

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

**Second Report by the United Kingdom under
Article 17
on the implementation of the Directive
from January 2001 to December 2006**

**Conservation status assessment for :
S5031: *Physeter catodon* - Sperm whales**

Please note that this is a section of the report. For the complete report visit <http://www.jncc.gov.uk/article17>

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S5031 *Physeter macrocephalus* Sperm whales

Audit trail compiled and edited by JNCC and the UK Inter-Agency Marine Mammal Working Group

This document is an audit of the data and judgements on conservation status in the UK's report on the implementation of the Habitats Directive (January 2001 to December 2006) for this species. Superscript numbers accompanying the headings below cross-reference to headings in the corresponding Annex B reporting form. This supporting information should be read in conjunction with the UK approach for species (see 'Assessing Conservation Status: UK Approach').

1. Range Information^{2.3}

Physeter macrocephalus is found throughout the deep waters of world's oceans. The species occurs to the north and west of the British Isles and Ireland mainly in waters deeper than 500m (Figure 1; Reid *et al.* 2003; Weir *et al.* 2001; Stone 2003) although very occasionally may come onto the shelf, particularly in winter (Evans *et al.* 2003). *P. macrocephalus* have been recorded in UK waters in all months of the year, with a peak in mid summer (Charif and Clark 2000; Weir *et al.* 2001; Stone 2003). Sperm whales undertake large-scale latitudinal and longitudinal migrations; some individuals can range over thousands of kilometres in one year.

1.1 Surface area of range^{2.3.1}

Unknown

P. macrocephalus has been recorded throughout UK waters, offshore of the 200 m contour (see Map 1.1). However, an area estimate for this is not currently available.

Range is a difficult parameter to define for marine mammals since they are highly mobile and their distribution can vary considerably in time and space across Member States. While understanding the distribution of marine mammal species might be helpful in assessing their conservation status and while range can be subjected to qualitative assessment, the data do not enable a quantitative estimate of surface area at present.

