# 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:

**S1351 - Harbour porpoise (*Phocoena phocoena*)**

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.

# Report on the main results of the surveillance under Article 11 for Annex II, IV and V species (Annex B)

## NATIONAL LEVEL

## 1. General information

| | |
|---|---|
| 1.1 Member State | **UK** |
| 1.2 Species code | **1351** |
| 1.3 Species scientific name | **Phocoena phocoena** |
| 1.4 Alternative species scientific name | |
| 1.5 Common name (in national language) | Harbour porpoise |

## 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 | Complete survey or a statistically robust estimate |
| 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

Brandt, M, Diederichs, A., Betke, K. & Nehls, G. (2011). Responses of harbour porpoises to pile driving at the Horns Rev II offshore wind farm in the Danish North Sea. Marine Ecology Progress Series. 421: 205-216.
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estimates-2017-04-28-final.pdf
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Heinanen, S. & Skov, H. (2015). The identification of discrete and persistent areas of relatively high harbour porpoise density in the wider UK marine area, JNCC Report No.544 JNCC, Peterborough. http://jncc.defra.gov.uk/pdf/JNCC_Report 544_web.pdf
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ICES 2016. Bycatch of small cetaceans and other marine animals - Review of national reports under Council Regulation (EC) No. 812/2004 and other published documents. ICES Advice 2016, Book 1, 1.6.1.1; Advice Northeast Atlantic and adjacent seas Published 15 April 2016.http://www.ices.dk/sites/pub/Publication Reports/Advice/2016/2016/Bycatch_of_PETS_Advice_2016.pdf
Jepson, P. D. et al. (2016). PCB pollution continues to impact populations of orcas and other dolphins in European waters. Scientific Report, 6:1-17. doi: 10.1038/srep18573 (2016).
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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
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Malinka, C. E., Gillespie, D. M., Macaulay, J. D. J., Joy, R., & Sparling, C. E. (2018). First in situ passive acoustic monitoring for marine mammals during operation of a tidal turbine in Ramsey Sound, Wales. Marine Ecology Progress Series, 590, 247-266. DOI: 10.3354/meps12467
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Legacy of Pollutant Exposure? PLoS ONE 10(7): e0131085. https://doi.org/10.1371/journal.pone.0131085
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## 5. Range

| | | |
|---|---|---|
| 5.1 Surface area (km²) | 660484 | |
| 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) | 660484 |
| | 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 and includes all significant ecological variations to ensure survival of the species. The current range of harbour porpoises includes all of the UK's continental shelf and there appears to have been no change in range since 1994 (Paxton et al. 2016). Areas within the range are utilised to a lesser or greater extent (e.g Heinanen and Skov, 2015). | |

## 6. Population

| | | |
|---|---|---|
| 6.1 Year or period | 2016 | |
| 6.2 Population size (in reporting unit) | a) Unit | number of individuals (i) |
| | b) Minimum | 163294 |
| | c) Maximum | 239063 |
| | d) Best single value | 197579 |
| 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 | | |

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| | | |
|---|---|---|
| 6.13 Long-term trend Magnitude | a) Minimum<br>b) Maximum<br>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<br>b) Operator<br>c) Unknown<br>d) Method | x |
| 6.16 Change and reason for change in population size | No change<br>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 lower than that of the 3rd reporting round (2013; ~17% lower), there is considerable overlap between the confidence intervals of the 2013 estimate and the current estimate, indicating that there is likely no significant difference between the two values. However, there are too few data points to confidently conclude trend. The SCANS-III survey in July 2016 did not include waters around Ireland and therefore the picture of harbour porpoise distribution and abundance in wider European waters is incomplete. The apparent reduction in abundance in UK waters is due to lower densities of porpoise on the UK portion of the Celtic Shelf. However, taking into account the results from the Irish Observe program (Rogan et al. 2017), there is no evidence of a statistically significant difference between the SCANS-II and SCANS-III surveys in wider European waters. | |

