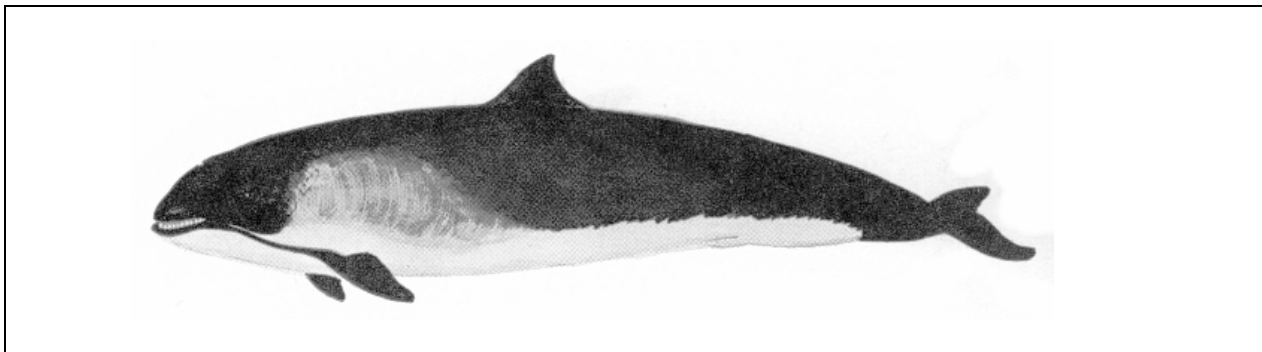


Nomination

Phocoena phocoena, Harbour porpoise



Geographical extent

OSPAR Region; All

Biogeographic zones: 1-9, 11-15

Region & Biogeographic zones specified for decline and/or threat: Decline in areas II, III, & IV, threat in all OSPAR areas.

The harbour porpoise is generally a coastal species distributed in cold temperate and subarctic waters in the Northern Hemisphere (Klinowska, 1991). In the eastern North Atlantic, it is common and widely distributed on the continental shelf from the Barents Sea and Iceland south to the coasts of France and Spain. There are thought to be a number of subpopulations in the Atlantic and possibly also in the North Sea and adjacent waters, with separate populations occurring in the Irish Sea, northern North Sea and southern North Sea (Kinze, 1990; IWC, 1996; Walton, 1997; Lockyer, 1999; Andersen *et al.*, 1999; Rosel *et al.*, 1999).

Application of the Texel-Faial criteria

There were five nominations for *P.phocoena* to be put on the OSPAR list. The criteria common to all of these were decline and sensitivity, with information also provided on threat.

Decline

A number of surveys covering different parts of the OSPAR Maritime Area have been carried out to determine the size and trends in the population of the harbour porpoise. Surveys carried out in 1988/89 estimated harbour porpoise numbers of 10,994 in the Lofoten-Barents Sea area 82,619 in the northern North Sea although these may be underestimates (Bjørge & Øien, 1995; IWC, 1990). The only dedicated survey for estimating harbour porpoise abundance in the region was conducted in 1994 and covered the North Sea,

the English Channel and Celtic Sea (Hammond *et al.*, 2002). This resulted in an abundance estimate of between 260,000–449,000 (a suggested population of approximately 350,000) of which around 300,000 occurred in the North Sea and the remainder in the Channel and Celtic Sea. Estimates for the Barents Sea and Northern Norwegian waters were 11,000 and for southern Norway and the northern North Sea, 82,600 (Bjørge & Øien, 1995).

Declines in abundance have been reported since the 1940's as well as in more recent studies in various parts of the range of *P.phocoena*. The harbour porpoise has become scarce in the southernmost North Sea, English Channel and Bay of Biscay for example (Evans, 2000), and has declined in the Skagerrak & Kattegat (Berggren & Arrhenius, 1995a & b). It was considered to be one of the most common cetaceans in Region IV of the OSPAR Maritime Area but sightings and strandings are now only common in certain areas e.g. western Galician and northern Portuguese coasts (OSPAR, 2000).

The harbour porpoise is believed to have been common in waters off the coast of Belgium in the 19th and first half of the 20th century with data suggesting a decline in the southern North Sea between the 1970s-1990s. Since 1997 there has been an increase in the number of sightings and strandings in Belgian waters and the Netherlands but it is not clear whether this reflects an improvement in the status of the population in this area (Haelters *et al.*, 2000, Camphuysen, 1994, Witte *et al.*, 1998).

Sensitivity

The harbour porpoise is known to be sensitive to poor water quality, especially toxic contaminants which bioaccumulate and, in the case of

organochlorine contamination this has been linked to reproductive failures (Addison, 1989).

Like all cetaceans they use sound for navigation, finding food, and communication and are therefore sensitive to acoustic pollution. Harbour porpoise are amongst the fastest reproducing cetaceans but depleted populations are nevertheless likely to take decades rather than years to recover.

