallow waters, JNCC guidance²⁰ states that multi-beam surveys in shallower waters (<200m) are not considered a risk to marine mammals as the higher frequencies used fall outside the frequencies for cetaceans. The sounds produced attenuate more quickly than lower frequencies used in deeper waters. Therefore, this sound source is screened out as a potential impact for marine mammals.

3.2.2 Geophysical Survey

The geophysical survey equipment operates between 400 Hz to 22 kHz. This noise level is considered to fall within the hearing range of marine mammals commonly identified in Shetland waters, including the sensitive hearing range for minke whale (200 Hz to 19 kHz), harbour porpoise (12 kHz to 140kHz) and Risso's and common dolphin (8.8 kHz to 110 kHz)²¹. Therefore, it is considered that noise generated from this survey, if unmitigated, could lead to PTS or TTS effects to marine mammals in the vicinity of works.

3.3 Effects of Increased Vessel Movement

Larger whales (predominantly Baleen whales) are most often reported in regard to vessel collisions. In general, larger whales are less manoeuvrable than smaller cetaceans and therefore, may be a likely attribute to vessel collision. For example, minke whales have reportedly been killed by ship strikes in

¹⁸ NOAA guidance available at: <http://www.nmfs.noaa.gov/pr/acoustics/guidelines.htm> last accessed 31/08/2023

¹⁹ JNCC UK Marine Noise Registry: Information Document available at: http://jncc.defra.gov.uk/pdf/MNR_Draft_InfoDoc_V1_20160808.pdf last accessed 31/08/2023

²⁰ JNCC guidelines for minimising the risk of injury to marine mammals from geophysical surveys (Page 17m, accessed 31/08/2023)

²¹ [Contents \(cyfoethnaturiol.cymru\)](#) Table 3- Marine mammal hearing groups and estimated hearing ranges, original source Southell et al (2019). Accessed online 01/09/2023

UK waters. However, baleen whales are observed much less frequently in the vicinity of Belmont ferry terminal.

Harbour porpoises often live in the vicinity of vessel traffic and reactions by porpoises to various types of vessels showed only short-term negative effects from speedboats and large ferries in a study by the Sea Watch Foundation²². HWDC²³ indicate that as harbour porpoise are naturally shy of boats, they will for the most part avoid them, and so for most types of marine traffic the risk of collision is minimal. There is more potential for collision with fast-moving engine-powered vessels due to their speed and ability to change direction quickly.

Risso's dolphins are rarely seen approaching vessels or bow-riding, suggesting that this species may actively avoid vessel traffic.

Killer whales are generally inquisitive and are observed approaching vessels, however, like other smaller cetaceans (white-beaked dolphin and pilot whales) they are fast, agile and manoeuvrable in water.

3.4 Assessment of Risk to Marine Mammals

Without mitigation, the noise generated by the geophysical surveys and increased vessel movement to undertake the surveys, produce some risk of death or injury to marine mammals.

The noise generated from the multibeam bathymetry survey is screened out based on the high frequency of noise being outwith the hearing band for cetaceans and the shallow depth of the water allows noise to attenuate more quickly.

Given the mitigation, as outlined in section 4, is employed and considering the short-term nature of the works producing underwater noise, the number of individuals affected will be negligible and any disturbance which may occur will not fall under the Conservation (Natural Habitats, &c.) Regulations 1994's definition of significant disturbance.

²² Sea Watch Foundation: The Harbour Porpoise in UK Waters available at: http://seawatchfoundation.org.uk/wp-content/uploads/2012/07/Harbour_Porpoise.pdf last accessed 13/12/2022

²³ HWDC Harbour Porpoise information available at: <https://hwdt.org/harbour-porpoise> last accessed 12/12/2022

4 MARINE MAMMAL MITIGATION PLAN

The Marine Mammal Observation Protocol (MMOP) will be implemented so that the geophysical survey works do not cause injury or unnecessary disturbance to marine mammals. This section has been designed with reference to current JNCC guidance 'JNCC guidelines for minimising the risk of injury to marine mammals from geophysical surveys' (2017).

4.1 Marine Mammal Observer

A suitably qualified Marine Mammal Observer (MMO), competent in the identification of marine mammals at sea, will be present during the geophysical survey works. The MMO will undertake observation for marine mammals within the mitigation zone before and will be dedicated to that one task for the duration of any watch. The MMO will advise the contractors and crews on the implementation of the procedures set out in the agreed protocol, to ensure compliance with those procedures.

The JNCC guidance provides the following definitions of an MMO:

MMO: Individual responsible for conducting visual watches for marine mammals. It may be requested that observers are trained, dedicated and/or experienced.

Trained MMO: Has been on a JNCC recognised course.

Dedicated MMO: Trained observer whose role on board a vessel is to conduct visual watches for marine mammals.

Experienced MMO: Trained observer with three years of field experience observing for marine mammals, and practical experience of implementing the JNCC guidelines.

The MMO will be trained. The identity and credentials of the MMO will be agreed with Marine Directorate.

4.2 MMO Equipment

The MMO will be equipped with binoculars (10X42 or similar) and/or a spotting scope (20-60 zoom or equivalent), a copy of the agreed protocol and the Marine Mammal Recording Form (MMRF), which is a Microsoft Excel spreadsheet containing embedded worksheets named Cover Page, Operations, Effort and Sightings. A Microsoft Word document named Deck forms is also available, and the MMO may prefer to use this when observing before transferring the details to the Excel spreadsheets. The ability to determine the range of marine mammals is a key skill for MMOs, therefore a hand-held rangefinder will be used to verify the range.

