European Community Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (92/43/EEC)

Fourth Report by the United Kingdom under Article 17

on the implementation of the Directive
from January 2013 to December 2018

Conservation status assessment for the species:

S2032 - White-beaked dolphin (*Lagenorhynchus albirostris*)

UNITED KINGDOM

IMPORTANT NOTE - PLEASE READ

- The information in this document represents the UK Report on the conservation status of this species, submitted to the European Commission as part of the 2019 UK Reporting under Article 17 of the EU Habitats Directive.

- It is based on supporting information provided by the geographically-relevant Statutory Nature Conservation Bodies, which is documented separately.

- The 2019 Article 17 UK Approach document provides details on how this supporting information contributed to the UK Report and the fields that were completed for each parameter.

- The reporting fields and options used are aligned to those set out in the European Commission guidance.

- Maps showing the distribution and range of the species are included (where available).

- Explanatory notes (where provided) are included at the end. These provide additional audit trail information to that included within the UK assessments. Further underpinning explanatory notes are available in the related country-level 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 Natura 2000 coverage for Annex II species).

- The UK-level reporting information for all habitats and species is also available in spreadsheet format.

Visit the JNCC website, https://jncc.gov.uk/article17, for further information on UK Article 17 reporting.

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NATIONAL LEVEL	
1. General information	
1.1 Member State	**UK**
1.2 Species code	**2032**
1.3 Species scientific name	**Lagenorhynchus albirostris**
1.4 Alternative species scientific name	
1.5 Common name (in national language)	White-beaked dolphin

2. Maps

2.1 Sensitive species	No
2.2 Year or period	2013-2018
2.3 Distribution map	Yes
2.4 Distribution map Method used	Based mainly on extrapolation from a limited amount of data
2.5 Additional maps	No

3. Information related to Annex V Species (Art. 14)

3.1 Is the species taken in the wild/exploited?	No	
3.2 Which of the measures in Art. 14 have been taken?	a) regulations regarding access to property	No
	b) temporary or local prohibition of the taking of specimens in the wild and exploitation	No
	c) regulation of the periods and/or methods of taking specimens	No
	d) application of hunting and fishing rules which take account of the conservation of such populations	No
	e) establishment of a system of licences for taking specimens or of quotas	No
	f) regulation of the purchase, sale, offering for sale, keeping for sale or transport for sale of specimens	No
	g) breeding in captivity of animal species as well as artificial propagation of plant species	No
	h) other measures	No

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3.3 Hunting bag or quantity taken in the wild for Mammals and Acipenseridae (Fish)	a) Unit						
	b) Statistics/ quantity taken	Provide statistics/quantity per hunting season or per year (where season is not used) over the reporting period					
		Season/ year 1	Season/ year 2	Season/ year 3	Season/ year 4	Season/ year 5	Season/ year 6
	Min. (raw, ie. not rounded)						
	Max. (raw, ie. not rounded)						
	Unknown	No	No	No	No	No	No

3.4. Hunting bag or quantity taken in the wild Method used	
3.5. Additional information	

BIOGEOGRAPHICAL LEVEL

4. Biogeographical and marine regions

4.1 Biogeographical or marine region where the species occurs	**Marine Atlantic (MATL)**
4.2 Sources of information	Canning, S.J., Santos, M.B., Reid, R.J., Evans, P.G.H, Sabin, R.C., Bailey, N. & Pierce, G.J. (2008). Seasonal distribution of white-beaked dolphins (Lagenorhynchus albirostris) in UK waters with new information on diet and habitat use. Journal of the Marine Biological Association of the United Kingdom, 6: 1159-1166 .

Deaville, R. (2011:2017). Annual reports for the period 1st January to 31st December. UK Cetacean Strandings Investigation Programme (CSIP). http://ukstrandings.org/csip-reports/

DG Environment. (2017). Reporting under Article 17 of the Habitats Directive: Explanatory notes and guidelines for the period 2013-2018. Brussels. Pp 188 http://cdr.eionet.europa.eu/help/habitats_art17

Evans. D and Marvela, A. (2013). Assessment and reporting under Article 17 of the Habitats Directive: Explanatory notes and Guidelines. 123pp. https://circabc.europa.eu/faces/jsp/extension/wai/navigation/container.jsp

Fall, J & Skern-Mauritzen, M. (2014) White-beaked dolphin distribution and association with prey in the Barents Sea, Marine Biology Research, 10:10, 957-971, DOI: 10.1080/17451000.2013.872796

Hammond, P. S., Lacey, C., Gilles, A., Viquerat, S., Borjesson, P., Herr, H., Macleod, K., Ridoux, V., Santos, M. B., Scheidat, M., Teilmann, J., Vingada, J & Oien, N. (2017). Estimates of cetacean abundance in European Atlantic waters in summer 2016 from the SCANS-III aerial and shipboard surveys. Available here: https://synergy.st-andrews.ac.uk/scans3/files/2017/04/SCANS-III-design-based-estimates-2017-04-28-final.pdf

Jansen OE (2013) Fishing for food: feeding ecology of harbour porpoises Phocoena phocoena and white-beaked dolphins Lagenorhynchus albirostris in

Dutch waters. PhD thesis, Wageningen University

Jansen, O., Leopold, M., Meesters, E., & Smeenk, C. (2010). Are white-beaked dolphins Lagenorhynchus albirostris food specialists? Their died in the southern North Sea. Journal of the Marine Biological Association of the United Kingdom, 90(8):1501-1505. Doi: https://doi.org/10.1017/S0025315410001190

Jepson, P. D., Deaville, R., Barber, J. L., Aguilar, A., Borrell, A., Murphy, S., Barry, J., et al. (2016). PCB pollution continues to impact populations of orcas and other dolphins in European waters. Scientific Reports, 6:1-17. https://doi.org/10.1038/srep18573

JNCC. (2010a). The protection of marine European Protected Species from deliberate injury, killing and disturbance. Guidance for the marine area in England and Wales and the UK offshore marine area. Available on request from JNCC.

