

Bellrock Offshore Wind Farm

Offshore Transmission Development Area

Scoping Report – Volume 1

Appendix C: Marine Mammals Existing Environment

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Glossary of Terminology

Term	Definition
Bellrock Offshore Wind Farm (or the Bellrock Project)	An offshore wind farm capable of exporting up to 1.8 GW of renewable energy to the National Electricity Transmission System. The Wind Farm Development Area is located 120 km east of Stonehaven, and will connect to the National Electricity Transmission System at the proposed SSEN Transmission Hurlie substation, west of Stonehaven in Aberdeenshire. The Bellrock Offshore Wind Farm comprises of the following Development Areas: ▪ Wind Farm Development Area; ▪ Offshore Transmission Development Area; and ▪ Onshore Transmission Development Area.
Offshore Transmission Development Area	The boundary within which the Offshore Transmission Infrastructure will be constructed, operated and maintained, and decommissioned seaward of Mean High Water Springs (and overlaps the whole of the Wind Farm Development Area and partially overlaps with the Onshore Development Area at landfall).
Offshore Transmission Infrastructure	Infrastructure located within the Offshore Transmission Development Area including fixed bottom offshore substation(s), fixed bottom offshore reactive compensation station(s) and associated scour protection; interconnector cable(s) and associated cable protection; landfall (seaward of Mean High Water Springs), and offshore export cables and associated cable protection (including activities associated with the Offshore Transmission Infrastructure construction, operation and maintenance, and decommissioning).
Scoping Boundary	The area considered at the scoping stage within which the relevant Development Area and its associated infrastructure is expected to be developed.
ScotWind	A Crown Estate Scotland leasing round for offshore wind projects in which the process enabled developers to apply for seabed rights to plan and build wind farms in Scottish waters.
Wind Farm Development Area	The boundary within which the Wind Farm Infrastructure will be constructed, operated and maintained, and decommissioned.

Glossary of Abbreviations

Term	Definition
CES	Coastal East Scotland
CGNS	Celtic and Greater North Sea
CI	Confidence Interval
CV	Coefficient of Variation
ECOMMAS	East Coast Marine Mammal Acoustic Study
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
GNS	Greater North Sea
GPS	Global Positioning System
HRA	Habitats Regulation Appraisal
HWDT	Hebridean Whale and Dolphin Trust
IAMMWG	Inter-Agency Marine Mammal Working Group
JCP	Joint Cetacean Protocol
MFRAG	Moray Firth Regional Advisory Group
MU	Management unit
NAMMCO	North Atlantic Marine Mammal Commission
NS	North Sea
NWES	North-West European Shelf
OfTDA	Offshore Transmission Development Area
RoI	Republic of Ireland
SAC	Special Area of Conservation
SAMS	Scottish Association for Marine Science
SCANS	Small Cetaceans in the European Atlantic and North Sea
SCOS	Special Committee on Seals
SEA	Southeast Scotland
SMRU	Sea Mammal Research Unit
WFDA	Wind Farm Development Area

1 Existing Environment

1. This Marine Mammal Existing Environment Report is an Appendix to **Chapter 8: Marine Mammals** of the **Bellrock Offshore Transmission Development Area (OfTDA) Scoping Report (Volume 1)**. This Appendix details the existing environment for marine mammals and presents the scoping of marine mammal species in relation to the Bellrock OfTDA. This Appendix has been prepared by Haskoning.

1.1 Study Area

2. The marine mammal study areas have been defined on the basis that marine mammals are highly mobile and transitory in nature. Therefore, it is necessary to consider species occurrence not only within the Bellrock OfTDA Scoping Boundary, but also across the wider area. For each marine mammal species, the study area has been defined based on the relevant overlapping management unit (MU), taking account of current knowledge and understanding of the biology and ecology of the species.
3. The Bellrock OfTDA Scoping Boundary will be refined on completion of the site selection process to form the boundary of the Bellrock OfTDA. The marine mammal study areas will be reviewed and updated, if required, for the Bellrock OfTDA EIA to reflect this refinement (see **Section 1.4** of **Chapter 1: Introduction (Volume 1)**).

1.2 Data and Information Sources

4. **Table 1.1** lists the data sources that will be used to inform the baseline assessment within the Bellrock OfTDA Environmental Impact Assessment (EIA) Report. This list is not exhaustive, and a full review of all potential data sources and information for marine mammals in the vicinity of the Bellrock OfTDA will be incorporated into the baseline review provided within the Bellrock OfTDA EIA Report. This will include the latest research from the Cetacean Research & Rescue Unit, the Scottish Association for Marine Science (SAMS) and the Sea Mammal Research Unit (SMRU).

Table 1.1: Summary of Key Data and Information Sources for Marine Mammals

Dataset	Year(s)	Description
Bellrock Wind Farm Development Area (WFDA) site-specific offshore aerial surveys.	March 2022 – February 2024	Digital offshore aerial surveys of the Bellrock WFDA. Further described in Section 1.2.1 .
Small Cetaceans in the European Atlantic and North Sea (SCANS-III): Estimates of cetacean abundance in European Atlantic waters in summer 2016 from the SCANS-III aerial and shipboard surveys (Hammond et al., 2021).	Survey undertaken in summer 2016	Density and abundance estimates for cetacean species in the European Atlantic and North Sea (NS).
SCANS-IV: Estimates of cetacean abundance in European Atlantic waters in summer 2022 from the SCANS-IV aerial and shipboard surveys (Gilles et al., 2023).	Survey undertaken in summer 2022	Density and abundance estimates for cetacean species in the European Atlantic and NS.
SCANS-IV: Estimates of cetacean abundance in European Atlantic waters in winter 2024 from the SCANS-IV aerial and shipboard surveys (Ramirez-Martinez et al., 2025).	Survey undertaken in winter 2024	Density and abundance estimates for cetacean species in the European Atlantic and NS.
East Coast Marine Mammal Acoustic Study (ECOMMAS).	2013 - 2016	Cetacean-porpoise detectors data at 30 locations on the east coast. Deployed for four months (summer) in 2013 and 2014, and eight months (April to November) in 2015 and 2016. Any future additional data made available from this study will be utilised.
Revised Phase III data analysis of Joint Cetacean Protocol (JCP) data resources (Paxton et al., 2016).	Data from a range of sources, analysed and reported on in 2015 and 2016	Density mapping for the most common cetacean species in UK waters.
Distribution maps of cetacean and seabird populations in the North-East Atlantic (Waggitt et al., 2020).	Data from a range of sources, analysed and reported on in 2019	Density mapping for the most common cetacean species in European and northeast Atlantic waters for each month.
POSEIDON project (Planning Offshore Wind Strategic Environmental Impact Decisions) [if available].	Various	Density mapping tools for marine mammals and seabirds.
The identification of discrete and persistent areas of relatively high harbour porpoise density in the wider UK marine area (Heinänen and Skov, 2015).	Utilised data sources covering the years between 1994 and 2011	Data was used to determine harbour porpoise Special Area of Conservation (SAC) sites. Provides information on harbour porpoise in the NS area.
ORCA surveys on ferry routes from Aberdeen (ORCA, 2023).	Data currently available up until April 2023	Provides information on species in the northern NS ferry routes (trained volunteers).