1.2 Date of range determination^{2.3.2}

Not applicable

1.3 Quality of range data^{2.3.3}

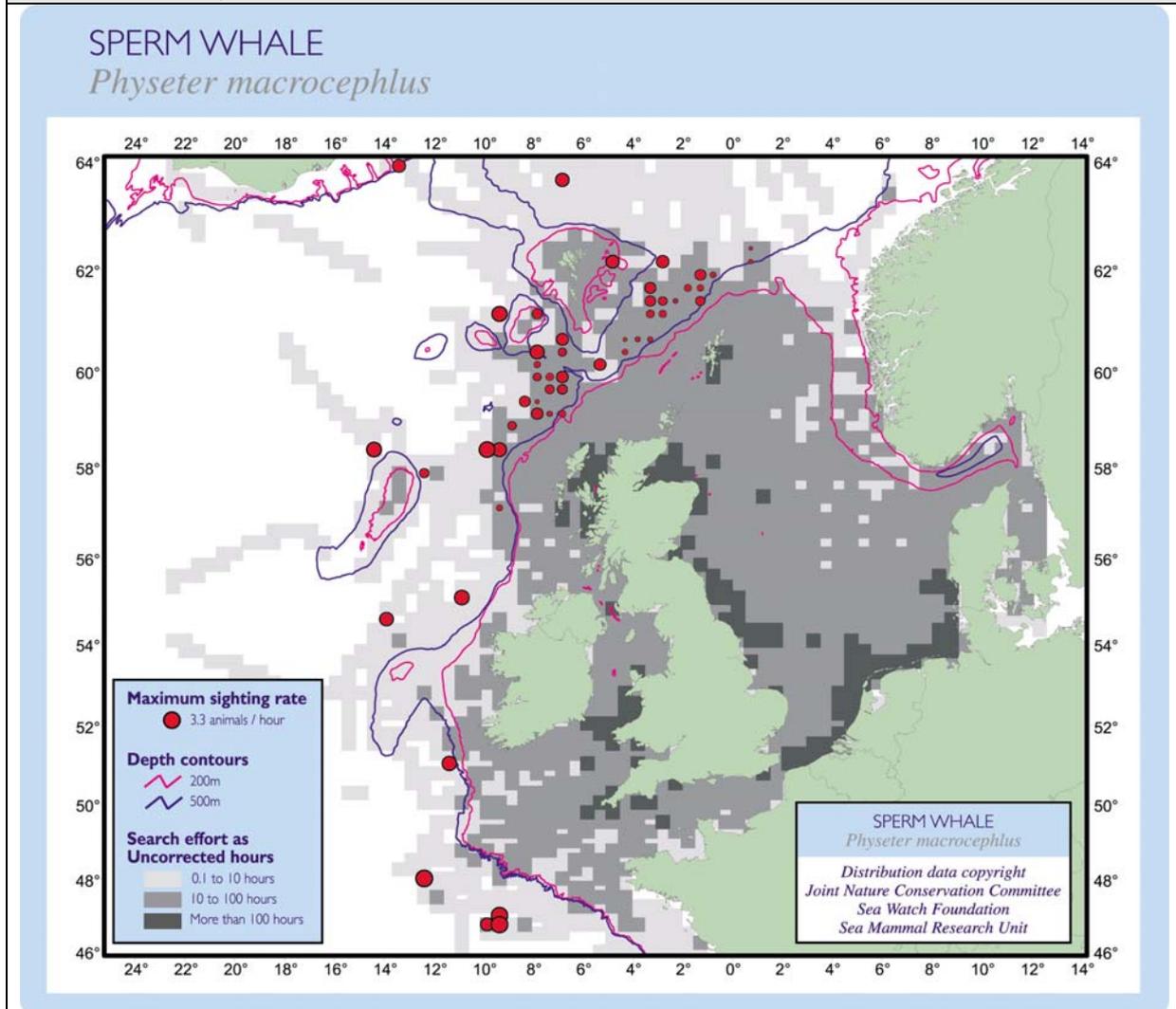
Good

A national sightings database is run by the SeaWatch Foundation. This includes opportunistic sightings at sea by a large number of, mainly amateur, observers, together with some effort related data. Although such a large dataset is useful for showing distributional range, coverage varies between areas and time of the year. The effort related sightings data to 1998 was incorporated along with other datasets (SCANS and European Seabirds at Sea (ESAS) records) to produce the *Atlas of Cetacean Distribution in North-West European Waters* (Reid *et al.*, 2003; Map 1.1).

Passive acoustic surveys to map this species distribution have been carried out in the Faroe-Shetland Channel and Rockall through every year in spring and autumn since 2001 (e.g. Sherwin *et al.*, 2005).

An area estimate for this species is not presented here. This could be done by modelling the area of occupancy using the data available, but it is considered that the effort involved in the modelling exercise would not justify the outcome.

Map 1.1 Known distribution of *P. macrocephalus* in north-east Atlantic. Please note that these maps potentially hide spatial and temporal variation. From Reid *et al.*, 2003.



1.4 Range trend^{2.3.4} and range trend magnitude^{2.3.5} Stable

There has been no evidence of decline in range during recent years, or historically.

P. macrocephalus has been reported to occur in all UK offshore waters (with occasional incursions into the continental shelf waters) since the 1900s by whalers (Thompson 1928).

Marine mammals are wide-ranging, with large spatio-temporal variations in distribution and therefore it is very difficult to detect trends in range, or to know if apparent changes are long-term changes in range or in distribution within their range.

1.5 Range trend period^{2.3.6}

1994 – 2005

Trend was informed by data in the cetacean Atlas (Reid *et al.* 2003) and surveys in the Atlantic Frontier (Sherwin *et al.* 2005).

1.6 Reasons for reported trend in range^{2.3.7}

Not applicable

1.7 Favourable reference range^{2.7.1}

Unknown

Although a quantitative area estimate cannot be provided, based on best expert judgement, current range has all significant ecological variations of the species included for a given biogeographical region, and is sufficiently large to be considered suitable for the survival of the species for the foreseeable future.

1.8 Range conclusion^{2.8}

Favourable

There has been no evidence of decline in range, and the current range (although not quantified in km²) is considered equivalent to the favourable reference range based on best available information and expert judgement. Therefore, the conclusion for this parameter is Favourable.

2. Population of the Species^{2.4}

2.1 Population estimate^{2.4.1}

Unknown

There have been no comprehensive estimates of abundance for this species in recent years.

P. macrocephalus occurring in UK waters are likely to be part of a wider North Atlantic population whose total current size is unknown. The population was almost certainly reduced by whaling (Reid *et al.*, 2003) and it is not known if recovery has occurred or not. Only males (both mature and sub-adult) are found in UK waters as females rarely occur in high latitudes.

Surveys from the 1980s indicated the north-east Atlantic population estimate (corrected) as 6013 individuals (Coefficient of Variation (CV) = 0.32) (Whitehead 2002). A survey in 1987 estimated around 300 individuals for UK and Faroese waters (Gunnlaugsson and Sigurjónsson 1990), but this estimate is likely to have been biased downwards. A bias-corrected estimate from a survey in 2001 was of 1708 individuals around the Faroes (Gunnlaugsson *et al.* in press).

P. macrocephalus populations show remarkably little population structure genetically (Lyrholm and Gyllensten 1998) or in most other aspects of their biology (Dufault *et al.* 1999), and the animals that occur in the North Atlantic were considered by the International Whaling Commission as all being part of the same stock (Donovan 1991).