## 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)?<br>b) Is there a sufficiently large area of unoccupied habitat of suitable quality (for long-term survival)? | Unknown |
| 7.2 Sufficiency of area and quality of occupied habitat Method used | Based mainly on extrapolation from a limited amount of 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 extrapolation from a limited amount of data | |
| 7.6 Long-term trend Period | | |
| 7.7 Long-term trend Direction | | |
| 7.8 Long-term trend Method used | | |
| 7.9 Additional information | | |

# Report on the main results of the surveillance under Article 11 for Annex II, IV and V species (Annex B)

## 8. Main pressures and threats

### 8.1 Characterisation of pressures/threats

| Pressure | Ranking |
|---|---|
| Geotechnical surveying (C09) | M |
| Wind, wave and tidal power, including infrastructure (D01) | M |
| Land, water and air transport activities generating noise, light and other forms of pollution (E08) | 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) | H |
| Mixed source marine water pollution (marine and coastal) (J02) | H |
| Interspecific relations (competition, predation, parasitism, pathogens) (L06) | H |

| Threat | Ranking |
|---|---|
| Geotechnical surveying (C09) | M |
| Wind, wave and tidal power, including infrastructure (D01) | H |
| Land, water and air transport activities generating noise, light and other forms of pollution (E08) | 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) | H |
| Mixed source marine water pollution (marine and coastal) (J02) | H |
| Interspecific relations (competition, predation, parasitism, pathogens) (L06) | H |
| Decline or extinction of related species (e.g. food source / prey, predator / parasite, symbiote, etc.) due to climate change (N07) | M |

### 8.2 Sources of information

### 8.3 Additional information

## 9. Conservation measures

### 9.1 Status of measures

a) Are measures needed? Yes

b) Indicate the status of measures Measures identified and taken

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| | |
|---|---|
| 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 Natura 2000 |
| 9.4 Response to the measures | Medium-term results (within the next two reporting periods, 2019-2030) |

9.5 List of main conservation measures

| |
|---|
| 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) |

9.6 Additional information

Conservation measures have been undertaken in the UK and adjacent waters, to protect, survey and monitor marine mammal abundance, health and distribution as part of the requirements of the Habitats Directive, alongside other international and national drivers. Assuming that these measures are maintained, and further measures are taken should other pressures emerge, or existing pressures change, then the future prospects for harbour porpoise in UK waters should remain favourable. As a European Protected Species, harbour porpoise is protected throughout UK waters making it an offence to kill, injure or disturb. Further to this, the Habitats Directive is being implemented for harbour porpoise by identifying and designating appropriate sites; monitoring bycatch; monitoring strandings, using data to monitor current and identify emerging pressures; application of appropriate management measures such as use of pingers; and noise monitoring and mitigation with regards to offshore industry. Seven Special Areas of Conservation (SAC) have been designated with harbour porpoise as a qualifying feature (grade A-C) (see Section 12), which are listed on the JNCC website. Skerries and Causeway SAC was designed in 2013 as a multi-feature site, followed by six single-feature sites for harbour porpoise, designated in 2016/17 (Heinanen & Skov, 2015, IAMMWG, 2015) which are listed on the JNCC website: Bristol Channel Approaches / Dynesfeydd Mor Hafren (UK0030396) England inshore & England offshore & Wales inshore & Wales offshore; Inner Hebrides and the Minches (UK0030393) Scotland inshore; North Anglesey Marine / Gogledd Mon Forol (UK0030398) Northern Ireland offshore & Wales inshore & Wales offshore; North Channel (UK0030399) Northern Ireland inshore & Northern Ireland offshore; Skerries and Causeway (UK0030383) Northern Ireland inshore; Southern North Sea (UK0030395) England inshore & England offshore; West Wales Marine / Gorllewin Cymru Forol (UK0030397) Wales inshore & Wales offshore. The UK is 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) implementing its Conservation Plan for Harbour Porpoises (Phocoena phocoena L.) in the North Sea (Reijnders et al, 2009); 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. Harbour porpoise is the most commonly stranded cetacean in the UK and, therefore, the project holds significant data on natural and anthropogenic causes of death.
Survey: In 2016, the UK was a major funder of the third SCANS project which completed a survey for cetaceans in the European Atlantic to generate precise estimates of abundance (Hammond et al, 2017). These data were collected through aerial and vessel survey over 6 weeks and the results enable assessment at a biologically appropriate spatial scale. Initial results are available: https://synergy.st-andrews.ac.uk/scans3/2017/05/01/first-results-are-in/