Dataset	Year(s)	Description
Sea Watch Foundation volunteer sightings off North-East Scotland and South Grampian and South-East Scotland (Sea Watch Foundation, 2026).	Public sightings database	Provides information on species in northeast Scotland and South Grampian and southeast Scotland (SES) regions (volunteer sightings).
Management Units for cetaceans in UK waters (Inter-Agency Marine Mammal Working Group (IAMMWG), 2023).	Data from a range of sources, analysed and reported on in 2023	MU areas and abundance estimates for the most common cetacean species in the UK.
Special Committee on Seals (SCOS) annual reporting of scientific advice on matters related to the management of seal populations (SCOS, 2025).	2025	Updated data and information on grey and harbour seals in the UK. Includes the most recent haul-out counts and population estimates for each seal MU in the UK.
Aerial surveys of seals in Scotland during the harbour seal moult, 2016-2019 (Morris et al., 2021).	2016 to 2019	Fifth full August count of harbour seals in Scotland.
Seal telemetry data (Sharples et al., 2008; Russell and McConnell, 2014).	Tracking data between 1988 - 2010	Provides the results of seal tagging studies in the UK and Europe, to provide an indication of seal movements.
UK seal at sea density estimates and usage maps (Carter et al., 2022).	Aerial surveys between 1987 - 2010 and tracking data between 2005 - 2019	Provides grey and harbour seal density estimates for UK waters, and for each seal designated SAC.
Updated Habitat-Based At-Sea Distribution Maps for Grey and Harbour Seals in Scotland (Carter et al., 2025) and transboundary (Carter et al., 2026)	New tracking data alongside data from Carter et al., (2022); as well as updated Scotland population numbers	Provides grey seal and harbour seal density estimates for Scottish waters based on haul-out sites in Scotland and transboundary
Regional baselines for marine mammal knowledge across the North Sea and Atlantic areas of Scottish waters (Hague et al., 2020).	Various	Provides a baseline review for all ScotWind sites.
Offshore Wind Farms marine mammal site data (e.g. Thompson et al., 2014; Brookes et al., 2013).	Various	Relevant information from other offshore wind farms (e.g. Moray East, Moray West, Beatrice, Seagreen and Neart na Gaoithe Offshore Wind Farms EIA characterisation surveys and Moray Firth (MF) Marine Mammals Monitoring Programme MF Regional Advice Group (MFRAG) reporting).
Hebridean Whale and Dolphin Trust (HWDT, 2025).	Various	Cetacean sightings throughout Scotland's West coast. Citizen science sightings from shoreline and boat surveys.

Dataset	Year(s)	Description
Bottlenose dolphins within the Moray Firth SAC (Cheney et al., 2024, Arso Civil., et al 2019)	2017 - 2022	Provides a population and baseline review of the bottlenose dolphin population within the east Coast of Scotland.
Gilles et al., 2016.	2005 – 2013	Seasonal habitat models for harbour porpoise
North Atlantic Marine Mammal Commission (NAMMCO website).	Various	Sightings and survey data, along with abundances and data mapping for the North Atlantic area.

1.2.1 Bellrock Wind Farm Development Area Site-specific Surveys

5. Site-specific offshore aerial surveys were conducted for both marine mammals and seabirds in the Bellrock WFDA (which is overlapped by the Bellrock OfTDA Scoping Boundary). Offshore aerial surveys commenced in March 2022 and were completed in February 2024, with a single survey carried out in each calendar month (i.e. a total of 24 months). The survey, undertaken by HiDef Aerial Surveying Limited (HiDef), collected high resolution aerial digital still imagery for marine megafauna (combined with ornithology surveys).
6. The offshore aerial survey area adopted within this Bellrock OfTDA Scoping Report comprised the Bellrock WFDA plus a 4 km buffer, totalling 658 km². Although this survey does not cover the entirety of the Bellrock OfTDA Scoping Boundary, it will be utilised as an estimate given the overlap and that it provides site-specific information.
7. For marine mammals, it is important to consider the individuals that it would not be possible to detect using observer-based survey or aerial survey techniques, due to the time marine mammals spend below the water surface, and therefore being undetectable. In order to account for this, the density and abundance estimates are corrected to account for the time that each species spends below the water surface (and therefore not detected in the offshore aerial surveys).
8. Correction factors for availability bias are based on the known dive behaviours of each species. For harbour porpoise, correction factors are based on the data presented in Voet et al. (2017) or Teilmann et al. (2007; 2013), and use different factors for each season, and for submerged and surfacing individuals. For harbour porpoise, these corrections will be undertaken by HiDef as part of the analysis and reporting process.
9. For other species, correction factors for availability bias are less well understood. If required, to correct the density estimates for other species, a review of available correction factors will be undertaken through the Bellrock OfTDA EIA process.
10. While a density and abundance estimate would be derived for each species recorded during the surveys, these would only be used within the impact assessments where that species has been sighted regularly and the quality of density estimates is considered sufficient. This is due to potential limitations on the estimates, including the low confidence in any density and abundance

estimate from very few sightings¹. The proposed use of the site-specific density estimates (if sufficient data is collected) is noted in **Table 1.6**.

1.2.1.1 Summary of Site-specific Survey Results

11. The species (and number) of marine mammals recorded during the offshore aerial surveys are set out in **Table 1.2**.

Table 1.2: Species Recorded During the HiDef Offshore Aerial Surveys Between March 2022 – February 2024

Species	Number of individuals
Harbour porpoise <i>Phocoena phocoena</i>	126
White-beaked dolphin <i>Lagenorhynchus albirostris</i>	3
Minke whale <i>Balaenoptera acutorostrata</i>	2
Killer whale <i>Orcinus orca</i>	1
Grey seal <i>Halichoerus grypus</i>	1
Unidentified seal species	9
Unidentified cetacean species	1
Unidentified dolphin species	1

12. Harbour porpoise were identified in higher numbers during the first year of surveying and in the summer months (of May to August 2022) than at any other time, with a peak of 42 individuals in June 2022. When corrected for availability bias, the absolute density estimates for harbour porpoise ranged from 0.05 individuals/km² (March 2023) to 3.23 animals/km² (June 2022). This equates to 50 animals (95% confidence interval (CI) 0 – 144) and 2,127 animals (95% CI 886 – 3,581) respectively. Across the full survey, the density for harbour porpoise was 0.431 individuals/km².

1.3 Densities of Marine Mammal Species

13. The following section provides an initial review of the baseline data sources available for marine mammals that could be present within the marine mammal study area. It should be noted that a

¹ For example, based on the currently available data (**Table 1.1**), there would be sufficient detections of harbour porpoise to generate density and abundance estimates with relatively good confidence. In comparison, the limited number of sightings for other species restricts similar analysis; such as white-beaked dolphin or minke whale, as only three or two respectively (plus the one unidentified cetacean and one unidentified dolphin species) have been sighted.

further review of any additional sources will be undertaken as part of the Bellrock OfTDA EIA process.

14. A review of the site-specific Bellrock WFDA survey (overlapped by the Bellrock OfTDA Scoping Boundary) and the data noted in **Table 1.1** indicates the following cetacean species could be present in or around the Bellrock OfTDA:

- Cetaceans:
 - Harbour porpoise, *Phocoena phocoena*;
 - Bottlenose dolphin, *Tursiops truncatus*;
 - White-beaked dolphin, *Lagenorhynchus albirostris*;
 - Common dolphin, *Delphinus delphis*;
 - Killer whale, *Orcinus orca*;
 - Minke whale, *Balaenoptera acutorostrata*;
 - Fin whale, *Balaenoptera physalus*; and
 - Humpback whale, *Megaptera novaeangliae*.
- Pinnipeds:
 - Grey seal, *Halichoerus grypus*; and
 - Harbour seal, *Phoca vitulina*.

15. Atlantic white-sided dolphin *Lagenorhynchus acutus*, Risso's dolphin *Grampus griseus* and long-finned pilot whale *Globicephala melas* have the potential to be present within the area as occasional visitors but have been **scoped out** for further assessment as they are likely to be in lower numbers and less frequent than the key species listed above. The results of the full desk-based assessment, complemented by site-specific surveys from the Bellrock WFDA, would be used to determine the species taken forward for further assessment. It should be noted that should any of these species be **scoped in** following scoping submission, it may not be possible to undertake a quantitative assessment due to a lack of data.
16. In the case of killer whale, humpback whale and fin whale, there is a paucity of data available, and therefore assessments would be qualitative rather than quantitative, based on a desk-based review of the species and relevant impacts, as well as the modelled underwater noise impact ranges for the relevant frequency hearing group. If other species, that are currently considered to be rare in the area, are subsequently **scoped in** for assessment, it is likely the same approach would be taken. Assessments will always be done in a quantitative manner where possible.

1.3.1 Cetacean Species

17. Distribution maps of cetacean species within the northeast Atlantic were produced by Waggitt et al. (2020). These maps indicate that harbour porpoise and white-beaked dolphin are relatively common off the east coast of Scotland, while minke whale are relatively common in the summer

months in particular. Killer whale, bottlenose dolphin², common dolphin, Atlantic white-sided dolphin, Risso's dolphin, and long-finned pilot whale are present but in much lower densities (Waggitt et al., 2020). Fin whale, sperm whale and striped dolphin are shown to be rare in the area and humpback whale is the rarest and not noted in the Waggitt et al. (2020) data. The density estimates from these maps are presented in **Table 1.3**.