JNCC (2010b). Statutory nature conservation agency protocol for minimising the risk of injury to marine mammals from Piling noise. 2010. JNCC Peterborough. United Kingdom. Available here: http://jncc.defra.gov.uk/pdf/JNCC_Guidelines_Piling protocol_August 2010.pdf.

JNCC. (2010c). JNCC guidelines for minimising the risk of injury to marine mammals from using explosives. August 2010. Available here: http://jncc.defra.gov.uk/pdf/JNCC_Guidelines_Explosives Guidelines_August 2010.pdf

JNCC. (2017). JNCC guidelines for minimising the risk of injury to marine mammals from geophysical surveys Available here: http://jncc.defra.gov.uk/pdf/jncc_guidelines_seismicsurvey_aug2017.pdf

MacLeod, C.D., Weird, C.R., Pierpoint, C. & Harland, E.J. (2007). The habitat preferences of marine mammals west of Scotland. Journal of the Marine Biological Association of the United Kingdom, 87:157-164.

MacLeod, C.D., Weir, C.R., Santos, M.B. & Dunn, T.E. (2008). Temperature-based summer habitat partitioning between white-beaked and common dolphins around the United Kingdom and Republic of Ireland. Journal of the Marine Biological Association of the United Kingdom, 6:1193-1198.

Mann, D., Hill-Cook, M., Manire, C., Greenhow, D., Montie, E., Powell, J., Wells, R., et al. (2010). Hearing loss in stranded odontocete dolphins and whales. PLoS ONE, 5(11): 1-5. https://doi.org/10.1371/journal.pone.0013824

Marine Scotland (2014). The protection of Marine European Protected Species from injury and disturbance. Guidance for Scottish Inshore Waters. 2014: http://www.gov.scot/Resource/0044/00446679.pdf

Merchant, N. D., Pirotta, E., Barton, T. R., & Thompson, P. M. (2014). Monitoring ship noise to assess the impact of coastal developments on marine mammals. Marine Pollution Bulletin, 78(1-2): 85-95. https://doi.org/10.1016/j.marpolbul.2013.10.058

Middel, H., & Verones, F. (2017). Making marine noise pollution impacts heard: The case of cetaceans in the North Sea within life cycle impact assessment. Sustainability (Switzerland), 9(7). https://doi.org/10.3390/su9071138

Morizur, Y., Berrow, S. D., Tregenza, N. J. C., Couperus, A. S., & Pouvreau, S. (1999). Incidental catches of marine-mammals in pelagic trawl fisheries of the northeast Atlantic. Fisheries Research, 41(3):297-307. https://doi.org/10.1016/S0165-7836(99)00013-2

Nachtigall, P.E., Mooney, T.A., Taylor, K.A., Miller, L.A., Rasmussen, M.H., Akamatsu, T., Teilman, J., Linnenschmit, M. & Vikingsson, G.A. (2008). Shipboard measurements of the hearing of the white-beaked dolphin Lagenorhynchus albirostris. Journal of Experimental Biology. 211: 642-647.

OSPAR IA (2017). Abundance and distribution of cetaceans. Available from:

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https://oap.ospar.org/en/ospar-assessments/intermediate-assessment-2017/biodiversity-status/marine-mammals/abundance-distribution-cetaceans/abundance-and-distribution-cetaceans/

Paxton, C. G. M, Scott-Hayward, L., Mackenzie, M., Rexstad, E & Thomas, L. (2016). Revised Phase III Data Analysis of Joint Cetacean Protocol Data Resources with Advisory Note (2016). JNCC Report 517. http://jncc.defra.gov.uk/page-7201

Stone, C.J. (2003). The effects of seismic activity on marine mammals in UK waters, 1998-2000. JNCC Report No. 323.

Stone, C.J. (2015). Implementation of and considerations for revisions to the JNCC guidelines for seismic surveys. JNCC report, No. 463b. Available online: http://jncc.defra.gov.uk/pdf/JNCC Report 463b_Final.pdf

Stone, C.J. & Tasker, M.L. (2006). The effects of seismic airguns on cetaceans in UK waters. Journal of Cetacean Research Management. 8: 255-263

Stone, C. J., Hall, K. Mendes, S and Tasker, M. L. (2017). The effects of seismic operations in UK waters: analysis of Marine Mammal Observer data. J. Cetacean Red. Manage 16:71-85

Van de Vijver, K.I., Hoff, P.T., Das, K., Van Dongen, W., Esmans, E.L., Jauniaux, T., Bouquegneau, J., Blust, R. & De Coen, W. (2003). Perfluorated chemicals infiltrate ocean waters: link between exposure levels and stable isotope ratios in marine mammals. Environmental Science and Technology. 37:5545-5550.

