Reporting under the Habitat Regulations (as amended)[1]

2019-2024

Conservation status assessment for the species:

S2621 - Fin whale

(*Balaenoptera physalus*)

United Kingdom

[1] Habitat Regulations (as amended):

- The Conservation of Habitats and Species Regulations 2017 (as amended), Regulation 9A
- The Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended), Regulation 6A
- Report under The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended), regulation 3ZA
- The Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended), regulation 3ZA

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This report was produced by JNCC in collaboration with the UK Country Nature Conservation Bodies (CNCBs) and country governments.

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Important note - Please read

- The information in this document represents the United Kingdom Reporting under the Habitat Regulations (as amended)[1], for the period 2019-2024.
- It is based on supporting information provided by Joint Nature Conservation Committee and UK Country Nature Consevation Bodies (CNCBs), which is documented separately.
- The Habitats Regulations reporting 2019-2024 Approach Document provides details on how this supporting information contributed to the UK Report and the fields that were completed for each parameter.
- Map showing the distribution and range of the species is included.
- Explanatory notes (where provided) are included at the end. These provide additional audit trail information to that included within the assessments. Further underpinning explanatory notes are available in the related country reports.
- Some of the reporting fields have been left blank because either: (i) there was insufficient information to complete the field; (ii) completion of the field was not obligatory; and/or (iii) the field was not relevant to this species (section 12 National Site Network coverage for Annex II species).

Further details on the approach to the Habitats Regulations Reporting 2019-2024 are available on the JNCC website.

Assessment Summary: Fin whale

Distribution and Range Map

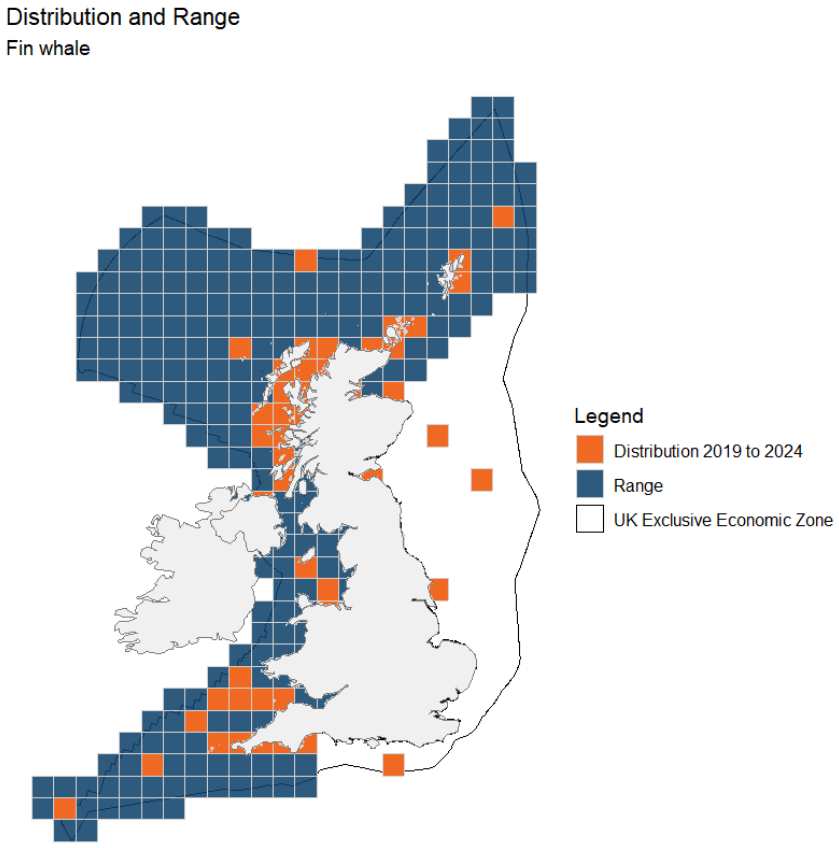

Figure 1: United Kingdom distribution and range map for S2621 - Fin whale (*Balaenoptera physalus*). The 50km grid square distribution map is based on available species records within the current reporting period.

Table 1: Table summarising the conservation status for S2621 - Fin whale (*Balaenoptera physalus*). Overall conservation status for species is based on assessments of range, population, habitat for the species, and future prospects.