## 10. Future prospects

| | | |
|---|---|---|
| 10.1 Future prospects of parameters | a) Range | Good |
| | b) Population | Unknown |
| | c) Habitat of the species | Good |
| 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 harbour porpoise, 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.<br>The future trend and consequently the future prospects for the Population parameter is assessed as Unknown; this is due to there being insufficient data to establish a current trend for this species.<br>The future trend for the Habitat parameter is assessed as Very Positive - Important Improvement; this is due to the establishment of Special Areas of Conservation for this species in UK waters. This additional protection is expected to have a substantial positive impact on the habitat of harbour porpoise. Although the current conservation status of this parameter is unknown, the positive assessment of future trend results in an overall conclusion of Good for the future prospects of this parameter. | |

## 11. Conclusions

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

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| | |
|---|---|
| 11.7 Change and reasons for change in conservation status and conservation status trend | a) Overall assessment of conservation status<br>Use of different method<br>The change is mainly due to: Use of different method<br>b) Overall trend in conservation status<br>No change<br>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.<br>Conclusion on Population reached because: (i) the FRP is unknown; and ii) the short-term trend direction in Population size is unknown.<br>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.<br>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 good.<br>Overall assessment of Conservation Status is Unknown because two or more of the conclusions are Unknown.<br>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

| | |
|---|---|
| 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: number of individuals (i)<br>b) Minimum: 28204<br>c) Maximum: 50417<br>d) Best single value: 37709 |
| 12.2 Type of estimate | Best estimate |
| 12.3 Population size inside the network Method used | Complete survey or a statistically robust estimate |
| 12.4 Short-term trend of population size within the network Direction | Unknown (x) |
| 12.5 Short-term trend of population size within the network Method used | Insufficient or no data available |
| 12.6 Additional information | SCANS-III is designed to generate robust estimates of abundance. The survey strata for the 2016 survey were designed with the cSACs in mind to ease estimation of site abundances for reporting purposes. The abundance estimate presented is for Grade C and higher SACs. In the Third Reporting Round Grade D sites were also reported. The cSACs for harbour porpoise in UK waters were submitted to the European Commission in 2016/2017 and therefore, there are insufficient surveys within these sites to date to assess trends. The Skerries and |

Causeway SAC, which lists harbour porpoise as a Grade C feature, has an estimated abundance of about 30-40 animals but this is based on the revised 2005 SCANS-II data and the 2016 SCANS-III data; these large-scale survey data are not well suited to estimating abundance in small areas.