5. Range

5.1 Surface area (km²)	475634	
5.2 Short-term trend Period	1994-2018	
5.3 Short-term trend Direction	Stable (0)	
5.4 Short-term trend Magnitude	a) Minimum	b) Maximum
5.5 Short-term trend Method used	Based mainly on extrapolation from a limited amount of data	
5.6 Long-term trend Period		
5.7 Long-term trend Direction		
5.8 Long-term trend Magnitude	a) Minimum	b) Maximum
5.9 Long-term trend Method used		
5.10 Favourable reference range	a) Area (km²)	475634
	b) Operator	
	c) Unknown	
	d) Method	Range estimated for the current period matches the range given in the 2013 reporting round (excluding analytic differences).
5.11 Change and reason for change in surface area of range	Use of different method	
	The change is mainly due to:	Use of different method
5.12 Additional information	Range estimated for the current period matches the range given in the 2013 reporting round (excluding analytical differences). This range is considered sufficient and includes all significant ecological variations to ensure survival of the species. Areas within the range are utilised to a lesser or greater extent.	

6. Population

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6.1 Year or period	2016	
6.2 Population size (in reporting unit)	a) Unit	number of individuals (i)
	b) Minimum	17346
	c) Maximum	52483
	d) Best single value	30172
6.3 Type of estimate	95% confidence interval	
6.4 Additional population size (using population unit other than reporting unit)	a) Unit	
	b) Minimum	
	c) Maximum	
	d) Best single value	
6.5 Type of estimate		
6.6 Population size Method used	Complete survey or a statistically robust estimate	
6.7 Short-term trend Period	2005-2016	
6.8 Short-term trend Direction	Unknown (x)	
6.9 Short-term trend Magnitude	a) Minimum	
	b) Maximum	
	c) Confidence interval	
6.10 Short-term trend Method used	Insufficient or no data available	
6.11 Long-term trend Period		
6.12 Long-term trend Direction		
6.13 Long-term trend Magnitude	a) Minimum	
	b) Maximum	
	c) Confidence interval	
6.14 Long-term trend Method used		
6.15 Favourable reference population (using the unit in 6.2 or 6.4)	a) Population size	
	b) Operator	
	c) Unknown	x
	d) Method	
6.16 Change and reason for change in population size	No change	
	The change is mainly due to:	
6.17 Additional information	The estimate of population size (6.2) is given as a point estimate (6.2d) with the corresponding 95% confidence intervals (6.2b&c). Although the population estimate is higher than that of the 3rd reporting round (2013; ~43% higher), there is considerable overlap between the confidence intervals of the 2013 estimate and the current estimate, indicating that there is no significant difference between the two values and the population is relatively stable. However, there are too few data points to confidently conclude this.	

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7. Habitat for the species

7.1 Sufficiency of area and quality of occupied habitat	a) Are area and quality of occupied habitat sufficient (for long-term survival)?	Unknown
	b) Is there a sufficiently large area of unoccupied habitat of suitable quality (for long-term survival)?	
7.2 Sufficiency of area and quality of occupied habitat Method used	Based mainly on expert opinion with very limited data	
7.3 Short-term trend Period	2007-2018	
7.4 Short-term trend Direction	Unknown (x)	
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		
7.8 Long-term trend Method used		
7.9 Additional information		

8. Main pressures and threats

8.1 Characterisation of pressures/threats

Pressure	Ranking
Geotechnical surveying (C09)	M
Industrial or commercial activities and structures generating noise, light, heat or other forms of pollution (F25)	M
Marine fish and shellfish harvesting (professional, recreational) causing reduction of species/prey populations and disturbance of species (G01)	M
Bycatch and incidental killing (due to fishing and hunting activities) (G12)	M
Mixed source marine water pollution (marine and coastal) (J02)	M

Threat	Ranking
Geotechnical surveying (C09)	M
Industrial or commercial activities and structures generating noise, light, heat or other forms of pollution (F25)	M
Marine fish and shellfish harvesting (professional, recreational) causing reduction of species/prey populations and disturbance of species (G01)	M
Bycatch and incidental killing (due to fishing and hunting activities) (G12)	M
Mixed source marine water pollution (marine and coastal) (J02)	M
Decline or extinction of related species (e.g. food source / prey, predator / parasite, symbiote, etc.) due to climate change (N07)	M

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9. Conservation measures

| 9.1 Status of measures | a) Are measures needed? | No |
| | b) Indicate the status of measures | |

9.2 Main purpose of the measures taken

9.3 Location of the measures taken

9.4 Response to the measures

9.5 List of main conservation measures

9.6 Additional information

This species is not an Annex II species under the Habitats Directive, therefore conservation measures stipulated in the Directive are not required. This is reflected in the UK response to field 9.1 (with no measures listed under field 9.5). However, the UK has been committed to supporting several international agreements and conventions on the conservation of marine mammals and the marine environment in general. For example: The Convention on Migratory Species and its Agreement on the Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas (ASCOBANS); the Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR). A UK Dolphin and Porpoise Conservation Strategy is currently in development, due for publication in 2019. The strategy is intended to support decision making and identify actions necessary to maintain or improve the conservation status of small cetaceans in UK waters. The UK Government funds a national strandings scheme, ongoing since 1990, which aims to: collate, analyse and report data for all cetacean strandings around the coast of the UK; determine the causes of death 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. These considerations for this species most closely equate to the following five measures in the EU conservation measures list: Reduce impact of mixed source pollution (CJ01) Reduce impact of military installations and activities (CH01) Control/eradication of illegal killing, fishing and harvesting (CG04) Reduce bycatch and incidental killing of non-target species (CG05) Adapt/manage exploitation of energy resources (CC02).