Threat

Small cetaceans, including the harbour porpoise were taken for human consumption from the OSPAR Maritime Area until this was made illegal from 1970 (Klinowska, 1991).

The main threat to this species in the OSPAR Maritime Area today is incidental capture and drowning in fishing nets. For example, the Danish gill net fishery has been estimated to take more than 4,600 animals a year (IWC, 1996), in the Celtic Sea, by-catch rates have been estimated at more than 6% of the population per year (Tregenza *et al.* 1997), while in the Swedish Kateggat and Kattegat surveys in 1996 & 1997 calculated by-catch levels of 1.2% and 2.4% of the population in the set net fishery for cod and pollock. The International Whaling Commission/ ASCOBANS working group on harbour porpoise advised a maximum annual by-catch, assuming no uncertainty in any parameter, of 1.7% of the population size per year if the population is to be sustainable (ASCOBANS, 2000).

Other threats to this species are marine pollution, for example from toxic substances that bioaccumulate and are known to reduce reproductive fitness, as well as acoustic disturbance (from shipping traffic, oil exploration, military activities etc.) which may reduce available habitat. A reduction in prey species may also be a threat as the diet of harbour porpoises includes herring, mackerel and sandeel which are also targeted by commercial fisheries in the North Sea.

Relevant additional considerations

Sufficiency of data

Data on the status and trends of the harbour porpoise have come from sightings programmes and from observers at sea. This includes information on by-catch that has been used to estimate the impact on the population of harbour porpoises in parts of the OSPAR Maritime Area. Tagging studies have also been a source of information on the range and behaviour of harbour porpoise. The SCANS survey (Hammond *et al.*

2002) yielded the first reliable abundance estimate of harbour porpoises in the North Sea and adjacent waters. This estimate is a good basis for estimating the threat imposed by the bycatch rates in the region and in the long run to detect changes in abundance by repeating the survey.

Changes in relation to natural variability

Little is known about the natural variability of harbour porpoise populations or whether such variability has played a role in the decline of this species in particular areas.

Expert judgement

There is a good understanding of the threats to harbour porpoise throughout the OSPAR Maritime Area but less comprehensive information on population status. The best studied area is OSPAR Region II where there is good evidence for changes in the status of the population in recent decades. There is least information on population trends in Region I. Because of this lack of information Region I has only been cited as an area where this species is threatened rather than one where it has declined.

ICES Evaluation.

The harbour porpoise occurs in all regions but the core of the range is Regions II and III. The population structure in the OSPAR area is complex. The ICES Advisory Committee on Ecosystems (ICES, 2003) concluded that there is good evidence of a declines in the past in the Channel and southern North Sea and more recently in the Baltic and good evidence that the main threat is by-catch, particularly bottom-set gillnets. The by-catch is likely to be unsustainable on the Celtic shelf, in the Baltic, and probably in parts of the North Sea

Threat and link to human activities

Cross-reference to checklist of human activities in OSPAR MPA Guidelines

Relevant human activity: Fishing, hunting, harvesting, military activity, research. *Category of effect of human activity:* Physical – noise disturbance. Biological – removal of target species, removal of non-target species.

The most significant threat to harbour porpoise at the present time is fishing because of the large numbers of animals that are taken as by-catch by a variety of fisheries. This threat is clearly linked to human activity and one which can be addressed through management actions directed at these fisheries.

Management considerations

The top priority for management to improve the status of this species must be aimed at reducing the incidental capture of harbour porpoise. This may include technical measures, such as acoustic deterrents, closed areas or closed seasons. More general measures concerned with fisheries management such as effort control may also be required. Other management measures should be targeted at improving coastal water quality by reducing the discharge of substances that are toxic, persistent and liable to bioaccumulate.

In the North Sea the harbour porpoise is covered by the terms of the Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas (ASCOBANS), a regional agreement under the Bonn Convention. Many of the useful potential measures fall within the remit of fisheries organisations or ASCOBANS. OSPAR can however communicate an opinion on its concern about this species to the relevant bodies and introduce any relevant supporting measures that fall within its own remit if such measures exist or are introduced in the future.

The harbour porpoise is listed on Appendix II of the Bern Convention and Annexes II and IV of the Bonn Convention. IUCN assess the global status of the harbour porpoise as Vulnerable (IUCN, 2002).

Further information

Nominated by:

Belgium, Netherlands, Portugal, UK & WWF

Contact persons:

Eva Degre, Directorate for Nature Management, Tungasletta 2, N-7485 Trondheim, Norway.

Marjan Addink, National Museum of Natural History, P.O. Box 9517, 2300 RA Leiden, The Netherlands.

Fatima Brito, Direcção Geral do Ambiente, Rua Murgueira-Zambujal, 2720-865 Amadora, Portugal

Sabine Christiansen, WWF International, Northeast Atlantic Programme, Am Guethpol 11, 28757 Bremen, Germany.