Overall Conservation Status (see section 11)

Unknown (XX)

Breakdown of Overall Conservation Status

Range (see section 5)	**Favourable (FV)**
Population (see section 6)	**Unknown (XX)**
Habitat for the species (see section 7)	**Unknown (XX)**
Future prospects (see section 10)	**Unknown (XX)**

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National Level

1. General information

1.1 Country	United Kingdom
1.2 Species code	S2621
1.3 Species scientific name	*Balaenoptera physalus*
1.4 Alternative species scientific name	
1.5 Common name	Fin whale
Annex(es)	IV

2. Maps

2.1 Sensitive species	No
2.2 Year or period	2019-2022
2.3 Distribution map	Yes
2.4 Distribution map; Method used	Complete survey or a statistically robust estimate

2.5 Additional information

The distribution map is based on verified sightings data of fin whale between 2019 and 2024. The sightings were collated from SCANS IV, Pelagis French surveys, NBN Atlas, European Seabirds at Sea, the Joint Cetacean Data Programme, POSEIDON project, University of Aberdeen, The Crown Estate Marine Data Exchange, Whale and Dolphin Conservation, Hebridean Whale and Dolphin Trust, ORCA, Sea Watch Foundation, Marine Discovery Penzance, Sussex Dolphin Project, Cornwall Seal Group Research Trust, Cardigan Bay Marine Wildlife Centre, Natural England, Sea Trust and The Royal Society for the Protection of Birds (RSPB).

3. Information related to Annex V Species

3.1 Is the species taken in the wild / exploited?

3.2 What measures have been taken?

a) Regulations regarding access to property

b) Temporary or local prohibition on the taking of specimens in the wild and exploitation

c) Regulation of the periods and/or methods of taking specimens

d) Application of hunting and fishing rules which take account of the conservation of such populations

e) Establishment of a system of licences for taking specimens or of quotas

f) Regulation of the purchase, sale, offering for sale, keeping for sale, or transport for sale of specimens

g) Breeding in captivity of animal species as well as artificial propagation of plant species

Other measures

Other measures description

3.3: Hunting bag or quantity taken in the wild for Mammals and Acipenseridae (Fish)

a) Unit

Table 2: Quantity taken from the wild during the reporting period (see 3.3a for units). For species with defined hunting seasons, Season 1 refers to 2018/2019 (autumn 2018 to spring 2019), and Season 6 to 2023/2024. For species without hunting seasons, data are reported by calendar year: Year 1 is 2019, and Year 6 is 2024.

	Season/ year 1	Season/ year 2	Season/ year 3	Season/ year 4	Season/ year 5	Season/ year 6
b) Minimum	-	-	-	-	-	-
c) Maximum	-	-	-	-	-	-
d) Unknown	-	-	-	-	-	-

3.4: Hunting bag or quantity taken in the wild; Method used	

3.5: Additional information

No additional information

Biogeographical Level

4. Biogeographical and marine regions

4.1 Biogeographical or marine region where the species occurs	MATL

4.2 Sources of information

See section 14 References

5. Range

5.1 Surface area (km²)	633,151
5.2 Short-term trend; Period	2013-2024
5.3 Short-term trend; Direction	Stable
5.4 Short-term trend; Magnitude	
a) Estimated minimum	
b) Estimated maximum	
c) Pre-defined range	
d) Unknown	
e) Type of estimate	
f) Rate of decrease	
5.5 Short-term trend; Method used	Based mainly on expert opinion with very limited data
5.6 Long-term trend; Period	1979-2024
5.7 Long-term trend; Direction	Stable

5.8 Long-term trend; Magnitude	
a) Minimum	
b) Maximum	
c) Rate of decrease	
5.9 Long-term trend; Method used	Based mainly on expert opinion with very limited data

5.10 Favourable Reference Range (FRR)

a) Area (km²)	633,151
b) Pre-defined increment	
c) Unknown	No
d) Method used	Expert opinion
e) Quality of information	moderate

5.11 Change and reason for change in surface area of range

a) Change	No
b) Genuine change	
c) Improved knowledge or more accurate data	
d) Different method	
e) No information	
f) Other reason	
g) Main reason	

5.12 Additional information

The distribution is based on verified sightings of gin whales between 2019 and 2024. The sightings were collated from SCANS IV, Pelagis French surveys, NBN Atlas, European Seabirds at Sea, the Joint Cetacean Data Programme, POSEIDON project, University of Aberdeen, The Crown Estate Marine Data Exchange, Whale and Dolphin Conservation, Hebridean Whale and Dolphin Trust, ORCA, Sea Watch Foundation, Marine Discovery Penzance, Sussex Dolphin Project, Cornwall Seal Group Research

Trust, Cardigan Bay Marine Wildlife Centre, Natural England, Sea Trust and The Royal Society for the Protection of Birds (RSPB).