10. Future prospects

10.1 Future prospects of parameters	a) Range	Good
	b) Population	Unknown
	c) Habitat of the species	Unknown

10.2 Additional information

These results are based on the current conservation status for each parameter combined with the future trend for each parameter. The future trend is an estimate of how the parameter is likely to progress into the future, using the current trend as a baseline and considering the balance between threats and

measures to assess how these are likely to affect that trend over the next two reporting cycles (12 years). For white-beaked dolphin, the future trend of Range is assessed as Overall Stable. As the current conservation status for Range is Favourable for this species, the future prospects are considered Good.
The future trend and consequently the future prospects for the Population and Habitat parameters are assessed as Unknown; this is due to there being insufficient data to establish current trends for these parameters.

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 (x)
11.7 Change and reasons for change in conservation status and conservation status trend	a) Overall assessment of conservation status Use of different method The change is mainly due to: Use of different method b) Overall trend in conservation status No change The change is mainly due to:
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 approximately equal to the Favourable Reference Range. Conclusion on Population reached because: (i) the FRP is unknown; and (ii) the short-term trend direction in Population size is unknown. Conclusion on Habitat for the species reached because: (i) the area of habitat is sufficiently large but (ii) the habitat quality is unknown 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; but (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 of the conclusions are Unknown. Overall trend in Conservation Status is based on the combination of the short-term trends for Range - stable, Population - unknown, and Habitat for the species - unknown.

12. Natura 2000 (pSCIs, SCIs and SACs) coverage for Annex II species

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12.1 Population size inside the pSCIs, SCIs and SACs network (on the biogeographical/marine level including all sites where the species is present)	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 Additional information	

13. Complementary information

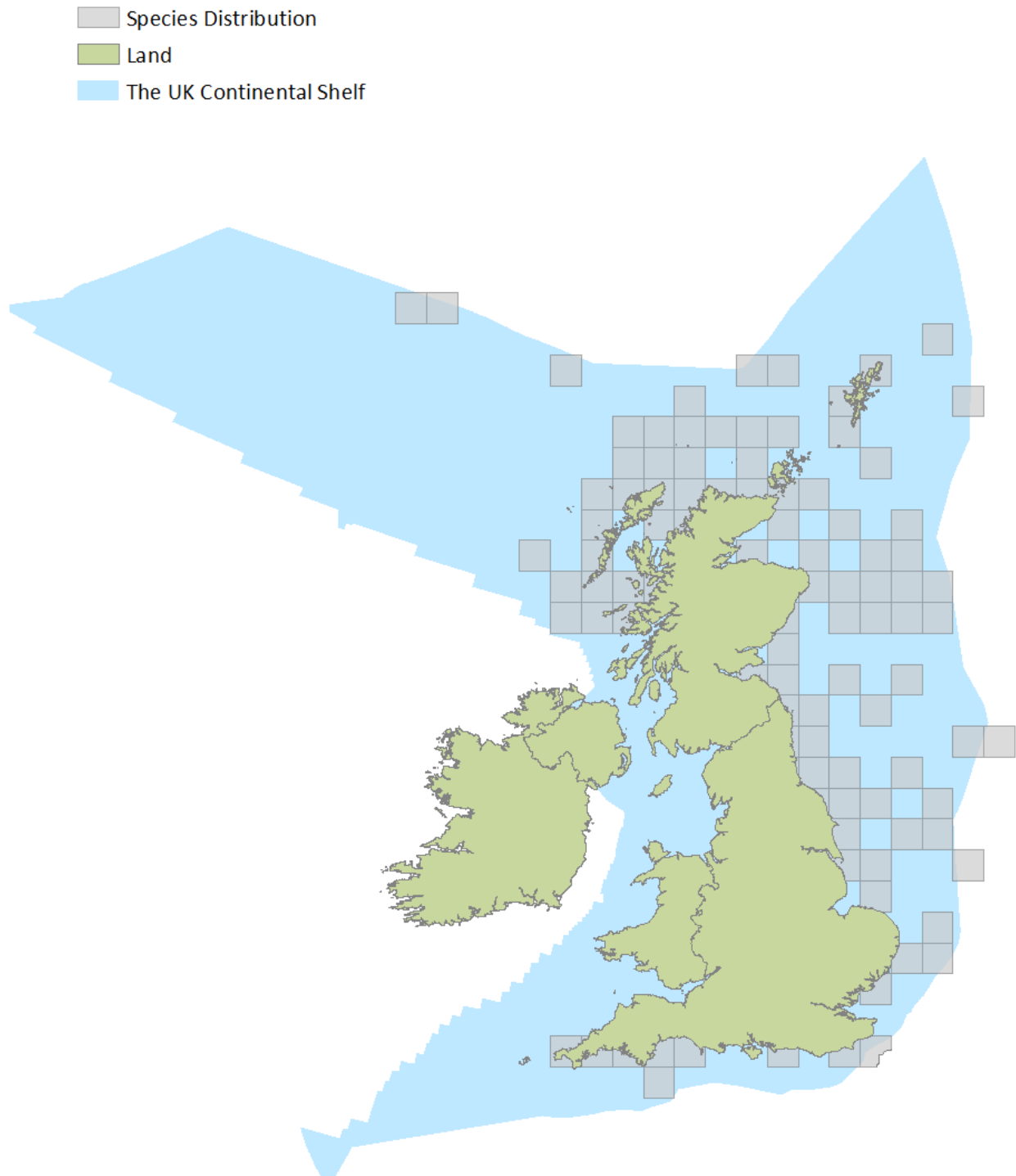| |
|---|
| 13.1 Justification of % thresholds for trends |
| 13.2 Trans-boundary assessment |
| 13.3 Other relevant Information |

Distribution Map

Figure 1: UK distribution map for S2032 - White-beaked dolphin (*Lagenorhynchus albirostris*).