2.2 Date of population estimate^{2.4.2}

Not applicable

2.3 Method of population estimate^{2.4.3}

Not applicable

2.4 Quality of population data^{2.4.4}

Poor

There is no recent population estimate for this species.

2.5 Population trend^{2.4.5} and population trend magnitude^{2.4.6}

Unknown

Although an increase in sightings and recorded strandings in UK waters in recent years (1990 - onwards) has led to speculation that greater numbers of animals are using areas off the British Isles (Evans 1997), it is not known if the population is increasing. The current world population size is estimated to be about 32% of the pre-whaling level (Whitehead 2002). It is likely that the *P. macrocephalus* population in the North Atlantic will have increased since whaling ended in the 1980s but this is unconfirmed.

2.6 Population trend period^{2.4.7}

1994 – 2006

2.7 Reasons for reported trend in population^{2.4.8}

Not applicable

2.8 Justification of % thresholds for trends^{2.4.9}

Not applicable

2.9 Main pressures^{2.4.10}

210 Professional fishing

313 Exploration and extraction of oil or gas

520 Shipping

701 water pollution

710 Noise nuisance

990 Other natural processes

This species is potentially affected by ship collisions, entanglement in fishing gear, increase in background noise, contaminants and prey depletion (Whitehead 1997; Holsbeek *et al.* 1999; Nielsen *et al.* 2000).

It is unlikely that any one of these pressures could affect the long-term viability of this species in UK waters, but the combined action of the pressures might possibly affect the species. Often with cetaceans it is difficult to link cause and effect, and to distinguish natural from human impacts.

2.10 Threats^{2.4.11}

210 Professional fishing

520 Shipping

701 water pollution

710 Noise nuisance

990 Other natural processes

Bycatch, ship collisions, water pollution, underwater noise and changes in prey availability and distribution may continue to affect this species but if controlled it should not threaten the long term viability of the species in UK waters.

2.11 Favourable reference population^{2.7.2}

Unknown

In the absence of a current estimate and trend information, the favourable reference population is unknown.

2.12 Population conclusion^{2.8}

Unknown

There is insufficient information to make a valid assessment of population at this time.

3. Habitat for the species in the Biogeographic Region or Sea^{2.5}

Cetacean habitats (e.g. feeding and breeding areas) vary temporally and spatially and are influenced by natural and anthropogenic factors (e.g. Ingram et al., 2007; MacLeod et al., 2007; Weir et al., 2007). It is often difficult to determine what features characterise cetacean habitats and in quantifying their extent.

The species occurs mainly in deep waters (>500 m). Mature and sub-adult males travel to higher latitudes using the UK north-west offshore region as passage/feeding places.

3.1 Surface area of habitat^{2.5.2}

Unknown

As with other cetaceans, the surface area of their habitat is difficult to quantify and may vary significantly seasonally and between years.

3.2 Date of estimation^{2.5.3}

Not applicable

3.3 Quality of data on habitat area^{2.5.4}

Poor

No information is available on habitat area.

3.4 Habitat trend^{2.5.5}

Unknown

Habitat trend information is not available.

3.5 Habitat trend period^{2.5.6}

1994 – 2006

3.6 Reasons for reported trend in habitat^{2.5.7}

Not applicable

3.7 Suitable habitat for the species (in km²)^{2.73}

Unknown

3.8 Habitat conclusion^{2.8}

Favourable

Although there is an acknowledged difficulty associated with defining habitats for cetaceans, the judgement of Favourable was based on the relatively high level of spatial and temporal variability in the behaviour and ecology of all cetaceans. Additionally, where range and/or population is considered to be in a Favourable condition, it has been assumed that habitat must also be considered to be Favourable.

4. Future Prospects^{2.6}

Unknown

There is insufficient information to make a judgement on future prospects at this time.

Since 1994, conservation measures have been undertaken in the UK and adjacent waters, to protect, survey and monitor marine mammal abundance, health and distribution. These are discussed below. However, in the absence of current population numbers and trend data, it is not possible to make a confident judgement regarding their effectiveness in protecting this species, or likely success over the next 12 years. For this reason, despite the measures discussed below, prospects have been reported as unknown for this reporting round.

Threats, Legislation and Conservation Action

It is important to stress that many human activities that have the potential to affect the assessed species are already regulated with the conservation of marine mammals and other wildlife in mind. Assuming that these measures are maintained and further measures are taken should other pressures emerge, then the future prospects for cetacean species in UK waters should be favourable. However the effects of lesser-understood impacts are hard to predict. Many cetaceans occurring in UK waters will also use waters of other Member States and those of non-Members, so co-ordination of conservation measures through, for instance ASCOBANS (Agreement on the Conservation of Small Cetaceans in the Baltic and North Seas) is essential to avoid activities in other waters affecting the animals occurring in UK waters.