Due to insufficient data, the modelling approach for determining range used for the more common species could not be applied to fin whale and therefore, was determined based on interpolation of distribution data from previous Habitats Directive Article 17 reports. The 2013 assessment range estimate also considered the distribution data shown in Reid et al. (2013) which incorporated sightings data from a range of sources spanning 1979-2001 (see Article 17 2013 report for fin whale for further detail).

The current reporting round has found an increase in the number of observations in the north and central North Sea compared to 2013 and 2019 Habitats Directive Article 17 reporting rounds. These records are not considered representative of the core range for this species. Though still unusual, occurrence of fin whales in this region has increased in recent years (Berrow and Whooley, 2022), including the 2022 SCANS data which estimated a density of fin whales in the central North Sea of 57 individuals (CV: 0.947; CI: 10 to 332) though this estimate has low confidence (Gilles et al. 2023).

6. Population

6.1 Year or period	2022

6.2 Population size (in reporting unit)

a) Unit	number of individuals
b) Minimum	69
c) Maximum	471
d) Best single value	181
6.3 Type of estimate	95% confidence interval
6.4 Quality of extrapolation to reporting unit	moderate

6.5 Additional population size (using population unit other than reporting unit)

a) Unit	
b) Minimum	
c) Maximum	
d) Best single value	

e) Type of estimate	
6.6 Population size; Method used	Complete survey or a statistically robust estimate
6.7 Short-term trend; Period	
6.8 Short-term trend; Direction	Unknown
6.9 Short-term trend; Magnitude	
a) Estimated minimum	
b) Estimated maximum	
c) Pre-defined range	
d) Unknown	
e) Type of estimate	
f) Rate of decrease	
6.10 Short-term trend; Method used	Complete survey or a statistically robust estimate
6.11 Long-term trend; Period	2005-2022
6.12 Long-term trend; Direction	Stable
6.13 Long-term trend; Magnitude	
a) Minimum	
b) Maximum	
c) Confidence interval	
d) Rate of decrease	
6.14 Long-term trend; Method used	Complete survey or a statistically robust estimate
6.15 Favourable Reference Population (FRP)	
ai) Population size	228
aii) Unit	number of individuals

b) Pre-defined increment	
c) Unknown	No
d) Method used	Model-based approach
e) Quality of information	moderate

6.16 Change and reason for change in population size

a) Change	Yes
b) Genuine change	Yes
c) Improved knowledge or more accurate data	No
d) Different method	No
e) No information	No
f) Other reason	No
g) Main reason	Genuine change

6.17 Additional information

The population estimate for 2022 is based primarily on density estimates from the SCANS IV survey. However, there is a gap in the 2022 SCANS survey effort in offshore waters west of Scotland, a high-density region for this species which accounted for 28% of the UK population during SCANS III (Gilles et al., 2013; Hammond et al., 2021). The population estimate provided here has therefore been corrected using the % of the UK population sighted in the missing block during SCANS III. Such significant extrapolation lowers confidence in the estimate and conclusions.

Due to the high confidence intervals surrounding abundance estimates for this species, even with three estimates the statistical power to detect anything beyond a dramatic change is likely to be limited. The population estimate for the UK EEZ region from SCANS II in 2015 was significantly higher than SCANS II and CODA in 2005/2007 and from SCANS IV in 2022. This is likely to have been a temporary shift in the distribution of fin whales into UK EEZ.

In terms of the wider context for the fin whale population in the NE Atlantic; ObSERVE programme in Irish waters found to be stable in abundance between 2015 and 2022 (Giralt Paradell, et al. 2024). Occurrence of fin whales has increased in the SW Celtic Sea in recent decades, through observations from Ireland and SW England. Findings

from NASS 2024 survey in the NAMMCO region will provide more context for the northern areas of their range, once published.

The FRV (228; CV: 0.285; CI:132-395) for population was calculated based on estimates from SCANS II in 2005 (Hammond, et al., 2021) and CODA in 2007 (Hammond, et al., 2009), supplemented with density estimates from neighbouring regions to fill data gaps within the UK EEZ and limit extrapolation where possible; ObSERVE in Irish waters (Rogan, e al., 2018), NASS and T-NASS (Pike, et al., 2019a; Pike, et al., 2019b) and NILS (Leonard and Øien, 2020a; Leonard and Øien, 2020b) surveys in the NAMMCO region.