18. The SCANS-III and SCANS-IV surveys were undertaken in summers of 2016 and 2022 respectively, across the northeast Atlantic. In relation to the Bellrock OfTDA marine mammals study area (which is located within Survey Block R or NS-D), where harbour porpoise was the most commonly sighted species. White-beaked dolphin and minke whale were also sighted in relatively high numbers, while fin whale was only rarely sighted. Bottlenose dolphin, Risso's dolphin, Atlantic white-sided dolphin, common dolphin, killer whale, long-finned pilot whale and humpback whale were not sighted in Survey Block NS-D (**Plate 1.1**).
19. The SCANS-IV winter survey was undertaken in winter 2024 within the same region. Within this survey, the only species sighted were harbour porpoise, white-beaked dolphin and minke whale. The minke whales had a too low sighting rate to estimate abundance (only spotting three individuals throughout the survey). Harbour porpoise was also the most commonly sighted species on this survey. The density for harbour porpoise and white-beaked dolphin from this survey within block NS-D was assessed as 0.2569 and 0.0049 animals per km² respectively. Both of which are lower than the respective densities shown in **Table 1.3**.
20. A density for bottlenose dolphins of 0.2 animals km² has been applied for activities occurring within 5 km of the Moray Firth coastal strip, following advice from NatureScot (2026). This value is derived by distributing an estimated 118 individuals (representing 52.5% of the total 226 animals within the Central East Scotland Management Unit) across the area between Peterhead and the Farne Islands, assuming a uniform distribution within the 2–20 m depth contour (Quick et al., 2014) (**Table 1.3**).
21. **Table 1.3** below shows the densities of cetacean species recorded in the SCANS-IV Survey Block NS-D (**Plate 1.1**). As noted above, no bottlenose dolphin or common dolphin were detected in Survey Block NS-D (Gilles et al., 2023). However, the SCANS-III Survey recorded bottlenose dolphins within the same survey block (R), noting a density of 0.03 animals per km². There were no common dolphins recorded in SCANS-III for the same survey block (Hammond et al., 2021).

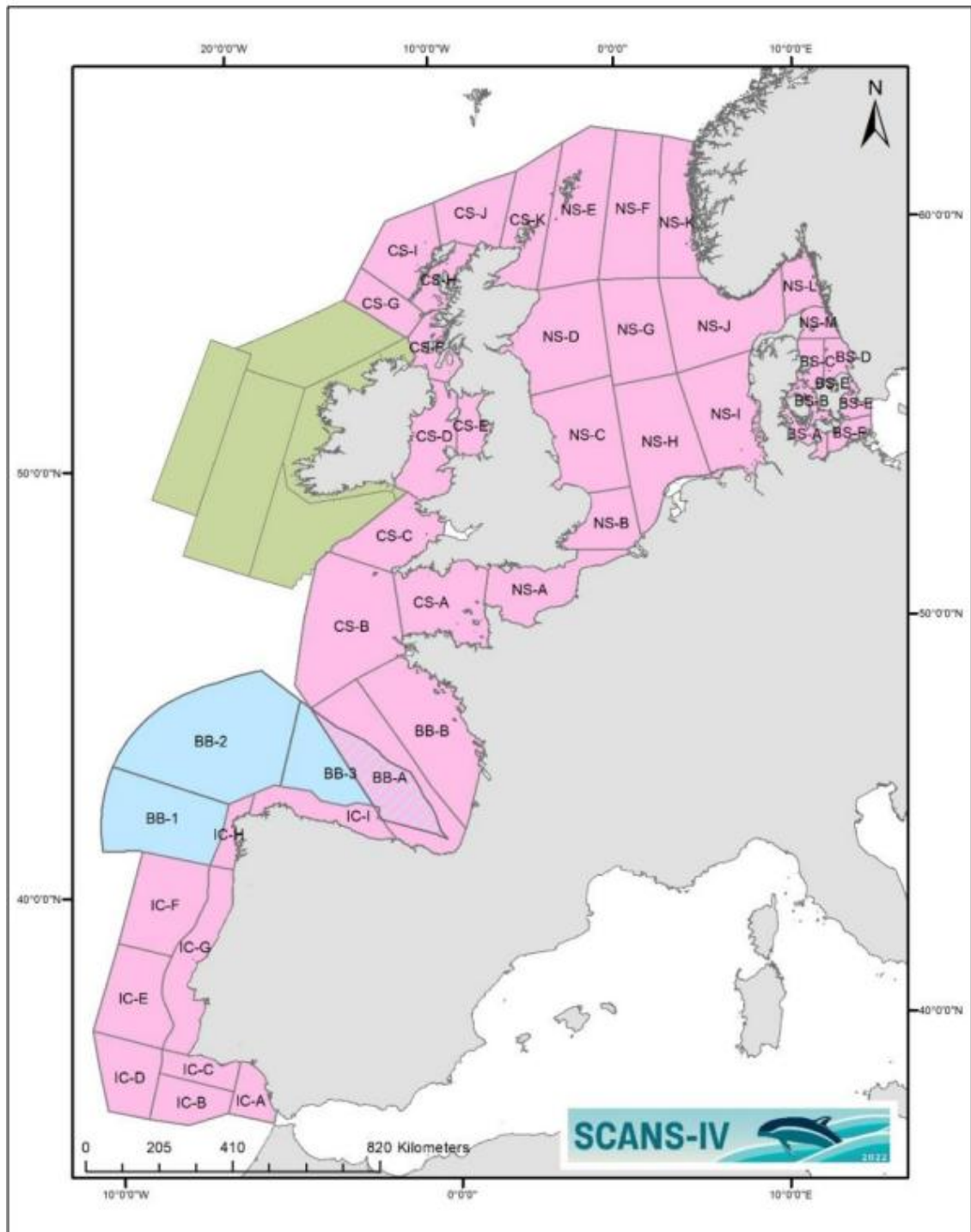
² These density maps show the presence of offshore bottlenose dolphin only, and do not therefore include consideration of the resident populations around the UK and northern Europe coastlines.

Table 1.3: Cetacean Annual Density Estimates for the Bellrock OfTDA Scoping Boundary (Density in bold will be used in the assessment)

Species	Waggitt et al. (2020) Annual Density Estimates for the area of the SCANS Block	SCANS-III Density Estimates (Hammond et al., 2021)	SCANS-IV Density Estimates (Gilles et al., 2023)	WFDA Site-specific Survey
	Density in SCANS Survey Block NS-D (/km ²)	Density in Survey Block R (/km ²)	Density in Survey Block NS-D (/km ²)	WFDA Survey Area (/km ²)
Harbour porpoise	0.328 (Summer density = 0.372; Winter density = 0.288)	0.599 (coefficient of variation (CV) = 0.287)	0.599 (CV = 0.367)	1.273 (Average maximum summer density = 1.273; winter density = 0.165)
Bottlenose dolphin	0.0021 (Summer density = 0.0021; Winter density = 0.0020)	0.0298 (CV = 0.861)	- 0.2 (NatureScot, 2026)	-
White-beaked dolphin	0.087 (Summer density = 0.087; Winter density = 0.058)	0.243 (CV = 0.484)	0.080 (CV = 0.481)	-
Common dolphin	0.026 (Summer density = 0.026; Winter density = 0.011)	-	-	-
Killer whale ¹	0.001 (Summer density = 0.001; Winter density = 0.001)	-	-	-
Fin whale ²	0.0009 (Summer density <0.0001; Winter density <0.0001)	-	0.0009 (CV = 0.947)	-
Minke whale	0.0065 (Summer density = 0.000028; Winter density = 0.000021)	0.039 (CV = 0.614)	0.0419 (CV = 0.594)	-
Humpback whale ³	-	-	-	-
Notes ¹ Even though there is a density, the data is sparse relating to killer whale and therefore the species will be assessed qualitatively using information from other dolphin species.				

Species	Waggitt et al. (2020) Annual Density Estimates for the area of the SCANS Block	SCANS-III Density Estimates (Hammond et al., 2021)	SCANS-IV Density Estimates (Gilles et al., 2023)	WFDA Site-specific Survey
	Density in SCANS Survey Block NS-D (/km ²)	Density in Survey Block R (/km ²)	Density in Survey Block NS-D (/km ²)	WFDA Survey Area (/km ²)
² Even though there is a density, the data is sparse relating to fin whale and therefore the species will be assessed qualitatively using information from minke whale. ³ Due to the sparsity of data, humpback whale will be assessed qualitatively using information for minke whale.				