The Habitats Directive is being implemented by identifying and protecting appropriate sites and monitoring bycatch. To further implement the directive, a surveillance strategy for cetaceans is being developed linking to a proposed Joint Cetacean (data handling) Protocol that hopes to get contributors from different countries in Europe in order to enable transboundary approaches to evaluating the conservation status of cetaceans. It is expected that an update of the *Atlas of cetacean distribution in north-west European waters*, published by JNCC in 2003, will result from this project. In 2005, the UK was a major supporter of the EU LIFE Nature project SCANS-II project which completed a survey for cetaceans in the European Atlantic continental shelf and will make recommendations for monitoring cetacean populations. A new project, CODA 2007 (Cetacean Offshore Distribution and Abundance) aims to estimate abundance of cetaceans, and investigate their habitat preferences in European Atlantic waters off the continental shelf to the north of Portugal.

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. The *UK small cetacean bycatch response strategy* was published in 2003 and is being implemented through research and monitoring into the extent of bycatch and mitigation measures.

Legislation has been reviewed in order to provide these species with extra protection from disturbance. In addition, Scottish Natural Heritage recently produced the *Scottish Marine Wildlife Watching Code*, designed to protect and promote enjoyment and to raise awareness about how best to watch marine wildlife with minimal disturbance.

The Joint Nature Conservation Committee (JNCC) has developed guidelines aimed at minimising the risk of acoustic disturbance to marine mammals from seismic surveys that are being implemented by the Department of Trade and Industry. Further guidance will be developed in 2007-08 on other activities that disturb cetaceans. The UK Ministry of Defence (MOD) has undertaken a number of measures during 2005 to address the potential impact of military sonar and noise in the marine environment.

The UK Government funds a national strandings scheme which aims to provide a co-ordinated approach to the investigation of cetacean strandings in order to assess the number and trends of stranded cetaceans, and potential causes of death.

As a response to the 1992 Convention on Biological Diversity the UK has developed Biodiversity Action Plans (BAPs) for all cetacean species. The long term goal of these plans is to increase the range and number of cetaceans in UK waters, ultimately via reducing anthropogenic mortalities and impacts. The UK has been committed to supporting several international agreements and conventions on the conservation of marine mammals and the marine environment in general (e.g. ASCOBANS, OSPAR).

The UK's position within the International Whaling Commission has been, amongst others, to support the moratorium on commercial whaling, to work towards placing the issue of environmental threats to cetaceans permanently on the IWC agenda and to ensure that international trade in whale products is prohibited.

4.1 Future prospects conclusion^{2.8}

Unknown

5. Overall Assessment^{2.8}

Unknown

Although Range and Habitat have been assessed as Favourable, the Unknown conclusions for Population and Future Prospects trigger an overall conclusion of Unknown based on the rules of Annex C.

Table 5.1 Summary of conclusions

Parameter	Judgement	Grounds for Judgement (in accordance with Annex C)	Reliability*
Range	Favourable	Current range is stable and not smaller than the favourable reference range	2
Population	Unknown	No or insufficient reliable information available	N/A
Habitat	Favourable	Area of habitat is sufficiently large and habitat quality is suitable for the long term survival of the species	2
Future Prospects	Unknown	No or insufficient reliable information available	N/A
Overall Assessment	Unknown	Two Favourable judgements and two unknowns	N/A

*1=High, 2=Moderate, 3=Low

High – Expert opinion is that the concluding judgement accurately reflects the current situation based on a professional understanding of the species. For range, population, and habitat, quality of data used to establish the current estimate has been identified as ‘good’; data used to inform trends is comprehensive and up to date.

Moderate – A greater understanding of the feature, or the factors affecting it, is required before a confident concluding judgement can be made by experts. For range, population, and habitat, the current estimate and/or trend are based on recent, but incomplete or limited survey data; or alternately, a comprehensive, but outdated (pre-1994) review.

Low – Judgements, and comprising estimates, are based predominately on expert opinion.

N/A – Assessment conclusion is “unknown”, on the basis of insufficient reliable information

6. Other relevant information^{2.7.4}

Range is a difficult parameter to define for marine mammals since they are highly mobile and their distribution can vary considerably in time and space across Member States. While understanding the distribution of marine mammal species might be helpful in assessing their conservation status and while range can be subjected to qualitative assessment, the data do not enable a quantitative estimate of surface area at present.

A new project, CODA (Cetacean Offshore Distribution and Abundance) 2007 aims to estimate abundance of cetaceans, and investigate their habitat preferences in European waters outside the continental shelf. Other planned large scale surveys offshore (e.g. T-NASS) will provide additional information for adjacent regions.

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