Since the 2019 Habitats Directive Article 17 assessments, the FRV has changed due to the removal of the EEZ extension into offshore waters west of Scotland. This area has been removed due to lack of data for all species, and subsequent impact on confidence in assessments. This does not represent genuine change in FRV.

6.18 Age structure, mortality and reproduction deviation	Unknown

7. Habitat for the species

7.1 Sufficiency of area and quality of occupied habitat (for long-term survival)

a) Is area of occupied habitat sufficient?	Unknown
b) Is quality of occupied habitat sufficient?	Unknown
c) If No or Unknown, is there a sufficiently large area of unoccupied habitat of suitable quality?	Unknown

7.2 Sufficiency of area and quality of occupied habitat; Method used

a) Sufficiency of area of occupied habitat; Method used	Based mainly on expert opinion with very limited data
b) Sufficiency of quality of occupied habitat; Method used	Based mainly on expert opinion with very limited data

7.3 Short-term trend; Period

7.4 Short-term trend; Direction	Unknown
7.5 Short-term trend; Method used	Based mainly on expert opinion with very limited data
7.6 Long-term trend; Period	
7.7 Long-term trend; Direction	Unknown
7.8 Long-term trend; Method used	Based mainly on expert opinion with very limited data

7.9 Additional information

Direct evidence of cetacean habitat quality is limited as presently, a comprehensive understanding of the key elements important to the species is undetermined. In some cases, conclusions for species range and population could be indicative of habitat quality by proxy, however confidence in assessment outputs would be low.

The population of fin whale using the UK EEZ waters, and the range of the species has remained stable since 2005.

8. Main pressures

8.1 Characterisation of pressures

Table 3: Pressures affecting the species, including timing and importance/impact ranking. Pressures are defined as factors acting currently and/or during the reporting period (2019–2024). Rankings are: High (direct/immediate influence and/or large spatial extent) and Medium (moderate direct/immediate influence, mainly indirect and/or regional extent).

Pressure	Timing	Ranking
Shipping lanes and ferry lanes transport operations	Ongoing and likely to be in the future	Medium (M)
Change of species distribution (natural newcomers) due to climate change	Ongoing and likely to be in the future	Medium (M)
Threats and pressures from outside the Member State	Ongoing and likely to be in the future	Medium (M)
Geotechnical surveying	Ongoing and likely to be in the future	Medium (M)

8.2 Sources of information

See section 14 References

8.3 Additional information

PX02: Relating to continued whaling of this species outside of UK waters which may be having an impact on populations.

PC07: Regional pressure in the North Sea and the Irish Sea.

9. Conservation measures

9.1: Status of measures

a) Are measures needed?	Yes
b) Indicate the status of measures	Measures identified and taken
9.2 Main purpose of the measures taken	Maintain the current range, population and/or habitat for the species
9.3 Location of the measures taken	Both inside and outside National Site Network
9.4 Response to measures	Medium-term results (within the next two reporting periods, 2025–2036)

9.5 List of main conservation measures

Table 4: Key conservation measures addressing current pressures and/or anticipated threats during the next two reporting periods (2025–2036). Measures are ranked by importance/impact: High (direct/immediate influence and/or large spatial extent) and Medium (moderate direct/immediate influence, mainly indirect and/or regional extent).

Conservation measure	Ranking
Control/eradication of illegal killing, fishing and harvesting of wild plants, fungi and anmals	High (H)
Adapt/manage exploitation of energy resources	High (H)
Adapt/manage renewable energy installation, facilities and operation (excl. hydropower and abstraction activities)	High (H)

9.6 Additional information

This species is not an Annex II species and therefore the designation of SACs is not required, as stipulated in the Habitats Regulations. However, as a European Protected Species, protection is provided throughout UK waters and it is an offence to kill, injure or

disturb. The UK remains committed to the conservation of marine mammals in UK waters and the implementation of measures to mitigate the impact of pressures and conservation measures have been undertaken in the UK and adjacent waters as part of the requirements of the Habitats Regulations. Such measures include monitoring bycatch, monitoring strandings data to monitor current and identify emerging pressures, application of appropriate management measures, and noise monitoring and mitigation with regards to offshore industry. This is reflected in the list of conservation measures under field 9.5. The UK also supports a range of international agreements and conventions on the conservation of marine mammals and the marine environment. For example: The Convention on Migratory Species; the Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR). The UK Government and Scottish Government fund national strandings schemes, ongoing since 1990, which aim to: collate, analyse and report data for all cetacean strandings around the coast of the UK; determine the causes of death (both natural and anthropogenic) in stranded cetaceans, including bycatch and physical trauma and; undertake surveillance on the incidence of disease in stranded cetaceans in order to identify any substantial new threats to their conservation status.