The 50km grid square distribution map is based on available species records within the current reporting period. For further details see the 2019 Article 17 UK Approach document.

Range Map
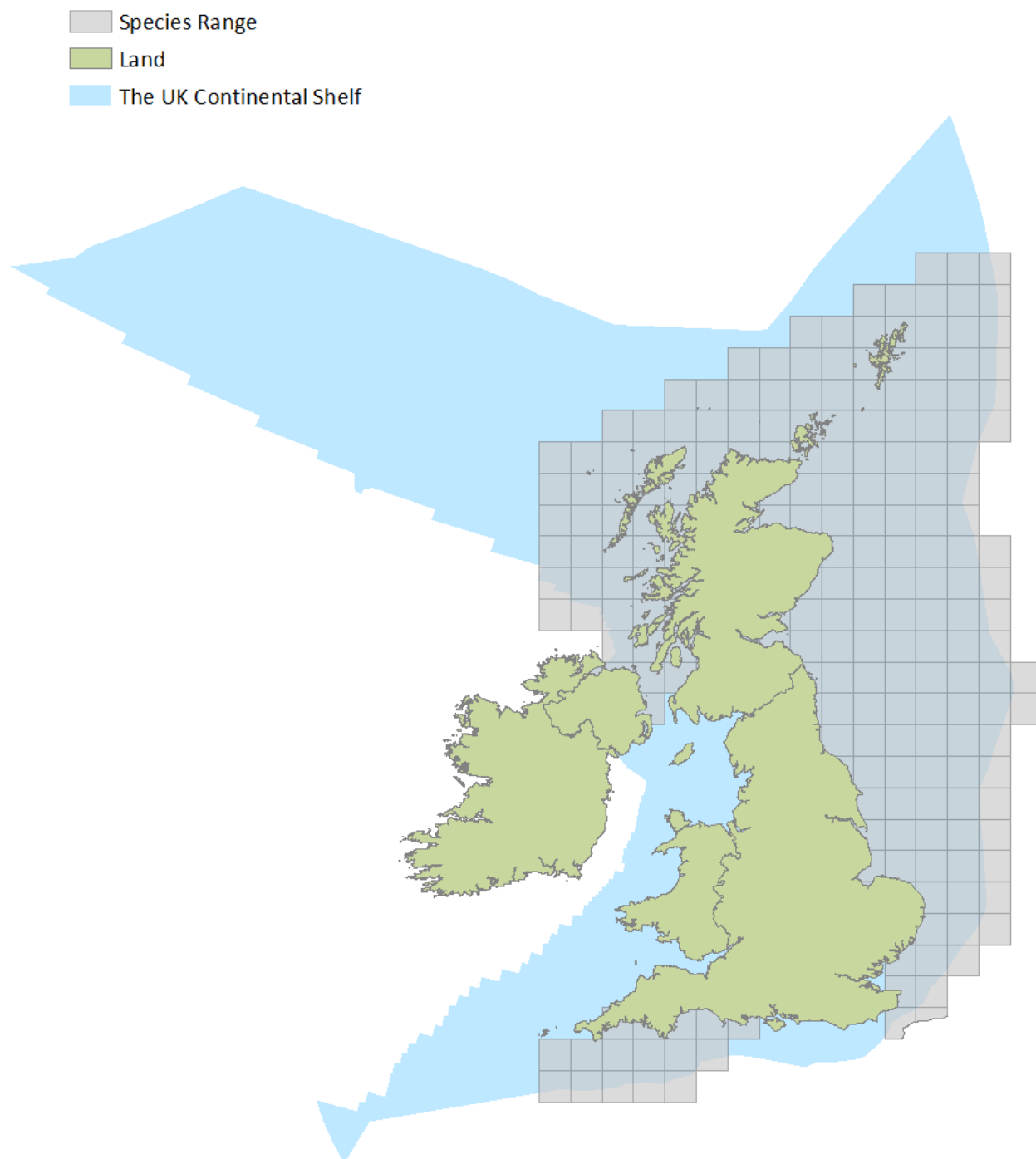

Figure 2: UK range map for S2032 - White-beaked dolphin (*Lagenorhynchus albirostris*).

The range for the 2013-2018 report was based on an analysis of effort related survey data spanning 1994-2010 compiled for the Joint Cetacean Protocol (JCP) undertaken by Paxton et al. (2016). The estimated range was based on a modelled prediction of White-beaked dolphin (*Lagenorhynchus albirostris*)

distribution during August 2010 (see Paxton et al., 2016 for further detail) and adapted based on additional sightings data and expert knowledge for the current reporting period. The range was mapped using a grid of 50x50km resolution and projected to ETRS LAEA 5210.