Plate 1.1: Area Covered by SCANS-IV and Adjacent Surveys³



³ Pink blocks were surveyed by air; blue blocks were surveyed by ship. Blocks coloured green were surveyed by the Irish ObSERVE2 project.

22. As detailed in **Section 1.2.1** the site-specific offshore aerial surveys for the Bellrock WFDA would also derive density estimates for cetacean species (if sufficient data is collected). For potential effects within the Bellrock OfTDA itself, the worst-case density would be used as a precautionary approach, whether that's from the site-specific surveys or from desk-based data sources (such as those presented in **Table 1.3** above). However, for far-field impacts, and for those that extend past the boundary of the Bellrock OfTDA, wider density estimates to cover the full area of effect would be used (e.g. Waggitt et al., 2020 or Gilles et al., 2023).

1.3.2 Seal Species

23. Carter et al. (2025 and 2026) provides habitat-based predictions of at-sea distribution for grey and harbour seals throughout the British Isles. The habitat-preference modelling approach generates species-specific distribution maps, providing estimates of relative at-sea density within 5 km × 5 km grid cells.
24. It is important to note that the outputs represent relative density (i.e. the proportion of the at-sea population occurring within each grid cell), rather than absolute density. Carter et al. (2026) presents relative densities across the North-West European Shelf (NWES), based on the total at-sea population within the NWES. In contrast, Carter et al. (2025) presents relative densities for Scottish waters only, with density estimates scaled to the at-sea population of seals within Scottish waters.
25. The grey seal relative density map (as shown in **Figure 1.1**; Carter et al., 2026) shows that the mean predicted relative density for the Bellrock OfTDA Scoping Boundary is relatively average for the UK and Republic of Ireland (RoI), with higher predicted densities occurring closer to the coastline. For harbour seal (as shown in **Figure 1.2**; Carter et al., 2025), predicted relative densities within the Bellrock OfTDA Scoping Boundary are very low, with higher densities concentrated in nearshore waters, particularly around the Dundee area.
26. The grey and harbour seal density estimates for the Bellrock OfTDA Scoping Boundary have been calculated from the seal at sea usage maps based on the 5 km x 5 km grids that overlap with the Bellrock OfTDA and calculated based on the corrected total UK and RoI population estimates for Carter et al., 2022; Carter et al., 2025 has been calculated based on the corrected total Scotland population and Carter et al., 2026 has been calculated based on the corrected NWES populations.
27. These total population estimates are corrected to determine the total number of each species that may be at-sea at any time, using a correction factor of 0.8616 for grey seal, and 0.8236 for harbour seal (As stated in SCOS, 2021 (SCOS-BP 21/02) derived from Russell et al., 2015). There are therefore approximately 196,425 grey seals, and 64,229 harbour seals at-sea at any one time, based on the corrected values and most recent haul-out counts within the NWES (SCOS, 2025; Morris et al., 2025; Poncet et al., 2024; Schop et al., 2025 and Galatius et al., 2025). This is the at-sea population estimates used with the Carter et al. (2026) data to calculate density estimates, which are presented in **Table 1.4**.
28. For the Carter et al. (2022) data at sea population estimates derived from UK and RoI, with approximately 151,155 grey seal and 42,485 harbour seal have been used to calculate the density estimates (**Table 1.4**, SCOS, 2025 and Morris et al., 2025) For the Carter et al. (2025) data, at sea

population estimates derived from Scottish waters, with approximately 72,991 grey seal and 34,986 harbour seal have been used to calculate the density estimates (**Table 1.4**, SCOS, 2025).

Table 1.4: Grey and Harbour Seal Mean Density Estimates for the Bellrock OfTDA Scoping Boundary (Density in Bold will be Used in the Assessment)

Species	Carter et al. (2022) Mean Density (/km ²)	Carter et al. (2025) Mean Density (/km ²)	Carter et al. (2026) Mean Density (/km ²)
Grey seal	0.313	0.021	0.370
Harbour seal ¹	0.00091	0.002	0.0013
¹ No predicted presence of harbour seals from the MF and Northeast England MUs at the Bellrock OfTDA.			

29. For potential effects within the Bellrock OfTDA itself, the worst-case density would be used as a precautionary approach, however, for far-field impacts, and for those that extend past the boundary of Bellrock OfTDA, the wider density estimates for the full area of effect would be used (e.g. for the potential for disturbance from piling) using wider density mapping (e.g. Carter et al., 2025).

1.4 Management Units and Population Estimates of Marine Mammal Species

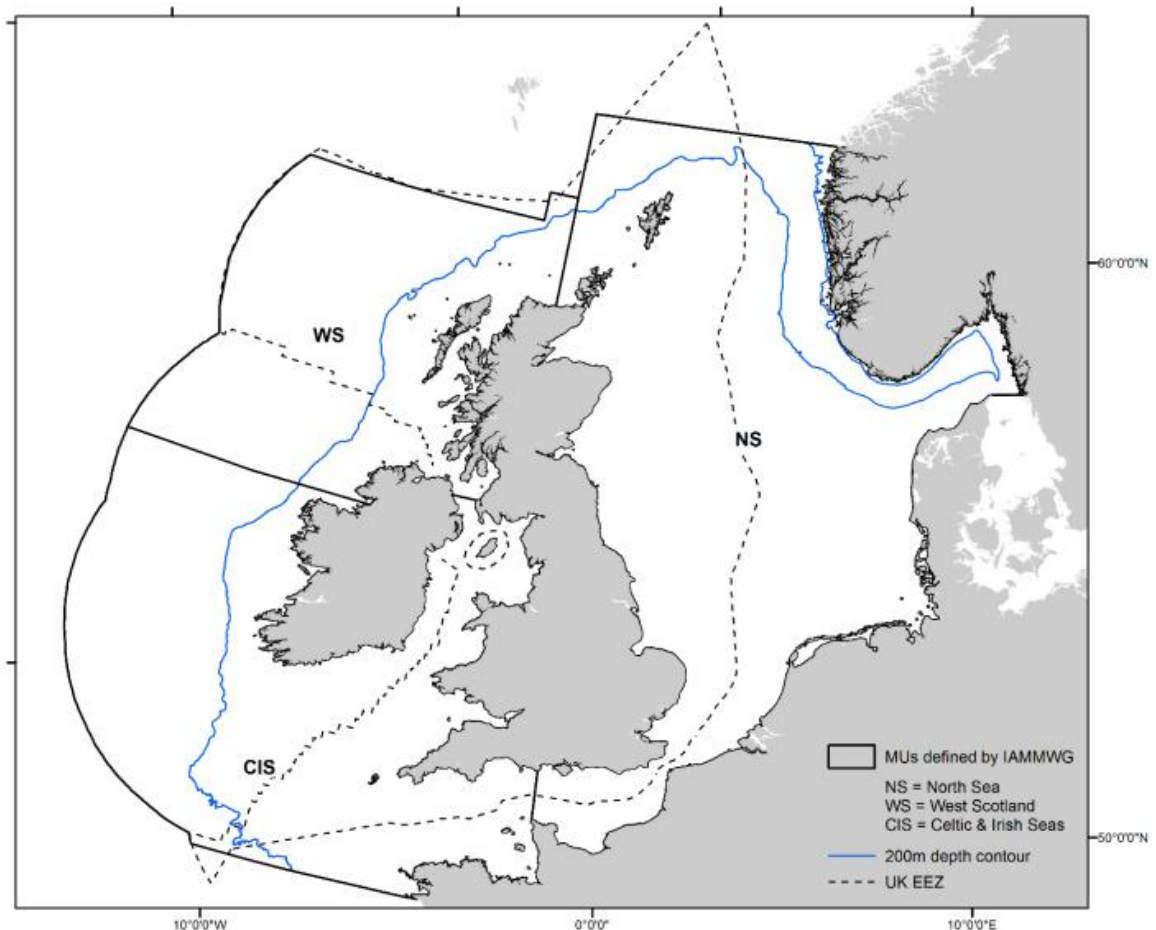
30. As highly mobile marine predators, the status and activity of marine mammals known to occur within or adjacent to the Bellrock OfTDA would be considered in the context of their full and UK MU population. For cetacean species, this would be based on Inter-Agency Marine Mammal Working Group (IAMMWG, 2023), and for seal species this would be based on the latest estimates from the SCOS reporting (at the time of writing, this is SCOS, 2025).