## 13. Complementary information

13.1 Justification of % thresholds for trends

13.2 Trans-boundary assessment

13.3 Other relevant Information

# Distribution Map

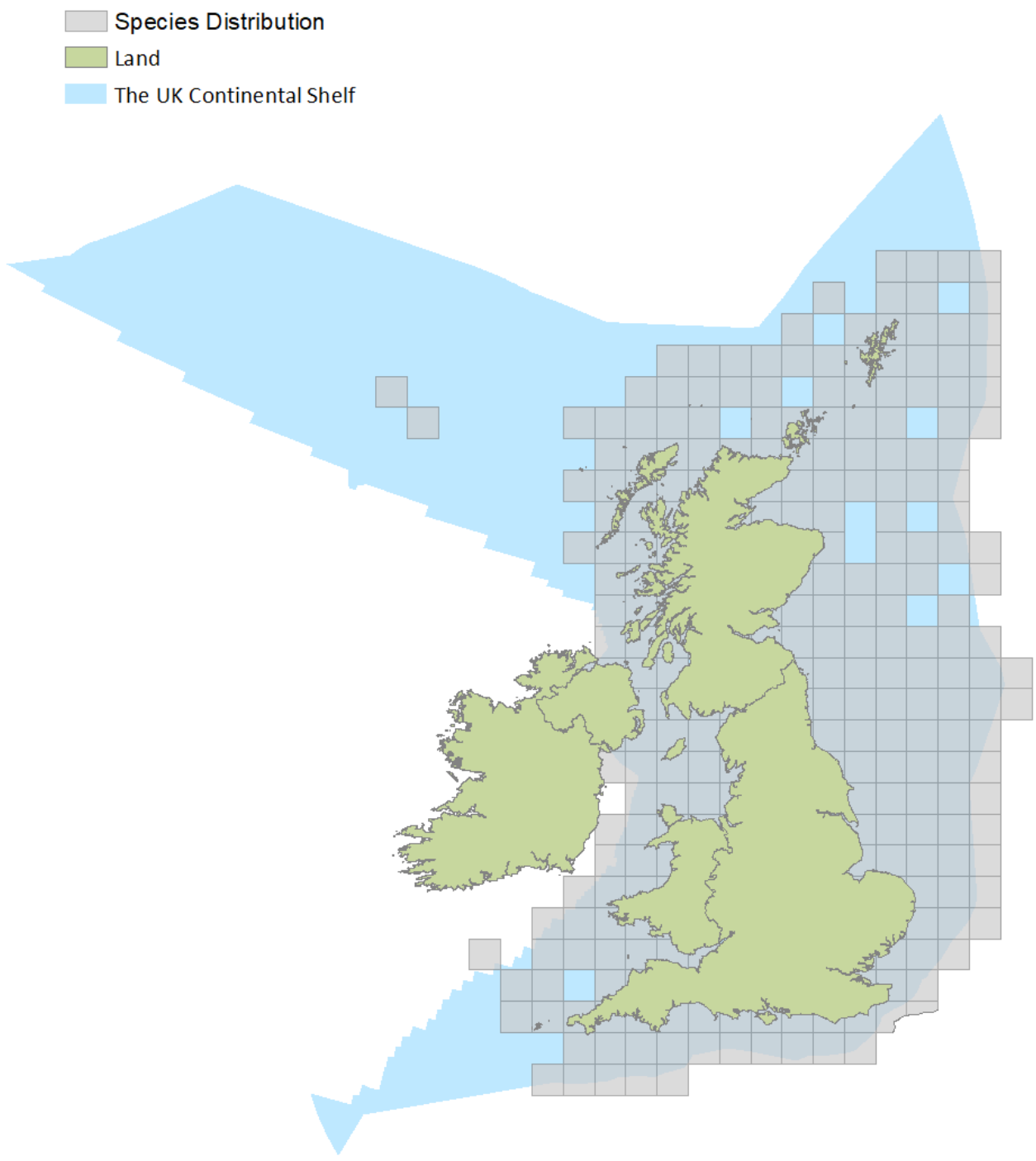


Figure 1: UK distribution map for S1351 - Harbour porpoise (*Phocoena phocoena*).