Explanatory Notes

Species name: Lagenorhynchus albirostris (2032)

Field label	Note
2.1 Sensitive species	This refers to sensitivities around publishing distribution data.
2.3 Distribution map	The distribution map gives a good account of white-beaked dolphin distribution in UK waters (Annex A). However, some offshore areas are under-represented due to reduced effort in those areas. The distribution map is based on actual sightings of white-beaked dolphin, covering the UK Exclusive Economic Zone (EEZ) and UK Continental Shelf area (hereafter referred to as 'UK waters') between 2013 and 2018. This collates sightings data from the SCANS-III, National Biodiversity Network (NBN), SeaWatch Foundation, MARINElife and ORCA datasets and includes both effort related sightings and opportunistic sightings collected from land, ship and aerial platforms during this period. White-beaked dolphin are found primarily in shelf waters around the UK (MacLeod et al., 2007; Canning et al., 2008). The species is most common in the northern North Sea and around the Scottish coast (MacLeod et al., 2008). They are rarely sighted in the Irish sea and are less common in the southern North Sea and eastern Channel, though sightings in these areas are becoming more common and large pods are regularly sighted elsewhere along the southern coast of England, particularly around Lyme Bay. The distribution obtained from the sightings data is a good representation of white-beaked dolphin in UK waters, though effort is lower in the offshore regions and may result in some under-representation to the north and east of Scotland. The species is likely to be found anywhere within their range (Annex B).
2.5 Additional maps	This map illustrates the predicted core range for white-beaked dolphin in UK waters (Annex B). Although the species may occasionally occur outside of this area, the range presented illustrates where the species occurs most commonly and consistently. The 2013 range was based on an analysis of effort related survey data spanning 1994-2010 compiled for the Joint Cetacean Protocol (JCP) undertaken by Paxton et al. (2016). The estimated range was based on a modelled prediction of white-beaked dolphin distribution during August 2010 and adapted based on additional sightings data and expert knowledge (see Paxton et al., 2016 for further detail). The map represents the core range of this species which is considered to be shelf waters, although there are occasional records from offshore waters.

Species name: Lagenorhynchus albirostris (2032) Region code: MATL

Field label	Note
5.3 Short term trend; Direction	Range for the current report (475,634 km2) is equal to the range presented in the 3rd reporting round (471,116 km2).

5.5 Short term trend; Method used	The 2013 range was based on an analysis of effort related survey compiled for the (JCP) undertaken by Paxton et al. (2016). The estimated range was based on a modelled prediction of white-beaked dolphin distribution during August 2010 and adapted based on additional sightings data and expert knowledge (see Paxton et al., 2016 for further detail). The distribution data collated for the current was compared with the predicted range from the 2013 report. The distribution data from the current report largely fall within the predicted range area from the 2013 report, indicating that there has been no change in range over the described period. Although there have been sightings to the north west of Scotland and more commonly within the eastern Channel, these areas are not considered part of the core range for this species in UK waters. This is further supported by the OSPAR Intermediate Assessment (OSPAR IA, 2017) which concluded that the distribution of this species has not changed since 1994 based on distribution data collected during the SCANS surveys. As there was no discernible difference between the 3rd (2013) and 4th (2019) reporting rounds, the range is considered stable.
5.10 Favourable reference range	The favourable reference range is approximately equal to the surface area given in Section 5.1.
5.11 Change and reason for change in surface area of range	Range is considered stable but there is a minor difference in the range value between this report and the 3rd reporting round (2013). The difference is due to the use of a slightly different grid template and does not represent an actual difference in the species range between reporting rounds.
6.1 Year or Period	This is the year when the SCANS-III survey was conducted (Hammond et al. 2017).
6.2 Population size	SCANS-III block estimates of abundance have been pro-rated by area across UK waters. Minimum and maximum are the lower and upper 95% confidence intervals respectively. The best single value is the point estimate.
6.6 Population size; Method used	The SCANS-III survey was designed to provide robust estimates of cetacean abundance. The survey provides coverage of UK EEZ waters but does not survey waters west of the EEZ out to the UK Continental shelf boundary. However, as the range of white-beaked dolphin does not extend beyond the EEZ, density values for the area west of the EEZ were not needed.
6.8 Short term trend; Direction	Reported as Unknown as some data are available but they are not enough to accurately determine direction at the UK scale. There are currently only two abundance estimates for white-beaked dolphin which cover UK waters: the revised SCANS-II (2005) estimate of 21,152 (lower 95% CI: 11,959; upper 96% CI: 37,410) and the SCANS-III (2016) estimate of 30,172 (lower 95% CI: 17,346; upper 95% CIL 52,483). The estimate of abundance in the UK in 2016 (SCANS-III) is almost 45% greater than the revised 2005 estimate (revised SCANS-II), but the confidence intervals overlap considerably indicating that there is no significant difference between these estimates. However, with only two data points it is not possible to assess trends with confidence. White-beaked dolphin are highly mobile and their range is not restricted to UK waters. The apparent increase may represent a redistribution of animals into UK waters from adjoining areas, but it is not possible to assess this. SCANS surveys take place in only one month of the year at approximately decadal intervals. More frequent population surveys are required to ascertain changes in population abundance in UK waters in the short-term.