1.4.1 Cetacean Species

31. The harbour porpoise and bottlenose dolphin are listed on Annex II of the Habitats Directive which lists species whose conservation requires the designation of SAC.
32. MUs provide an indication of the spatial scales at which any impact should be assessed for cetacean species (IAMMWG, 2023). 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.
33. For harbour porpoise, the relevant MU is the North Sea (NS) MU (**Plate 1.2** (IAMMWG, 2023)). Within the NS MU, there is an estimated abundance of 346,601 harbour porpoise (CV = 0.09; 95% CI = 289,498 - 419,967) and the abundance of animals in the UK portion of MU is 159,632 (CV = 0.12; 95% CI = 127,442 – 199,954). However, the SCANS-IV survey provides an update to this MU population estimate, with 338,918 harbour porpoise (95% CL = 243,063 – 476,203) (Gilles et al., 2023). This is the population estimate on which all impact assessments will be based

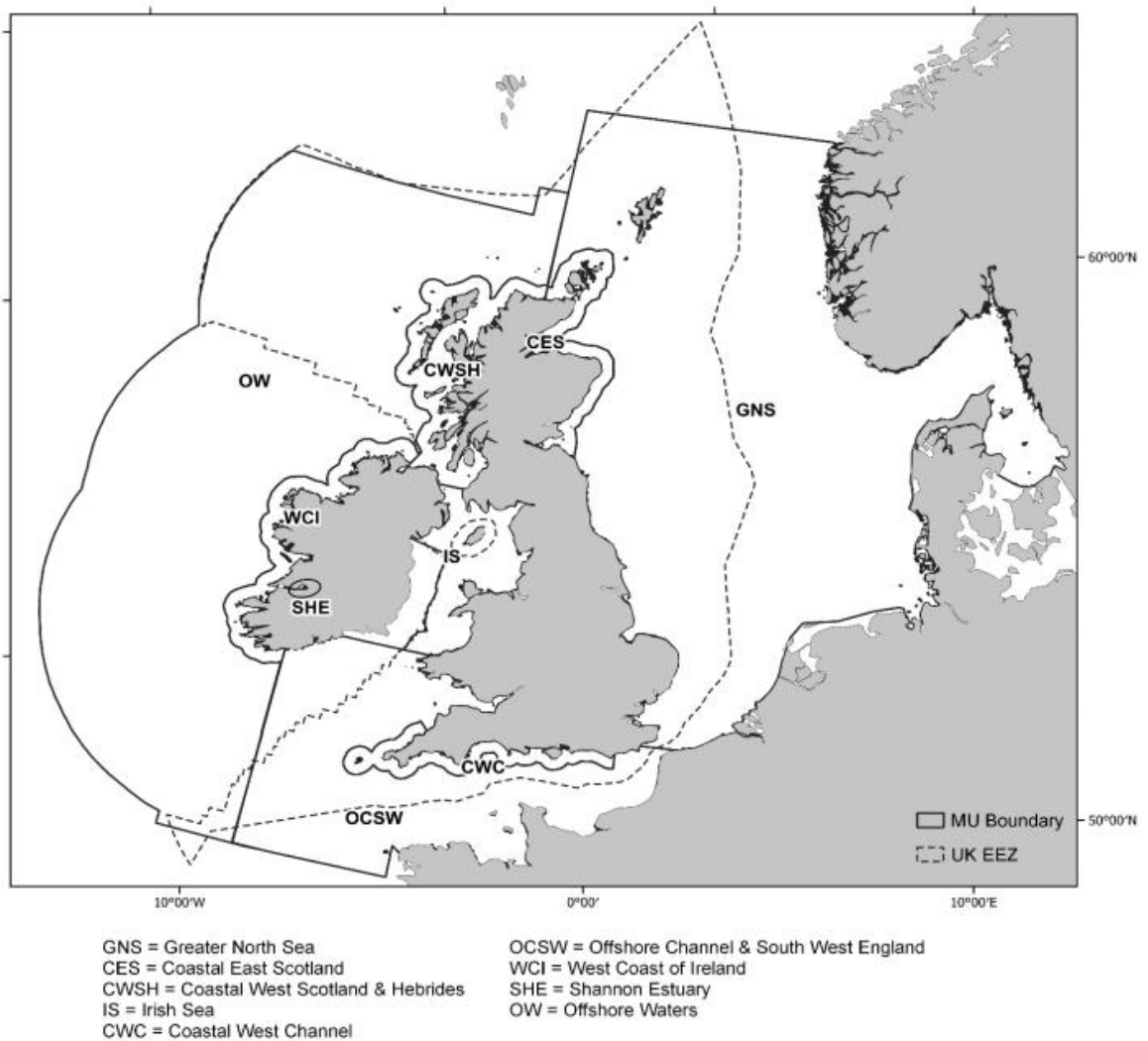
(Table 1.6), along with the UK portion of the NS MU, with an estimated abundance of 159,632 individuals.

Plate 1.2: The MUs for Harbour Porpoise



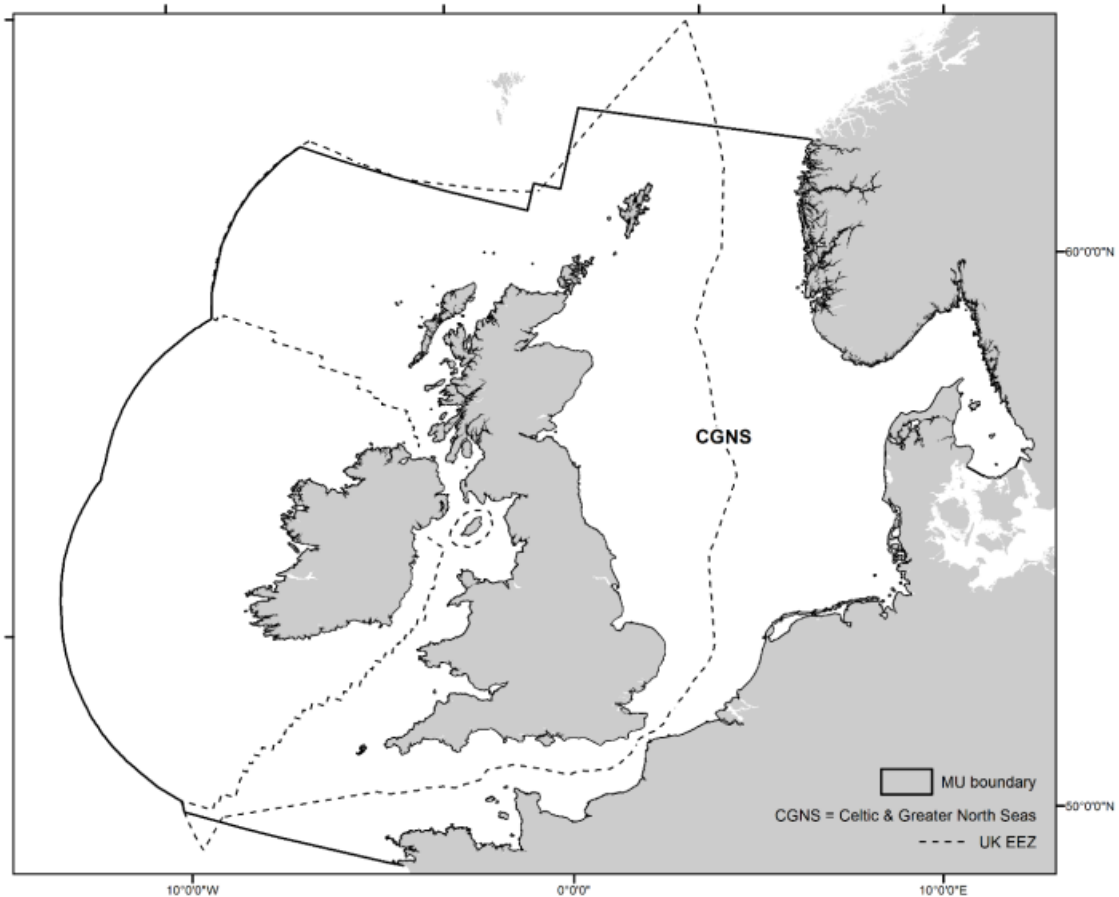
34. For bottlenose dolphin, there are seven MUs within the northeast Atlantic (**Plate 1.3** (IAMMWG, 2023)). The relevant MUs are the Coastal East Scotland (CES) and Greater North Sea (GNS). The reference population estimates for these MUs are provided in **Table 1.6**.
35. Studies into the movement patterns of bottlenose dolphins associated with the Coastal East Scotland MU population show that they are predominantly a coastal population (Quick et al., 2014; Arso Civil et al., 2019; Cheney et al., 2024). This is not always the case, as bottlenose dolphins from the Moray Firth SAC have been known to travel across the North Sea, for example to Denmark or the Netherlands (Hoekendijk et al., 2021). In 2022 the number of dolphins within the east coast population was estimated as 245 (95%CI: 224-268). The weighted mean estimate over three years was also calculated as this reflected more recent abundance data and was consistent with an increasing population. The weighted mean estimate of the number of bottlenose dolphins on the east coast of Scotland from 2020 to 2022 was 226 (CV=0.028) (Cheney et al., 2024). As the Bellrock OfTDA Scoping Boundary is within the GNS MU, and adjacent to Stonehaven, it is assumed that any bottlenose dolphin present are from the GNS MU. However, there is the potential for individuals to be from the CES MU population. Therefore, the reference population for the GNS and CES MU will be used.