All MMO forms, including a guide to completing the forms; and instructions on how to make a rangefinder are available on the JNCC website: http://jncc.defra.gov.uk/marine/seismic_survey

4.2.1 Communication

The contractor will be responsible for the communication channels between those providing the mitigation service and the crews working on the survey vessel. A formal chain of communication from

the MMO to the contractor, who will start/stop the survey works, will be established. In order to confirm the chain of communication and command, the MMO will attend any relevant pre-mobilisation meetings.

4.2.2 Mitigation Zone

The MMO/PAM operative will monitor the agreed mitigation zone and advise if any marine mammals are within it. The standard radius of the mitigation zone is 500m, estimated from the centre of the airgun array or noise source location (noting comments in 0). If the size of the mitigation zone is adjusted for any reason, this will be stipulated within the survey consent or licence conditions.

4.3 MMO Protocol

1. The geophysical survey works should also be scheduled on days when the sea is expected to be calm (less than sea state 2).
2. Visual monitoring will not commence during poor visibility (such as fog) or during periods when the sea state is not conducive to visual mitigation (above sea state 4 is considered not conducive²⁴) as there is a greater risk of failing to detect the presence of marine mammals. Harbour porpoise have small dorsal fins, therefore the MMO shall take additional precautions if the sea state exceeds 2. An elevated platform for the MMO to monitor from would be beneficial.
3. The MMO(s) will likely be onboard the survey vessel, or a land-based platform, that provides the best viewing platform, that allows 360 degree visual cover, and is likely to be closest to the geophysical survey activities.
4. The mitigation zone will be monitored visually by the MMO for an agreed period prior to the commencement of geophysical survey works. This will be a minimum of 30 minutes.
5. The MMO will scan the waters using binoculars or a spotting scope and by making visual observations. Sightings of marine mammals will be appropriately recorded in terms of date, time, position, weather conditions, sea state, species, number, adult/juvenile, behaviour, range etc. on the JNCC standard forms. Communication between the MMO and the contractor and the start/end times of the activities will also be recorded on the forms.
6. Geophysical survey activities should not be undertaken within 20 minutes of a marine mammal being detected within the mitigation zone.
7. If a marine mammal is observed, or acoustically detected, within the mitigation zone, it should be monitored and tracked until it moves out of range. The MMO should notify the relevant chain of command of the detection and advise that the operation should be delayed. If the marine mammal is not detected again within 20 minutes, it can be assumed that it has left the area, and the works may commence.
8. If an MMO is uncertain whether marine mammals are present within the mitigation zone, they should advise that the activity should be delayed as a precaution until they are certain that no animals are present.

²⁴ Detection of marine mammals, particularly porpoises, decreases as sea state increases. According to the JNCC guidance ideally sea states of 2 or less are required for optimal visual detection.

9. A soft-start will be employed, with the gradual ramping up of geophysical survey works (where possible). The soft-start duration will be a period of not less than 20 minutes. This will allow for any marine mammals to move away from the noise source.

10. If a marine mammal enters the mitigation zone during the soft-start then, whenever possible, the works will cease until the marine mammal exits the mitigation zone and there is no further detection for 20 minutes.

4.3.1 Reporting

As per the JNCC guidance, reports detailing the geophysical survey activity and marine mammal mitigation (the MMO reports) will be sent to Marine Directorate at the conclusion of the geophysical survey. Reports will include:

- Completed MMRFs;
- Date and location of the geophysical survey;
- A record of all occasions when geophysical survey occurred, including details of the duration of the pre-survey search and soft-start procedures, and any occasions when survey activity was delayed or stopped due to the presence of marine mammals;
- Details of watches made for marine mammals, including details of any sightings, and details of the geophysical survey activity during the watches;
- Details of any problems encountered during the geophysical survey including instances of non-compliance with the agreed protocols; and
- Any recommendations for amendment of the protocols.

4.4 Vessel Movement Mitigation Protocol

Survey Vessel operators should be provided with a pre-works toolbox talk about the likely presence of cetaceans and other marine mammals (seals) in the area. The toolbox talks should also information to avoid disturbance to and/or collision with marine mammals which should include, but is not limited to the following:

- Keep a safe distance. Never get closer than 100m (200m if another boat is present) if within 100m, switch the engine to neutral;
- Never drive head on to, or move between, scatter or separate marine mammals. If unsure of their movements, simply stop and put the engine into neutral;
- Spend no longer than 15 minutes near the animals;
- Special care must be taken with mothers and young;
- Maintain a steady direction and a slow 'no wake' speed; and
- Avoid sudden changes in speed.

Wildlife code of conduct methods have been created by NatureScot and are available on their website.

4.5 Additional Good Practice Recommendations

If any dead cetacean is anecdotally observed during construction or operation, it should be reported to the Scottish Marine Animal Stranding Scheme (SMASS) (www.strandings.org) and live marine mammal strandings will be reported to British Divers Marine Live Rescue (www.bdmlr.org.uk).

The MMO should keep a record of all marine mammal sightings, whether in the mitigation zone or not, to be issued to NatureScot. An understanding of the location of species is essential to appropriately

assess the impacts of a proposed development and plan and target effective mitigation, therefore this data could be used to inform future projects. Biodiversity data are extremely important as, aside from use in planning and decision making, they are key to delivering state of environment reporting, education, modelling trends in species and habitat distribution, and research and policy making.