6.10 Short term trend; Method used	The available data are insufficient to assess trends in white-beaked dolphin abundance over the short term as a minimum of three population estimates are required before trends can be explored. Due to the wide 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. There are three estimates of abundance for this species in the North Sea and these were used for the OSPAR Intermediate Assessment (OSPAR IA, 2017). The assessment concluded that there was no evidence of a change in abundance over the period of 1994-2016 in the North Sea (See Figure 1 Annex C).
6.15 Favourable reference population	This is the second reliable abundance estimate following a dedicated survey covering UK waters for this species. The 3rd UK Article 17 report set an FRV for white-beaked dolphin abundance. This was based on the population estimate, derived from the SCANS II (2005) and CODA (2007) surveys. This value has subsequently been updated to reflect changes in how the original estimate was derived (detailed in Hammond et al., 2017). However, with only two reliable population estimates we cannot assess trend for this species and without reliable trend information it is not possible to state whether either of these estimates represents a favourable reference population. The FRP is therefore currently Unknown.
7.1 Sufficiency of area and quality of occupied habitat	As data relating to habitat quality is limited for this species, the assessment of this parameter is based on the conclusions for range and population as a proxy for habitat. Although white-beaked dolphin range is considered stable, it is not possible to explore trends relating to their abundance at the UK scale and must conclude that the population parameter for this species is Unknown. As the population parameter is Unknown, we cannot conclude that the supporting habitat is sufficient.
7.2 Sufficiency of area and quality of occupied habitat; Method used	Based on expert opinion, considering available evidence. As data relating to habitat quality is limited for this species, the assessment of this parameter is based on the conclusions for range and population.
8.1 Characterisation of pressures/ threats	General information for white-beaked dolphin: Pressure ranking for white-beaked dolphin is mainly based on expert opinion and data from post mortem of stranded animals, which indicate sources of mortality for this species. A literature search was conducted for available evidence to support the assessment. The UK Dolphin and Porpoise Conservation Strategy (initial draft presented to stakeholders in April 2018) was used in support of identification of pressures and threats. Between 2000-2017, 227 white-beaked dolphins were reported as stranded in the UK, of which 79 were examined at post mortem by the UK Cetacean Stranding Investigation Programme (UK CSIP). The main cause of death was live stranding (42%), and starvation (14%) (Deaville 2011:2017). Information on pressures and threats to this species is very scarce.
8.1 Characterisation of pressures/ threats	C09 Geotechnical surveying: Application of pressure: Used where there is evidence that this pressure alone, has an impact rated Medium or above. Considers all geotechnical surveying activity. The primary impact of this pressure is disturbance which is indirect with evidence of recovery/return once the pressure is removed. There is also a lesser risk of injury if in close proximity, which may indirectly lead to impairment and or mortality (Mann et al., 2010). White-beaked dolphins were the most frequently encountered species recorded during visual and/or acoustic observation between 1994 and 2010 in UK waters by Stone (2015) indicating relatively high exposure to seismic noise. A study in Iceland indicated white-beaked dolphins have noise sensitivity thresholds comparable to harbour porpoise and are therefore potentially vulnerable to high frequency activity (Nachtigall et al., 2008). Seismic and other geotechnical surveys have an immediate influence on white-beaked dolphins, causing disturbance. The species shows strong avoidance of seismic activity (Stone, 2015, Stone et al., 2017) with significant increases in fast swimming (Stone, 2003), orientation variation, and displaying strong lateral spatial avoidance (Stone and Tasker, 2006). This may indirectly influence survival and/or fecundity.

8.1 Characterisation of pressures/ threats	J02 Mixed source marine water pollution (marine and coastal): Application of pressure: Used to identify risk from marine and coastal pollution. The general impact of contaminants on cetaceans is well documented, including impacts on the immune system and reproduction (Jepson et al, 2016). The concentration is highly dependent on the age, sex, reproductive state and nutritional condition of the animals in addition to the intake via the food web. There is limited information on the severity of chemical pollutants found in white-beaked dolphins, however one study found that perfluorinated organochemicals (PFOCs) levels in white-beaked dolphins were amongst the highest in sampled marine mammal species stranded along the North Sea coast (Van De Vijver et al., 2003).
8.1 Characterisation of pressures/ threats	F25 Industrial or commercial activities and structures generating noise, light, heat or other forms of pollution: Application of pressure: Used to identify risk of the cumulative effects of noise on cetaceans. Cetaceans rely on echolocation for navigation, foraging and communication, making them sensitive to noise in the marine environment (Middel and Verones, 2017). Although various individual sources of disturbance have been identified as potential pressures in the pre-defined EU list, such as noise from shipping vessels or renewable energy devices, these pressures independently have not been identified as Medium or High risk to white-beaked dolphins in UK waters. The cumulative effect of such disturbances however, has the potential to increase energy expenditure through avoidance and decreased foraging. Furthermore, excessive anthropogenic noise may have the potential for auditory masking and reduced communication between individuals (Merchant et al., 2014). However, there is currently a scarcity of evidence on the impact of anthropogenic noise on white-beaked dolphins.
8.1 Characterisation of pressures/ threats	G12 Bycatch and incidental killing (due to fishing and hunting activities): Application of pressure: Used to identify risk from bycatch in active fishing gears. Bycatch in pelagic trawl nets in the North Sea has historically been noted as a risk for white-beaked dolphins (Morizur et al., 1999). Between 2000-2017, 3% (2 of 79 animals examined) of mortality investigated by the UK CSIP was caused by bycatch and there are two records (2011 - 2017) of white-beaked dolphin bycatch through the UK bycatch observer monitoring programme, one in pelagic gear and one in a demersal set net. Given the direct impact of bycatch, but with limited evidence of significant impact, the pressure is ranked as medium.
8.1 Characterisation of pressures/ threats	N07 Decline or extinction of related species (e.g. food source / prey, predator / parasite, symbiot, etc.) due to climate change: Application of pressure: Used to identify risk from climate change. There is no current evidence for the effects of climate change on white-beaked dolphins. However, the effects of climate change on white-beaked dolphin is likely to be mediated through variation in prey resource initially. White-beaked dolphins have a varied diet (Fall and Skern-Mauritzen, 2014) and are known to feed on at least 25 different fish species, with a majority of their diet composed of Gadidae (specifically whiting and cod) (Jansen et al, 2010; Jansen, 2013). They may therefore adapt to new food sources, potentially reducing the impact of this threat.