Plate 1.3: The MUs for Bottlenose Dolphin



36. For white-beaked dolphin, common dolphin, and minke whale, there is just one MU that covers the northeast Atlantic; the Celtic and Greater North Seas (CGNS) MU (**Plate 1.4**). The population for these species within the CGNS MU and the abundance of animals in the UK portion of MU are shown in **Table 1.6**.

Plate 1.4: The MUs for White-Beaked Dolphin, Atlantic White-Sided Dolphin, Common Dolphin, Risso's Dolphin and Minke Whale



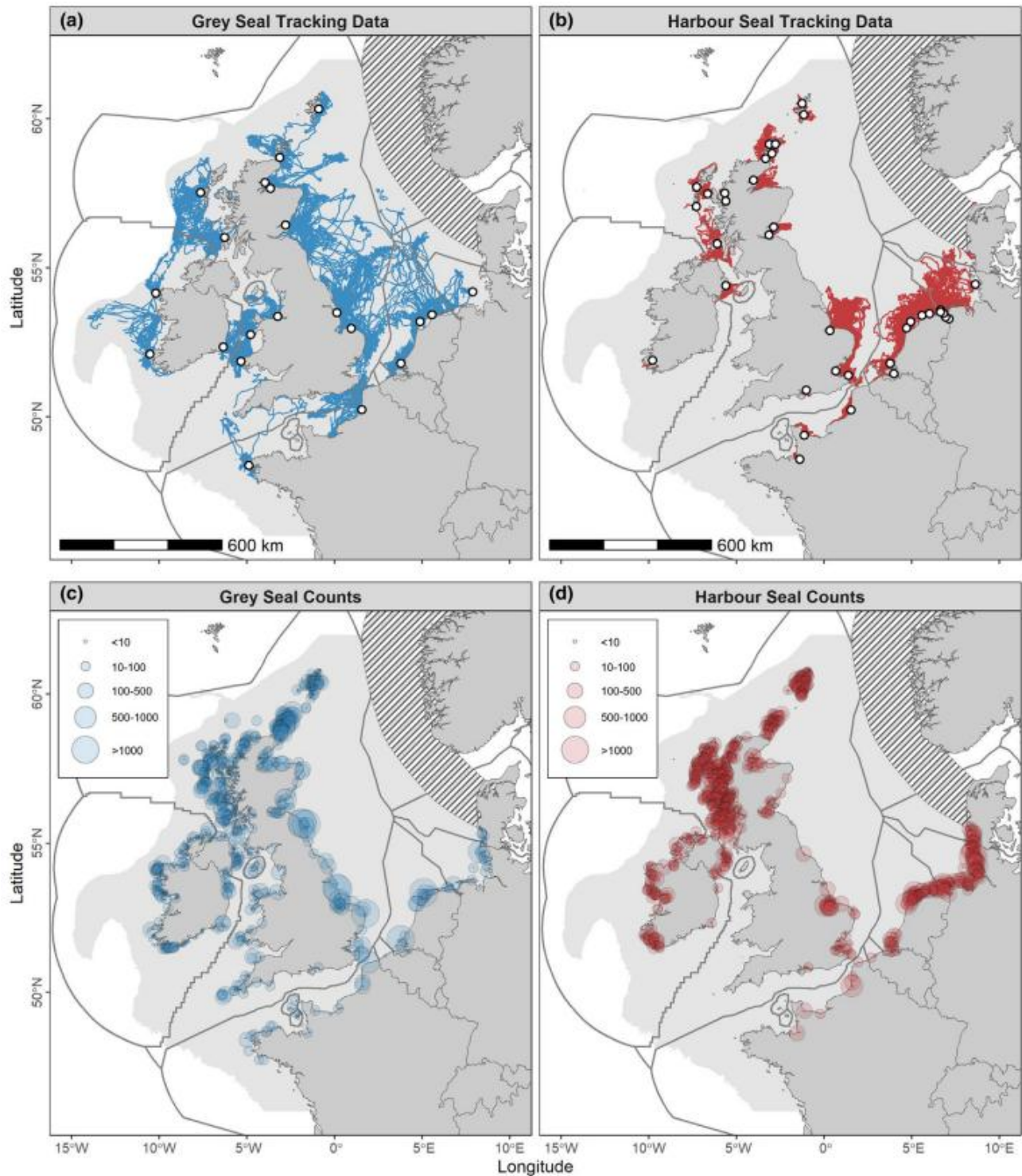
37. For fin whale, killer whale and humpback whale, they are not covered in IAMMWG (2023), and only fin whale is noted in SCANS-IV (Gilles et al., 2023). Therefore, the assessments will be conducted qualitatively for all three species due to the sparsity of data.

1.4.2 Seal Species

38. Grey seals are likely to be present in and around the Bellrock OfTDA Scoping Boundary (SCOS, 2025; Carter et al., 2025). Harbour seals are likely present in low numbers around the Bellrock OfTDA, as harbour seal densities in the area are generally lower than that for grey seal (SCOS, 2025; Carter et al., 2025).
39. For seals, it is necessary to take into account their movements in the area. Grey seals have foraging ranges of up to 448 km (Carter et al., 2022). Global Positioning System (GPS) tracking data from tagged grey seals indicate there is the potential for presence in the Bellrock OfTDA with individuals from the Moray Firth, east Scotland, and northeast England, and limited connectivity with southeast England and no connection to west Scotland, or Shetland (**Plate 1.5**). Therefore, the northeast England, Moray Firth, and east Scotland MUs would encompass the spatial area where grey seal may have connectivity with the Bellrock OfTDA Scoping Boundary.

40. Harbour seal have foraging ranges of up to 273 km (Carter et al., 2022), and the GPS tracking data from tagged harbour seals indicate there is limited potential for presence in the Bellrock OfTDA Scoping Boundary (**Plate 1.5**). Therefore, the east Scotland Seal Monitoring Unit (SMU) would encompass the spatial area where harbour seal may have connectivity with the Bellrock OfTDA Scoping Boundary.
41. The UK SMUs are provided in SCOS (2025). The Bellrock OfTDA Scoping Boundary lies approximately within the centre of SMU 7 (east Scotland). However, the SMUs 6 (Moray Firth) and 8 (northeast England), are relevant for grey seals given the connectivity from the foraging distances (see **Plate 1.5**).

Plate 1.5: Tracking Data from (a) 236 Grey and (b) 606 Harbour Seals. White Dots show Capture Locations. Haul Out Count Data Taken from Most Recent Available August Surveys for (c) Grey and (d) Harbour Seals. Light Grey Shading shows the Study Area, Hatching shows Excluded Areas, and Grey Lines Denote Exclusive Economic Zone (EEZ) Boundaries



42. Both species of seals are counted in August. **Table 1.5** (SCOS, 2025 and Morris et al., 2025) below provides the latest counts for both species. In order to generate abundance estimates for seals, it is necessary to take account of those individuals that were not available to count during the August counts. Therefore, a correction factor is applied to the counts to generate a population estimate. The correction factor for grey seal is 0.2515 (Russell and Carter, 2021), and for harbour seal is 0.72 (Lonergan et al., 2013).