10. Future prospects

10.1a Future trends of parameters

ai) Range	Overall stable
bi) Population	Unknown
ci) Habitat for the species	Unknown

10.1b Future prospects of parameters

aii) Range	Good
bii) Population	Unknown
cii) Habitat for the species	Unknown

10.2 Additional information

A key region for fin whales in the UK was unable to be covered during the SCANS IV survey, and so it is not possible to directly compare the population estimates over time and project future prospects for the population without further monitoring.

There is some evidence that fin whale occurrence may be increasing in the North Sea, however in low density. Future monitoring in the North Sea may improve certainty of this trend.

The quality of the habitat for the species was not able to be assessed due to limited information on the ecology and behaviour of fin whales in UK waters. Forthcoming results from the ObSERVE 2 survey in Irish waters and NASS 2024 survey in North Atlantic waters will provide further information on the occurrence of this species Northeast Atlantic more broadly. The results from these surveys are yet to be published.

11. Conclusions

11.1 Range	Favourable (FV)
11.2 Population	Unknown (XX)
11.3 Habitat for the species	Unknown (XX)
11.4 Future prospects	Unknown (XX)
11.5 Overall assessment of Conservation Status	Unknown (XX)
11.6 Overall trend in Conservation Status	Unknown

11.7 Change and reason for change in conservation status

a) Change	No
b) Genuine change	
c) Improved knowledge or more accurate data	
d) Different method	
e) No information	
f) Other reason	
g) Main reason	

11.7 Change and reason for change in conservation status trend

a) Change	No

b) Genuine change
c) Improved knowledge or more accurate data
d) Different method
e) No information
f) Other reason
g) Main reason

11.8 Additional information

Conclusion on Range reached because: (i) the short-term trend direction in Range surface area is stable and (ii) the current Range surface area is equivalent to the Favourable Reference Range.

Conclusion on Population reached because: (i) the short-term trend direction in Population size is decreasing; and (ii) the best estimate for population size is more than 25% below the Favourable Reference Population but the population estimate for 2022 is based primarily on density estimates from the SCANS IV survey and it is not possible to have an updated population estimate for this species due to the gap in the 2022 SCANS survey effort in offshore waters west of Scotland which is a high-density region for this species, accounting for 3% of the total population estimate in 2015 (Gilles, et al., 2013; Hammond et al 2021) and 28% of the UK proportion.

Conclusion on Habitat for the species reached because: (i) it is unknown whether the area of habitat is sufficiently large; (ii) it is unknown if habitat quality is sufficient for the long-term survival of the species; and (iii) the short-term trend in area and quality of habitat is unknown.

Conclusion on Future prospects reached because: (i) the Future prospects for Range are Good; (ii) the Future prospects for Population are Unknown; and (iii) the Future prospects for Habitat for the species are Unknown.

Overall assessment of Conservation Status is Unknown because two or more conclusions are Unknown and no conclusions are Unfavourable.

Overall trend in Conservation Status is based on the combination of the short-term trends for Range - stable, Population - decreasing, and Habitat for the species - unknown.

12. UK National Site Network (pSCIs, SCIs, SACs) coverage for Annex II species

12.1 Population size inside the pSCIs, SCIs and SACs network

a) Unit	
b) Minimum	
c) Maximum	
d) Best single value	
12.2 Type of estimate	
12.3 Population size inside the network; Method used	
12.4 Short-term trend of population size within the network; Direction	
12.5 Short-term trend of population size within the network; Method used	
12.6 Short-term trend of habitat for the species inside the pSCIs, SCIs and SACs network; Direction	
12.7 Short-term trend of habitat for the species inside the pSCIs, SCIs and SACs network; Method used	