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

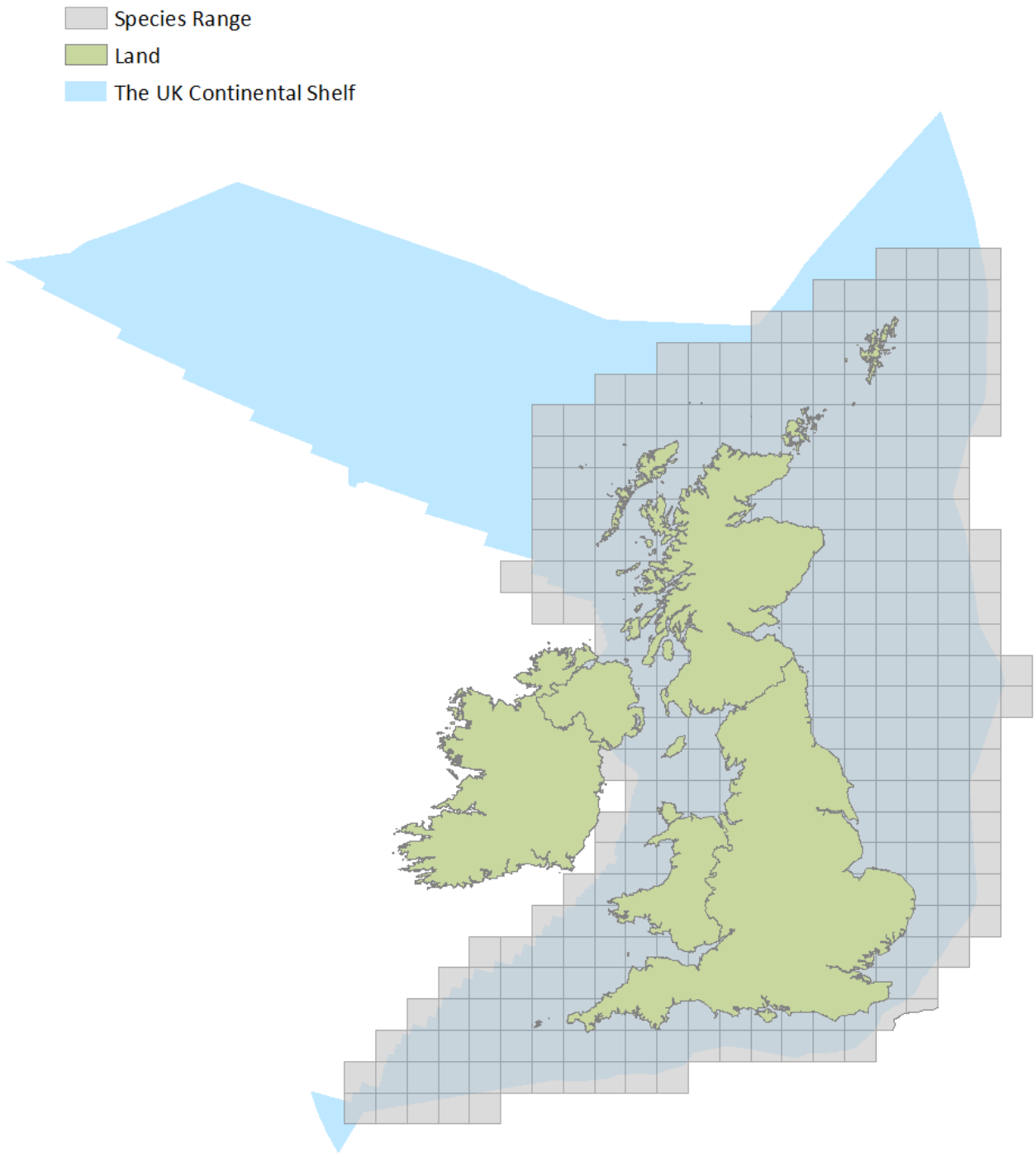


Figure 2: UK range map for S1351 - Harbour porpoise (*Phocoena phocoena*).

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 Harbour porpoise (*Phocoena phocoena*)

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: Phocoena phocoena (1351)**

| Field label | Note |
|---|---|
| 2.1 Sensitive species | This refers to sensitivities around publishing distribution data. |
| 2.3 Distribution map | The distribution map (see Annex A) is based on actual sightings of harbour porpoise, 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, 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. Harbour porpoise are the UK's most common cetacean species. They are widely distributed and frequently observed throughout the continental shelf region; sightings beyond the shelf are rare. |
| 2.5 Additional maps | Predicted core range for harbour porpoise in UK waters (see Annex B). No evidence of change since 2013 reporting round. 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 harbour porpoise distribution during August 2010 and adapted based on additional sightings data and expert knowledge (see Paxton et al., 2016 for further detail). |

**Species name: Phocoena phocoena (1351) Region code: MATL**

| Field label | Note |
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| 5.3 Short term trend; Direction | Range for the current report (665,791 km2) is equal to the range presented in the 2013 report (660,484 km2). |
| 5.5 Short term trend; Method used | The 2013 range was based on an analysis of effort related survey data compiled for the Joint Cetacean Protocol (JCP) undertaken by Paxton et al. (2016). The distribution data collated for the current report was compared with the predicted range from the 2013 report. Although there have been sightings west of Scotland around Rockall Bank (e.g. Hammond et al. 2017), these are not considered representative of the core range for this species. Predicted density layers produced from SCANS surveys for the OSPAR Intermediate Assessment (OSPAR IA, 2017) do show of potential shift in densities from the northern North Sea into southern North Sea; however, harbour porpoise is still observed throughout their range. 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 considered 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 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. |