8.1 Characterisation of pressures/ threats	G01 Marine fish and shellfish harvesting (professional, recreational) causing reduction of species/prey populations and disturbance of species: Application of pressure: Used to identify risk from prey depletion and disturbance due to fishing activity. A lack of food has a direct and immediate influence on the individual. Starvation was reported in 13% of animals examined through the through the UK Cetacean Stranding Investigation Programme (10 of 79 adults) between 2001-2017 (UK Cetacean Stranding Investigation Programme (CSIP) annual reports http://ukstrandings.org/csip-reports). White-beaked dolphins have a varied diet (Fall and Skern-Mauritzen, 2014) and are known to feed on at least 25 different fish species, many of which are commercially targeted by fisheries (e.g. whiting and cod) (Jansen et al, 2010; Jansen, 2013). It should be noted that prey depletion can occur due to both natural and anthropogenic causes. No direct link has been established between commercial fishing practices and the cases of cetacean starvation recorded from the UK CSIP.
9.5 List of main conservation measures	CJ01 Reduce impact of mixed source pollution: The impact of chemical pollution on white-beaked dolphin remains an issue (Jepson et al, 2016), however, establishing measures beyond the historic ban on PCB use, has not been achieved to date. Further information is required to understand where exposure is occurring to be able to identify appropriate measures.
9.5 List of main conservation measures	CH01 Reduce impact of military installations and activities: To reduce the risk of noise impact on marine mammals, the UK Ministry of Defence (MOD) has a Statement of Intent with UK Statutory Nature Conservation Bodies concerning conduct in relation to marine disturbance. The MOD has developed a real-time alert procedure for naval training operations. This enables localised information on cetacean sightings to be incorporated into the training schedule and for operations to be relocated if necessary.
9.5 List of main conservation measures	CG04 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	CG05 Reduce bycatch and incidental killing of non-target species: The UK is implementing the European Council Regulation EC 812/2004, which lays down measures concerning incidental catches of cetaceans in fisheries, and more generally the bycatch obligations within the Habitats Directive. Since 2004, a dedicated bycatch monitoring scheme has been in place, managed by the Sea Mammal Research Unit at University of St Andrews, with both dedicated and non-dedicated onboard observers collecting data on bycatch numbers as well as monitoring the effectiveness of pingers in reducing cetacean bycatch. 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.

9.5 List of main conservation measures	CC02 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; JNCC 2017). 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 demonstrated the effectiveness of soft start approach (Stone et al, 2017).
10.1 Future prospects of parameters	10.1a Range: The overall assessment of this parameter is favourable and there is no evidence that risk is increasing in the next 12 years (two reporting rounds). 10.1b Population: Insufficient information to assess the status of this parameter. Although the pressures impacting this parameter are not thought to be increasing and there are no threats identified which are likely to impact in the next 12 years, the uncertainty surrounding the current status of this parameter make it impractical to predict future prospects. 10.1c Habitat of the species: Insufficient reliable information to assess the status of this parameter. Although the pressures impacting this parameter are not thought to be increasing and there are no threats identified which are likely to impact in the next 12 years, the uncertainty surrounding the current status of this parameter make it impractical to predict future prospects.
11.1 Range	There is no evidence to suggest range has changed since the last reporting round (2013) and therefore the range assessment remains Favourable.
11.2 Population	The FRP is Unknown. Therefore, the current abundance cannot be compared to the FRP and the conclusion for population is Unknown.
11.3 Habitat for the species	Range is Favourable but population is Unknown. Therefore, the quality of habitat for the species cannot be inferred in the absence of population information.
11.4 Future prospects	There are two or more Unknown results (population and habitat), therefore, future prospects are Unknown.
11.5 Overall assessment of Conservation Status	There are two or more Unknown results (population, habitat and future prospects), therefore, the overall assessment of conservation status is Unknown.
11.7 Change and reasons for change in conservation status and conservation status trend	The assessment has changed from Favourable in the UK 3rd reporting round (2013) to Unknown due to a revised approach to dealing with limited data and interpretation of the guidance relating to the Favourable Reference Values (FRVs). According to the Art17 reporting guidance (DG Environment, 2017) assessment of the population parameter is based on how the current estimate compares with the Favourable Reference Population (FRP). A population is considered 'Favourable' if the species abundance estimate is not below the FRP. Due to data limitations, cetacean FRPs were set based on the best UK abundance estimates made as close in time as possible to when the Habitats Directive was adopted. This approach was taken in the UK 3rd reporting round (2013) and was supported by the Article 17 Guidance at the time (Evans and Marvela, 2013). However, the UKs interpretation of the FRP concept has changed between reporting rounds and concludes that information on trends needs to be understood to set an FRP. A minimum of three data points is required to explore trends and considering the large confidence intervals associated with cetacean abundance estimates, the statistical power to detect anything beyond a dramatic change is likely to be limited from only three estimates. Where less than three data points are available, identification of trends is not possible. The change in the overall conclusion is therefore driven by this change in approach between the reporting rounds.