12.8 Additional information

No additional information

13. Complementary information

13.1 Justification of percentage thresholds for trends

No justification information

13.2 Trans-boundary assessment

No trans-boundary assessment information

13.2 Other relevant information

No other relevant information

14. References

Biogeographical and marine regions

4.2 Sources of information

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Main pressures

8.2 Sources of information

No sources of information

15. Explanatory Notes

Field label	Note
6.17: Additional information	The 2019 assessment was set as unknown due to the method used on the SCANS and CODA density estimates. In 2019 we attempted to extrapolate CODA estimates to UK level, instead we are collating SCANS II and CODA to get full UK coverage for 2005 to 2007 as a single snapshot so the 2019 argument is not valid. text from 2019 Article 17 report: 'Although the 3rd report (2013) gave a value for fin whale abundance, there is little confidence in the estimate. The estimate was derived from the CODA survey in 2007 (CODA, 2009); with regards to UK coverage, this survey only covered offshore waters west of Scotland. The density value from this survey was used to calculate abundance in the offshore area. However, the lower 95% confidence interval of the density estimates for this offshore area was applied to adjacent areas within the fin whale range (accounting for a large portion of the range), to give a minimum estimate for fin whale abundance in UK shelf waters and combined with the offshore estimate to give a rough overall figure for fin whale abundance in UK waters. This approach is now superseded by the availability of an estimate from the SCANS-III survey (Hammond et al. 2017) which covered both shelf and offshore waters. ' From LFPW 2019 assessment which adds more context: Although the 3rd report (2013) did give estimates of minimum and maximum abundance for long-finned pilot whale in UK waters, these estimates are not comparable with the current estimate derived from SCANS-III (Hammond et al., 2017). These estimates were derived from the CODA survey in 2007 (CODA, 2009); in the UK, this survey only covered offshore waters west of Scotland. The density value from this survey for the offshore area

	was used to calculate long-finned pilot whale abundance in this area. However, the lower 95% confidence interval of the density estimates for this offshore area was applied to adjacent areas within the long-finned pilot whale range (accounting for a large portion of the range), to give a minimum estimate for long-finned pilot whale abundance in UK shelf waters. This was combined with the offshore estimate to give an overall estimate for long-finned pilot whale abundance in UK waters. This method is not considered to be as robust as deriving an estimate from a single survey of both offshore and shelf waters and is not directly comparable with the current estimate derived from SCANS-III (2016).
8.1: Characterisation of pressures	PX02 Threats and pressures from outside member states. Fin whales have been historically hunted in neighbouring waters. Given the migratory nature of fin whales, individuals taken in a hunt are likely to be from the same population as those occurring in UK waters. Fin whales have not been taken in any great numbers for over a decade, but Iceland began to hunt more frequently from 2009, taking between 125 - 155 animals per year (https://iwc.int/table_objection).
8.1: Characterisation of pressures	PJ13 Change of species distribution (natural newcomers) due to climate change. Current evidence suggests a possible northward expansion of fin whales thought to be linked to changes in prey availability (Espada et al., 2024; Davis et al., 2020; Snell et al., 2023). It should be noted however, that the increase in fin whales in UK waters may reflect population recovery from whaling. The effects of climate change on fin whales is likely to be mediated through variation in prey resource. Atlantic fin whales appear to have a more diverse diet than, for example, those found in the Mediterranean which specialise on krill (Das et al., 2017), and have been found to consume herring and sprat as well as krill (Ryan et al., 2014). There is evidence in other parts of the Atlantic for differential resource use amongst rorqual whales, including fin whales, following ecosystem change (Gavrilchuk et al., 2014).