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| 6.6 Population size; Method used | The SCANS-III survey was designed to provide robust estimates of cetacean abundance. The survey provides survey 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 harbour porpoise does not extend beyond the EEZ, density values for the area west of the EEZ were not needed. The estimates are considered statistically robust. |
| 6.8 Short term trend; Direction | The estimate for the UK population in 2016 (SCANS-III) is less than the revised 2005 estimate (revised SCANS-II), but the confidence intervals overlap considerably. SCANS-II 2005 population estimate: 237,087 Lower 95% CI: 165,800 Upper 95% CI: 339,025. SCANS-III 2016 population estimate: 197,579 Lower 95% CI: 163,294 Upper 95% CI: 239,063. The difference between the 2 estimates is ~40,000 animals but the range of values for the population size, shown by the confidence intervals, overlap and this difference is likely not statistically significant. The reduction in abundance is driven by lower estimates of density in the Celtic and Irish Seas from the 2016 SCANS-III survey. Harbour porpoise are highly mobile and the SCANS surveys take place in only one month of one year at approximately decadal intervals. The apparent decrease may represent a redistribution of animals outside of UK waters. The short-term trend in the population in wider waters (EU shelf) is also uncertain as there are also only 2 data points. More frequent population surveys are required to ascertain changes in population abundance in the short-term. There are three estimates of abundance in the North Sea and these were used to assess trend for the OSPAR Intermediate Assessment (OSPAR IA, 2017). The assessment concluded that there was no evidence of change in abundance over the period 1994-2016 (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 harbour porpoise 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. |
| 6.16 Change and reason for change in population size | Although the point estimate for abundance of harbour porpoise in UK waters is lower in the current report (2019) compared with the revised abundance estimate from the 3rd reporting round (2013), the confidence intervals around the estimates overlap suggesting there is no significant difference between the 2 estimates at the UK scale. Harbour porpoise range is not restricted to UK waters. The difference in abundance between the 2005 SCANS-II estimate and the 2016 SCANS-III estimate is thought to be driven primarily by a reduction in harbour porpoise density in the UK part of the Celtic and Irish Seas. There may have been a distributional shift out of UK waters at the time of the SCANS-III survey or the numbers may have genuinely declined, but there are only two reliable abundance estimates for harbour porpoise covering UK waters and this is considered insufficient to confidently conclude a declining trend. |
| 7.1 Sufficiency of area and quality of occupied habitat | Habitat data at a UK scale is limited to habitat modelling performed by DHI to inform the SAC identification process for this species (see Heinanen and Skov, 2015). Our understanding of 'habitat quality' and its availability to harbour porpoise across UK waters remains limited. Although the DHI work did show that harbour porpoises exhibit a preference for specific depths and currents (Heinanen and Skov, 2015), their distribution varies considerably across years and seasons, and appears to be driven by prey availability. However, data relating to prey preference is limited. As a result, the assessment of habitat quality for harbour porpoise is informed by the conclusions for range and population as a proxy for habitat. As the population parameter is unknown, we cannot conclude that the supporting habitat is sufficient. |