Table 1.5: August Counts of Grey and Harbour Seal, and the Corrected Abundance Estimates (Values in Bold will be Used in the Assessment)

Species	MU	Count (latest count as presented in SCOS, 2025)	Year of Latest Count	Correction Factor	Total Abundance Estimate
Grey seal	Northeast England	5,381	2023	0.2515	21,396
	Moray Firth	1,354	2023	0.2515	5,384
	East Scotland	1,584	2023	0.2515	6,298
	Total for the three MUs	8,319	-	0.2515	33,078
	<i>Total UK and RoI</i>	<i>44,122</i>	-	<i>0.2515</i>	<i>175,435</i>
Harbour seal	East Scotland MU	276	2023	0.72	383
	<i>Total UK and RoI</i>	<i>30,585</i>	-	<i>0.72</i>	<i>42,479</i>

43. For both grey seal and harbour seal, assessments will be undertaken based on the SMU of relevance for the Bellrock OfTDA; the East Scotland SMU. For grey seal, all impacts will also be assessed against the wider population of all three SMUs.

1.4.3 Summary of Reference Populations

44. **Table 1.6** summarises the relevant MU, SMU and abundance estimates (reference populations) for marine mammal species that could be present in and around the Bellrock OfTDA marine mammal study area.

Table 1.6: MU, SMU and Abundance Estimates (Reference Populations) for Marine Mammal Species

Species	MU	Abundance (UK Portion)	Abundance (Reference Population)	Source
Harbour porpoise	NS MU	159,632 (95% CI = 127,442 – 199,954)	346,601 (95% CI = 289,498 – 419,967)	Gilles et al. (2023); IAMMWG (2023)
Bottlenose dolphin	GNS MU	1,885 (CV = 0.75; 95% CI = 476 – 7,461)	2,022 (CV = 0.75; 95% CI = 548 – 7,453)	IAMMWG (2023)
	CES MU	-	226 (95% CI = 214 – 239)	Cheney et al. (2024)
White-beaked dolphin	CGNS MU	34,025 (CV = 0.28; 95% CI = 20,026 – 57,807)	43,951 (CV = 0.22; 95% CI = 28,439 – 67,924)	IAMMWG (2023); Rogan et al. (2018)
Common dolphin	CGNS MU	57,417 (CV = 0.32; 95% CI = 30,850 - 106,863)	102,656 (CV = 0.29; 95% CI = 58,932 – 178,822)	IAMMWG (2023)
Killer whale	To be assessed qualitatively based on the findings from the dolphin (high frequency species) assessment			
Fin whale	To be assessed qualitatively based on the findings from the minke whale assessment			
Minke whale	CGNS MU	10,288 (CV = 0.26; 95% CI = 6,210 – 17,042)	20,118 (CV = 0.18; 95% CI = 14,061 – 28,786)	IAMMWG (2023)
Humpback whale	To be assessed qualitatively based on the findings from the minke whale assessment			
Grey seal	East Scotland SMU	-	6,298	SCOS (2025)
	Combined SMUs	-	33,078	
Harbour seal	East Scotland SMU	-	383	

1.5 Seal Haul-out Sites

45. There are haul-out sites for grey and harbour seal along the northeast coast of Scotland (**Table 1.7**). Therefore, there is the potential for foraging seals to be in the Bellrock OfTDA Scoping Boundary. The nearest major grey seal site is at Ythan River Mouth, approximately 21 km from the Bellrock OfTDA Scoping Boundary. There are also smaller grey seal sites along the coast near the Firth of Forth and Moray Firth. The protected seal haul out sites and the respective species are shown in **Table 1.7**.

Table 1.7: Protected Seal Haul Out Sites

Haul-out Site	Distances to Bellrock OfTDA (km)	Species
Ythan River Mouth	21	Grey seal
Fast Castle	102	
Craigleigh	101	
Kinghorn Rocks	110	Harbour seal and grey seal
Findhorn	114	Harbour seal
Inchkeigh	116	Grey seal
Inchmickery and Cow & Calves	121	Harbour seal and grey seal
Ardersier	129	
Beaully	137	Harbour seal and grey seal
Cromarty Firth	146	Harbour seal
Dunbeath-Helmsdale	148	Grey seal
Dunbeath-Wick	148	
Lothmore	149	Harbour seal and grey seal
Brora	150	
Loch Fleet	152	Harbour seal
Duncansby Head	178	Grey seals
Gills Bay	181	Harbour seal and grey seal
Pentland Skerries	182	Grey seal
Stroma	184	Harbour seal and grey seal
South Ronaldsay W	190	Grey seals
Swona	191	
South Ronaldsay E	191	
Switha	198	Harbour seal and grey seal
NW Water Sound	200	Harbour seal

1.6 Protected Sites

46. The **Bellrock OfTDA Habitats Regulations Appraisal (HRA) Screening Report (Volume 2)** presents the screening of European and Ramsar sites with marine mammal qualifying features for likely significant effect arising from the Bellrock Offshore Transmission Infrastructure. The screening outcomes and proposed approach to HRA are detailed within the **Bellrock OfTDA HRA Screening Report (Volume 2)**. One SAC with marine mammal qualifying features have been screened in for appropriate assessment, which is the Moray Firth SAC.
47. The **Bellrock OfTDA Marine Protected Area (MPA) Screening Report (Volume 3)** presents the screening of Nature Conservation MPAs (ncMPAs) with marine mammal protected features. The Southern Trench ncMPA is proposed to be taken forward for further assessment within the ncMPA main assessment process which will accompany the Bellrock OfTDA EIA. Further detail is provided within the Bellrock OfTDA MPA Screening Report.

1.7 Summary of Marine Mammal Species Scoping

48. As noted above, a full assessment of the baseline conditions will be undertaken through the Bellrock OfTDA EIA process, and will inform, alongside the results of the WFDA site-specific offshore aerial surveys, the species to be taken forward for further assessment in the Bellrock OfTDA EIA Report. However, it is expected that the key species taken forward for assessment will be:
- Harbour porpoise;
 - Bottlenose dolphin;
 - White-beaked dolphin;
 - Common dolphin;
 - Killer whale⁴;
 - Minke whale;
 - Fin whale⁵
 - Humpback whale⁶;
 - Grey seal; and
 - Harbour seal.

⁴ The assessment will be made qualitatively and based on the assessments for dolphins.

⁵ The assessment will be made qualitatively and based on the assessments for minke whale.

⁶ Due to the sparsity of data, humpback whale will be assessed qualitatively using information for minke whale.

49. Other marine mammal species have been recorded in the area, although in lower numbers than those listed above, including Risso's dolphin, Atlantic white-sided dolphin, and long-finned pilot whale. It is intended that these species will be **scoped out**.
50. Assessments will not be undertaken for other cetacean species that are considered to be rare or infrequent in the Bellrock OfTDA marine mammals study area, as the potential for these cetacean species to be impacted is considered unlikely.