8.1: Characterisation of pressures	PE02 Shipping lanes and ferry lanes transport operations. Collision with vessels is considered a primary cause of death in fin whales in some regions, for example the Mediterranean (Panigada et al, 2017; Manfrini et al., 2022; Espadada et al., 2024), US west coast (Rockwood et al., 2017), western Canada (Nichol et al, 2017) and Bay of Biscay (Aniceto et al, 2016). Of the 11 post mortem examinations carried out on stranded fin whales in the UK between 2000 and 2019, 4 animals had the cause of death of physical trauma resulting from probable ship strike (Deaville 2011:2020) and previous estimates suggest that 20% of diagnosed ship strikes in stranded animals from around the UK come from fin and beaked whales (Deaville et al., 2018). Likelihood of animals making landfall following a fatal collision is limited due to distribution, therefore the magnitude of the impact of this pressure is biased low. Strandings of fin whales are increasing in the southern North Sea and all except one has been associated with ship strikes (Berrow & Whooley, 2022).
8.1: Characterisation of pressures	PC07 Geotechnical surveying. JNCC advice on geotechnical surveying covers all marine mammals in UK waters (Stone, 2015; JNCC, 2017, 2010b, 2010c) and studies have observed acoustic and behavioural changes in fin whales in response to airgun noise, including strong avoidance responses, and changes to call rates (Castellote et al., 2012; Kavanagh et al., 2019; Gordon et al., 2003; Nieukirk et al., 2011). Close proximity to noise created by geotechnical activity also has potential to cause injury, although evidence for the impact and level of risk is limited. This is also mitigated through guidance on operations such as soft start and on board marine mammal observers. Pressures are likely to be higher in the North Sea and Celtic and Irish Seas.
9.5: List of main conservation measures	MC02 Adapt/manage exploitation of energy resources: Guidance for the protection of marine European Protected Species from deliberate injury, killing and disturbance has been drafted (JNCC 2010a; Marine Scotland, 2014). Marine Industries generate a variety of noise through

	activities such as geophysical surveys (e.g. seismic surveys (JNCC 2017)), construction (e.g. pile driving (JNCC 2010b)) and decommissioning (e.g. use of explosives (2010c)). As part of the licencing procedures, developers and operators are required to utilise JNCC guidelines to minimise the risk of injury to cetaceans when undertaking such activities (JNCC, 2010b, 2010c; 2017; 2023; 2025; JNCC, Natural England & Cefas, 2025). The guidelines advise on conducting marine mammal observations prior to and during the activity and, where suitable, utilising procedures such as soft start (gradual introduction of the sound) to reduce and avoid direct harm to animals. A review of the marine mammal observer data (e.g. Stone, 2015) demonstrated the effectiveness of soft start approach (Stone et al. 2017).
9.5: List of main conservation measures	MG04 Control/eradication of illegal killing, fishing and harvesting: The Habitats Directive is transposed into UK law under the Habitat Regulations (HR) for England and Wales (as amended) and the Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 (as amended), which make it an offence to kill, injure, capture or disturb European marine protected species. Similar legislation exists for Scottish and Northern Irish inshore waters.
9.5: List of main conservation measures	MH01 Reduce impact of military installations and activities: The UK Ministry of Defence (MOD) has a Statement of Intent with UK Statutory Nature Conservation Bodies concerning conduct in relation to marine disturbance and has developed a real-time alert procedure for naval training operations.
9.5: List of main conservation measures	MG05 Reduce bycatch and incidental killing of non-target species: The UK is implementing the EU Technical Conservation Measures Regulation transposed into UK regulations which lays down measures concerning incidental catches of vulnerable species in fisheries, and more generally the bycatch obligations within the Habitats Regulations. Since 2004, a dedicated bycatch monitoring programme has been in place, with both dedicated and non-dedicated onboard observers collecting data on

bycatch numbers. These data inform implementation and potential effectiveness of measures such as pingers. There is a requirement for all fishing vessels over 12m using gill nets or entanglement nets to use pingers under the criteria laid out in the regulation. Inshore Vessel Monitoring System (iVMS) devices are being implemented for under-12 metre fishing vessels, allowing data on latitude, longitude, course and speed to be recorded and help improve the management and sustainability of the marine environment. Legislation to make iVMS mandatory on under-12 metre vessels is expected to come into effect in 2024 in England. In Scotland, consultation on the introduction mandatory electronic tracking for under-12 metre vessels was carried out in late 2023. Legislation requiring iVMS for under-12 metre vessels operating in Welsh waters has been in place since 2022. Since February 2022 it has been mandatory for under-10 metre fishing vessels in English and Welsh waters to create and submit a catch record for every fishing trip through the Catch Recording Application (Catch App or Record your Catch). Data is collected on vessel, trip, gear, area fished and catch and can be used to inform on fishing activity by gear type and species. Furthermore, the UK Marine Wildlife Bycatch Mitigation Initiative (published August 2022) aims to improve our understanding of bycatch and entanglement of sensitive marine species through monitoring and scientific research, identify 'hotspot” or high-risk areas/gear types/fisheries in which to focus monitoring and mitigation, and develop and implement effective measures to minimise bycatch/entanglement. Currently work is progressing towards development of a bycatch risk framework across all PET species to apply all available evidence and support targeted monitoring.