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| 7.2 Sufficiency of area and quality of occupied habitat; Method used | Information relating to habitat preference at a UK scale is limited to the DHI modelling work which focussed on oceanographic drivers of distribution for harbour porpoise (Heinanen and Skov, 2015). However, prey availability is thought to be a key driver of harbour porpoise distribution. In the absence of data related to prey distribution and preference, the assessment of habitat quality for harbour porpoise is based on the conclusions for range and population. |
| 8.1 Characterisation of pressures/ threats | General information for harbour porpoise: Pressure ranking of harbour porpoise is mainly based on expert opinion and data from post mortem examination of stranded animals, which indicate sources of mortality for this species. A literature search was carried out for other 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, 1596 post mortem examinations were undertaken on harbour porpoises in the UK. The main causes of death were bottlenose dolphin attack (18%), bycatch (17%), starvation (13%, adults) and parasitic pneumonia (11%). |
| 8.1 Characterisation of pressures/ threats | C09 Geotechnical surveying: Application of pressure: Used where there is evidence that this pressure alone causes an impact rated Medium or above. Considers all geotechnical surveying activity. Seismic and other geotechnical surveys may have an immediate influence on harbour porpoise, causing disturbance. This may indirectly influence survival and/or fecundity. Harbour porpoise are sensitive to geotechnical survey activity (e.g Stone, 2015; Stone et al., 2017). The impact of this pressure is indirect with evidence of recovery/return once the pressure is removed (Thompson et al., 2013). Exposure to this pressure is limited both spatially and temporarily, although it may be regionally significant when occurring. 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. |
| 8.1 Characterisation of pressures/ threats | D01 Wind, wave and tidal power, including infrastructure: Application of pressure: Used where there is evidence that this pressure alone causes an impact rated Medium or above. Pile driving during the construction phase for renewables infrastructure is a known cause of disturbance/displacement of harbour porpoise (Brandt et al., 2011; Carstensen et al., 2006; Dahne et al., 2013). This pressure may also affect hearing through injury which could have an indirect influence on foraging efficiency (Bailey et al., 2010). Exposure to this pressure is limited both spatially and temporarily, although it may be regionally significant when occurring. There is also potential collision risk with submerged installations, although evidence of risk is limited. There are considerable legal and societal obligations to meet clean energy requirements which will result in an increase in the increased development of the renewable energy industry. Novel industries such as tidal and wave power also have the potential to introduce new impacts, such as collision risk (Malinka et al., 2018) and displacement from key habitat. |
| 8.1 Characterisation of pressures/ threats | E08 Land, water and air transport activities generating noise pollution: Application of pressure: Used where there is evidence that this pressure alone causes an impact rated Medium or above. Vessel and aircraft traffic is widespread in the marine environment, particularly in the continental shelf region. Evidence indicates that harbour porpoises avoid heavy traffic areas (Dyndo et al., 2015) and react to shipping noise through behavioural changes, including displacement. Shipping noise has also been linked to reduced foraging (Wisniewska et al 2018). |

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| 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. Although when acting independently not all sources of noise are a risk to harbour porpoise, the cumulative impact of activities can affect distribution and communication of animals (Heiler et al, 2016). There has been much research within Europe aiming to better understand the non-lethal impacts of cumulative noise on harbour porpoise (e.g. Nabe-Nielsen et al., 2017). Pressure expected to continue in the longer term. There are considerable legal and societal obligations to meet clean energy requirements which will result in an increase in the development of the renewable energy industry. However, increased impact should be mitigated through development of new technologies and implementation of assessments of risk and mitigation techniques. |
| 8.1 Characterisation of pressures/ threats | L06 Interspecific relations (competition, predation, parasitism, pathogens): Application of pressure: Used to identify risk from inter and/or intra species predation. Reports of violent interactions between bottlenose dolphins and harbour porpoises in UK waters are well documented (Barnett, Davison, & Jepson, 2009; Stringell et al., 2015). 18% of all animals examined by the UK CSIP between 2000-2017 had a cause of death of bottlenose dolphin attack. Grey seals are also known to predate harbour porpoises (Leopold et al., 2014), although less than 1% of animals by CSIP had a cause of death of grey seal predation which may be due to the fact it has only recently been identified as a pressure and may have been under reported to date. Risk of grey seal predation is regionally high, coinciding predominantly in coastal areas where grey seals are found (e.g. several reports have been confirmed in and around Ramsey Sound in Wales). The combined pressure of other species predating and attacking harbour porpoise results in a High grading for this pressure. |
| 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 is identified as an important cause of death for harbour porpoise in UK waters, with 13% of harbour porpoises examined by CSIP having a cause of death of starvation (Deaville 2011:2017). It should be noted, however, that prey depletion can result from both natural and anthropogenic causes. No link has been specifically identified between commercial fishing practices and the cases of harbour porpoise starvation recorded through the UK Cetacean Strandings Investigation Programme. Evidence for the effect of permanently placed ADDs associated with aquaculture includes their potential to affect regional movement patterns and density. Exposure is high in some regions and disturbance has been demonstrated on the west coast of Scotland (Northridge et al., 2010). |
| 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 prey depletion as a result of climate change. This pressure has the potential to impact the population directly through mortality caused by starvation and would be expected to have a broad impact across the UK species range. The effects of climate change on harbour porpoise are likely to be mediated through variation in prey resource initially. The species consumes a wide variety of prey, although usually focusing on three or four species at any one time. Harbour porpoise may therefore adapt to new food sources, potentially reducing the impact of this threat. |