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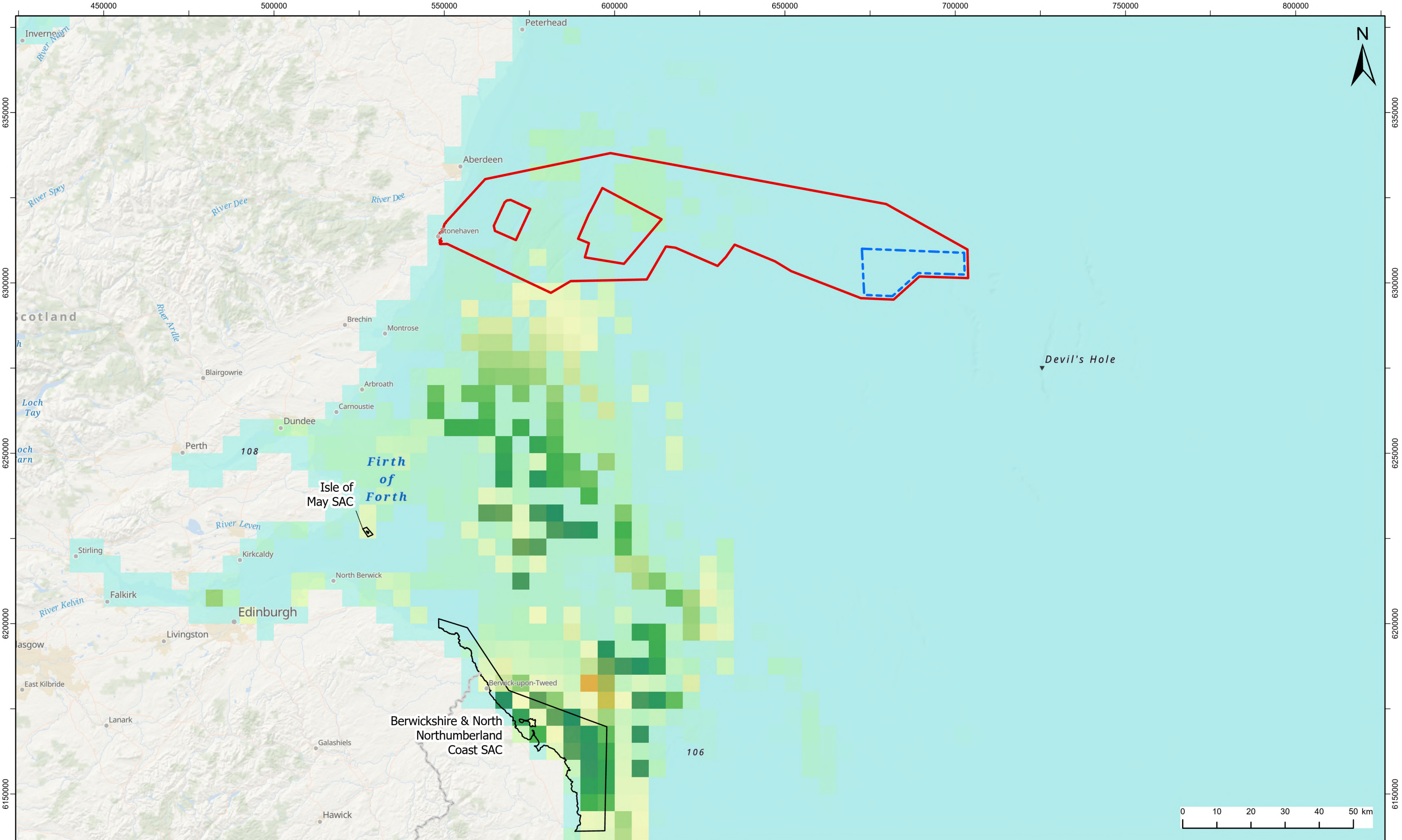
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Annex 1: Figures

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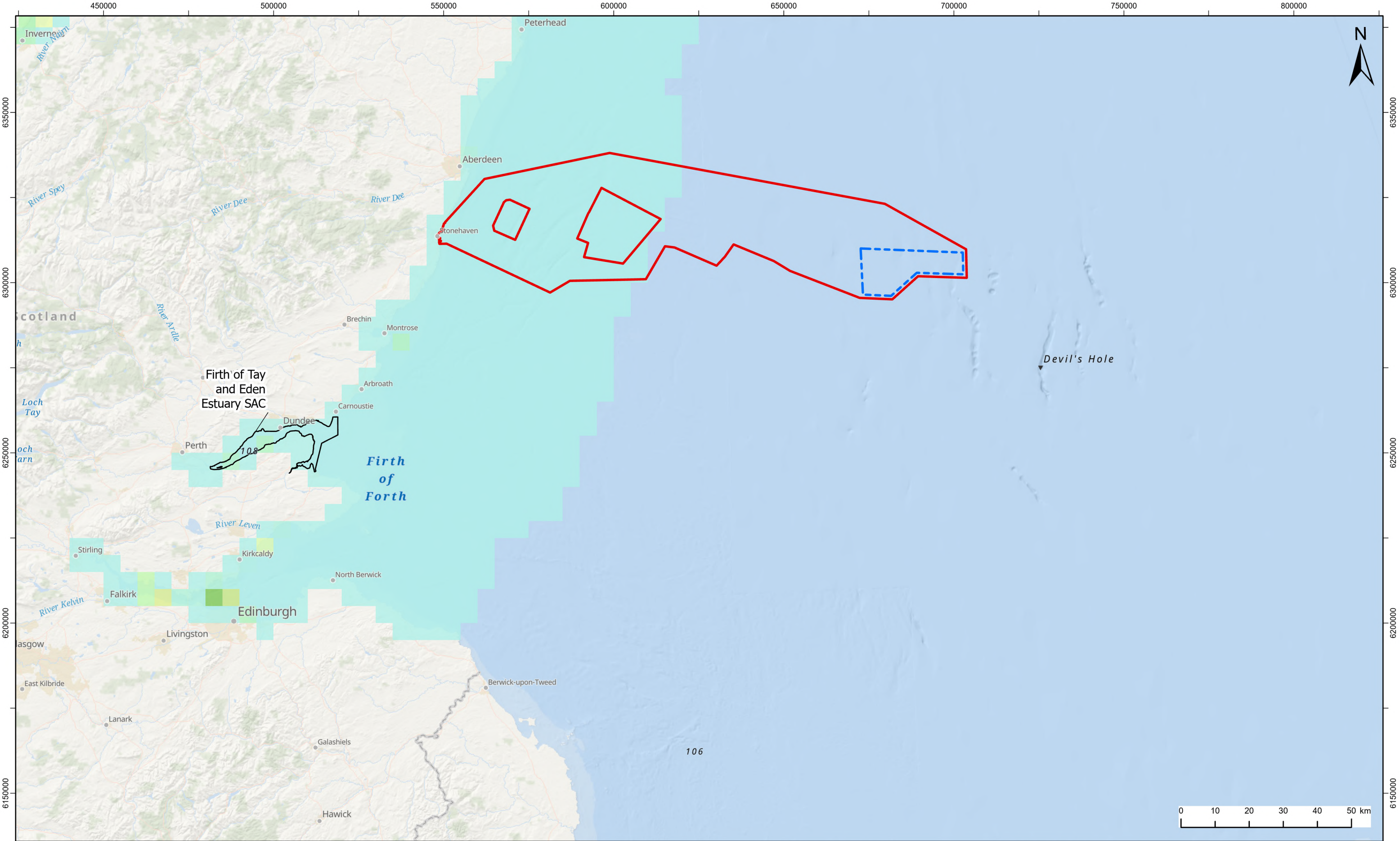
- Bellrock Offshore Transmission Development Area (OFTDA) Scoping Boundary
- Bellrock Wind Farm Development Area
- Special Area of Conservation (SAC)

Grey Seal Mean At-sea Density per 25 km²

- High
- Low

1	08/05/2026	Final	DL	SA	BMcG
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Source:			1:1,000,000		
Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, Sources: Esri, TomTom, Garmin, GEBCO, National Geographic, NOAA, and the GIS User Community, OceanWise, Esri, GEBCO, Garmin, NaturalVue, © Haskoning UK Ltd, 2026. Carter et al, 2026.					

Figure Title:		
Grey Seal Density in Relation to the Bellrock OfTDA		
Project:		Report:
Bellrock Offshore Transmission Development Area (OfTDA)		Bellrock Offshore Transmission Development Area Scoping Report
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Legend:

-  Bellrock Offshore Transmission Development Area (OFTDA) Scoping Boundary
-  Bellrock Wind Farm Development Area
-  Special Area of Conservation (SAC)

Harbour Seal Mean at-sea Density per 25 km²

-  High
-  Low

						Figure Title:	
						Harbour Seal Density in Relation to the Bellrock OFTDA	
1	08/05/2026	Final	DL	SA	BMcG	Project:	
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Coordinate System: WGS 1984 UTM Zone 30N			Scale @ A3			Bellrock Offshore Transmission Development Area (OFTDA)	
Source: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, Sources: Esri, TomTom, Garmin, GEBCO, National Geographic, NOAA, and the GIS User Community, OceanWise, Esri, GEBCO, Garmin, NaturalVue, © Haskoning UK Ltd, 2026. Carter et al, 2025.			1:1,000,000			Bellrock Offshore Transmission Development Area Scoping Report	
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