Jan Haelters & Francis Kerckhof, Management Unit of the North Sea Mathematical Models, 3^e en 23^e Linieregimentsplein, 8400 Oostende, Belgium.

Mark Tasker, Joint Nature Conservation Committee, Monkstone House, Peterborough, PE1 1UA, UK.

Useful References:

Addison, R.F. (1989) Organochlorine and marine mammal reproduction. *Can.J.Fish.Aquat.Sci.* 46:360-368.

Andersen, L.W., Walton, M., Berggren, P., & Lockyer, C. (1999). A comprehensive microsatellite analysis of harbour porpoise *Phocoena phocoena*, sub-populations in eastern North Atlantic including inner Danish waters and the Swedish Baltic. Unpublished Report for Project BYCARE.

ASCOBANS (2000). Resolution 3, Incidental Take of Small Cetaceans. Third Session of the Meeting of Parties, Bristol, UK. 26-28 July, 2000.

Berggren, P. & Arrhenius, F. (1995a). Sightings of harbour porpoises (*Phocoena phocoena*) in Swedish waters before 1990. *Rep.Int.Whaling Commission* (Special issue 16):99-107.

Berggren, P. & Arrhenius, F. (1995b). Densities and seasonal distribution of harbour porpoises (*Phocoena phocoena*) in the Swedish Skagerrak, Kattegat and Baltic Seas. In: *Biology of the Phocoenids* (Editors: A. Bjørge and G. P. Donovan). International Whaling Commission. Cambridge. 552 pp.

Bjørge, A. & Øien, N. (1995). Distribution and abundance of harbour porpoise, *Phocoena phocoena*, in Norwegian waters. Report Submitted to the International Whaling Commission. SC/42/SM3.

Clausen, B. & Andersen, S.H. (1988). Evaluation of bycatch and health status of the harbour porpoise (*Phocoena phocoena*) in Danish waters. *Danish Rev.Game Biology* 13(5):1-20.

Camphuysen, C.J. (1994). The harbour porpoise *Phocoena phocoena* in the southern North Sea II: A come-back in Dutch coastal waters? *Lutra* 37:54-61.

Evans, P.G.H. (2000). Biology of cetaceans of the North East Atlantic (in relation to seismic energy). In: Tasker, M.L. & Weir, C. (Eds). *Proceedings of the Seismic and Marine Mammals workshop*. 25-28 June, 1998.

Haelters, J, Jauniaux, T, & Van Compel, J. (2000). Harbour porpoises on Belgian beaches from 1990 to 1999. ASCOBANS Advisory Committee Meeting, Belgium 13-16 March 2000. Document AC7/Doc.12(P) 5p.

Hammond, P.S., Benke, H., Berggren, P., Borchers, D.L., Collet, A., Heide-Jørgensen, M.P., Heimlich,

S., Hiby, A.R., Leopold, M.F. and Øien, N. 2002. Abundance of the harbour porpoise and other cetaceans in the North Sea and adjacent waters. *Journal of Applied Ecology* 39:361-376.

IUCN (2002). *2002 IUCN Red List of Threatened Species*

IWC (1990). Report of the subcommittee on small cetaceans. IWC/42/4. Rep.int.Whal.Comm 46:160-179.

IWC (1996). Forty-Sixth Report of the International Whaling Commission. Report of the Sub-Committee on Small Cetaceans. Annex H.

Kinze, C.C. (1990). Non-metric analyses of harbour porpoises (*Phocoena phocoena*) from the North and Baltic Seas: implications for stock identity. IWC document SC/42/SM 35.

Klinowska, M. (1991). Dolphins, Porpoises and Whales of the World. The IUCN Red Data Book. IUCN, Gland, Switzerland.

Lockyer, C. (1999). Application of a new method of investigating population structure of harbour porpoise *Phocoena phocoena*, with special reference to the North and Baltic seas. ICES document WGMMHA/WP. 18-99.

OSPAR (2000). Quality Status Report 2000. Region IV. Bay of Biscay and Iberian Coast.

Tregenza, N.J.C., Berrow, S.D., Hammond, P.S. & Leaper, R. (1997). Harbour porpoise (*Phocoena phocoena* L.) by-catch in set gillnets in the Celtic Sea. *ICES Journal of Marine Science* 54(5): 896-904.

Walton, M.J. (1997). Population structure of harbour porpoises *Phocoena phocoena* in the seas around the UK and adjacent waters. *Proc.Royal.Soc.Lond B.* 264:89-94.

Witte, R.H., Baptist, H.J.M, & Bot, P.V.M (1998). Increase of the harbour porpoise *Phocoena phocoena* in the Dutch sector of the North Sea. *Lutra* 40(2):33-40.