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| 8.1 Characterisation of pressures/ threats | J02 Mixed source marine water pollution (marine and coastal): PCBs are recognised as one of the most significant pollutants impacting harbour porpoise. Evidence suggests PCB levels have stabilised since the ban in the mid-1908s following a drop, but are no longer reducing (Jepson et al., 2016). This pressure has an indirect effect on fecundity and survival, mediated through the diet (bioaccumulation), causing reduced resilience to disease and lower fecundity through increased foetal mortality (Hall et al., 2006; Murphy et al., 2015; Jepson et al., 2016). The influence is long-term and intergenerational, with the pressure ubiquitous across the species range. It is difficult to disentangle sources of chemical pollution in the marine environment. Though it is possible that the most significant pollutants are industry related, many can also be assigned to alternative sources. |
| 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. The UK Cetacean Strandings Investigation Programme has identified bycatch as the most important anthropogenic cause of death in this species, with 17% of all animals examined post mortem between 2000-2016 having a cause of death of bycatch (UK CSIP reports). In 2016, Northridge et al (2017) estimated total bycatch of porpoises for UK gillnet fishing vessels over 12m to be 1482 (assuming no pingers were used). OSPAR (2017, based on ICES 2016) found that in the Greater North Sea and in the Celtic and Irish Sea assessment units (AU), bycatch was possibly below the ASCOBANS limit of 1.7% for 'total anthropogenic removal' based on the abundance of harbour porpoise in 2005 (SCANS-II). However, in the Irish and Celtic Seas AU, harbour porpoise bycatch had likely exceeded the ASCOBANS precautionary objective to reduce bycatch to less than 1 % of the best available abundance estimate. However, there is low confidence in bycatch estimates due to incomplete monitoring across all fleets impacting the populations. |
| 9.5 List of main conservation measures | CJ01 Reduce impact of mixed source pollution: The impact of chemical pollution on harbour porpoise remains an issue (Murphy et al., 2010; Murphy et al., 2015; 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: 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 have developed a real-time alert procedure for naval training operations. |
| 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 programme has been in place, with both dedicated and non-dedicated onboard observers collecting data on bycatch numbers as well as effectiveness of 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. Use of pingers to prevent harbour porpoise bycatch has remained effective when the devices are used appropriately (Northridge et al., 2017). |

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| 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), construction (e.g. pile driving) and decommissioning (e.g. use of explosives). 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 (e.g. (Stone, 2015) 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 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. 10.1c Habitat of the species: The habitat assessment is good. This is driven by the recent designation of large SACs for the habitat of this species in UK waters. Management measures for the sites are currently under discussion. |
| 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 Unknown results (population, habitat) 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 are required to explore trends and considering the large confidence intervals associated with cetacean abundance estimates at such a wide scale, 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. |

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| 12.1 Population size inside the pSCIs, SCIs and SACs network | This is for grade C sites and up. Does not include D sites as per the updated reporting guidelines. This differs from the third reporting round (2013). |
| 12.3 Population size inside the network; Method used | SCANS-III is designed to generate robust estimates of abundance. The survey strata for the 2016 survey were designed with the cSACs in mind to ease estimation of site abundances for reporting purposes. However, the SCANS surveys are designed to estimate abundance at large spatial scales and therefore, the results are not necessarily robust for estimation of abundance in small areas (such as the Skerries and Causeway SAC). |
| 12.4 Short term trend of the population size within the network; Direction | The cSACs for harbour porpoise in UK waters were submitted to the European Commission in 2016/2017 and accepted as SCIs November 2017. Therefore, there are insufficient surveys that cover these sites to date to assess trends. The Skerries and Causeway SAC, which lists harbour porpoise as a Grade C feature, has an estimated abundance of about 30-40 animals based on the revised 2005 SCANS-II data and the 2016 SCANS-III data. |