



THE HARBOUR PORPOISE IN UK WATERS



DESCRIPTION The harbour porpoise *Phocoena phocoena* is the smallest species of cetacean found in European waters, measuring around 1.3 - 1.5 metres in length and weighing 50 - 60 kg. It is often confused with dolphins, particularly the bottlenose dolphin. The porpoise is rotund in shape, with a small triangular dorsal fin which shows briefly above the surface - usually little of the animal is seen, as it rarely leaves the water entirely. It has a small rounded head with no distinct beak. Harbour porpoises do not usually approach boats nor bow ride, although they can be observed at close quarters from a dinghy or small

inflatable boat, and in late summer, may actually approach vessels.

STATUS AND DISTRIBUTION As the name suggests, the harbour porpoise is commonly seen in coastal areas, although it ranges over much of the European continental shelf. It is the commonest and most widely distributed of all cetacean species in northern Europe, favouring comparatively shallow, cold waters. There are seasonal concentrations of harbour porpoises off south-west and western Ireland, west Wales, the west coast of Scotland, Northern Isles, and eastern Scotland - porpoises may be permanent residents in these areas, with the greatest numbers usually between July and October. Like the bottlenose dolphin, the species was once a regular visitor to the south coast of England and the southern part of the North Sea during the summer months, but then became a rare sight in these areas.

Genetic studies have indicated that around the British Isles, there are separate populations in the Irish Sea and off the Welsh coast; in the northern North Sea; eastern (Denmark) and western (UK) North Sea; and southern North Sea (Netherlands). Further research may reveal other genetically distinct populations.

There have been several estimates of population numbers in different parts of this area, but the SCANS survey in July 1994 was the most wide-ranging. The North Sea population was estimated at about 280,000 animals, with a further 36,000 in the Skagerrak and Belt Seas, and another 36,000 over the Celtic shelf between Ireland and Brittany.



Regular, common or fairly common
 Occasional
 Casual or absent

Surveys around Norway resulted in estimates of about 11,000 porpoises in waters north of 66° N and the Barents Sea, and 82,000 for the northern North Sea and southern Norwegian waters. In inner Danish waters, estimates have been made of around 500-580 porpoises to the North of Fyn, just over 500 in the Great Belt and just under 100 in the Little Belt in June 1991 and June 1992. Around 90-200 were also estimated in these two years for the Kiel Bight, and somewhere between 100 and 500 around the Island of Sylt. Elsewhere, around 19,000 harbour porpoises were estimated to be present on the continental shelf off south-west Ireland.

In several areas of Europe, populations seem to have declined or have been eliminated, notably in the eastern Channel, the Mediterranean and the Baltic Seas. Porpoises were clearly abundant in the Baltic until some time in the 1960s when they appear to have declined, and they are now very rarely seen there. It is thought that levels of accidental mortality in fishing nets in certain areas (for example the Celtic Sea west of Cornwall, and the central and southern North Sea) may be unsustainable.



SOCIAL BEHAVIOUR Harbour porpoises generally live in groups of two or three animals, or singly, but occasionally forming groups of 10 - 20 animals. Larger aggregations of up to several hundred porpoises have also been seen seasonally (Feb-March & Aug-Oct), either associated with food concentrations or long-distance movement. The basic social unit appears to be the mother and calf, which may sometimes be accompanied by a yearling. Segregation by age and sex may also occur in larger groups. DNA studies indicate that females can form genetically distinct groups, while males are more likely to move away. During late summer, porpoises are more social, and sexual activity can be observed. In calm seas, animals frequently lie in a resting state just below the surface.

REPRODUCTIVE BIOLOGY The main mating season is summer, and birth takes place 10-11 months later (usually between May and August with a peak in June). Calves are suckled for between four and eight months, and the mother usually reproduces every 1-2 years. Porpoises take three to four years to reach sexual maturity and have a relatively short life span usually of no more than 15 years, although animals have been recorded up to 24 years of age.

DIET The harbour porpoise eats a varied diet of fish, cephalopods and crustaceans, related to local availability of food; in European waters, herring, mackerel, sand-eel, gobies and a wide range of gadoid fish such as cod, saithe, pollack, and whiting are all known to form prey of porpoises. The apparent flexibility in diet helps the porpoise to avoid being adversely affected by local human over-exploitation of any single fish species, however, intense exploitation of fish stocks overall can put great pressure on marine mammals like porpoises that are dependent on them for food.

THREATS Despite the fact that the harbour porpoise is probably the commonest small cetacean in UK waters, it is thought to have undergone substantial declines in numbers over the last fifty years, with the species becoming rare in the southernmost North Sea and Channel. Although reasons for this status change are not known for certain, pollution, disturbance, lack of food and entanglement in fishing nets have all been implicated.

The species is exposed to a variety of human activities. It was formerly hunted in drive fisheries in the Baltic and off the coasts of Holland and the Faroe Islands. The major current threat appears to be fisheries conflicts. Incidental catches occur in a variety of fishing gear including bottom set gillnets for hake, cod, turbot and sole, fixed nets or traps for cod or salmon, herring weirs, trawls, drift nets, and purse seines for cod, herring or plaice. Recent independent observer schemes have revealed annual by-catches in English and French bottom set gillnet fisheries of 6.2% of the harbour porpoise population (2,237 out of an estimated population of 36,280) in the Celtic Sea west of Cornwall; and in the Danish bottom set gillnet fishery of 2.6% of the porpoise population in the central & southern North Sea (4,500 out of an estimated 175,000). Any by-catch above 1.7% of the population size is considered to be unsustainable.

Harbour porpoises from many areas (including the UK, Baltic, and Canada) have been found to have high pollutant burdens, including organohalogen compounds such as DDT and dieldrin, PCBs, dioxins, furans, and heavy metals. The effects are not clearly known, although links with causes of mortality have been made in UK stranded porpoises, and there is evidence that some pollutants (e.g. PCBs) may have an immunosuppressive function as well as cause reproductive impairment in cetaceans. Transplacental transfer of organochlorine compounds can also occur from females to their foetuses.

Porpoises often live in the vicinity of vessel traffic. A study in the Shetland Islands of reactions by porpoises to various types of vessel showed short-term negative effects from speedboats and large ferries, although reactions varied with group size, social status, and season.

FURTHER READING

- Bjørge, A. and Donovan, G.P. (Eds) 1995. Biology of the Phocoenids. *Rep. Int. Whal. Commn* (Special Issue 16). 552pp.
- Evans, P.G.H. 1997d. *Ecological studies of the harbour porpoise in Shetland, North Scotland*. Report for WWF-UK, Godalming, Surrey. 106pp.
- Evans, P.G.H. and Wang, J. 2003. *Re-examination of distribution data for the harbour porpoise around Wales and the UK with a view to site selection for this species*. Report to Countryside Council for Wales. Sea Watch Foundation, Oxford. 115pp.
- Evans, P.G.H., Anderwald, P., and Baines, M.E. 2003. *UK Cetacean Status Review*. Report to English Nature & Countryside Council for Wales. 160pp.
- Hammond, P.S., Berggren, P., Benke, H., Borchers, D.L., Collet, A., Heide-Jørgensen, M.P., Heimlich, S., Hiby, A.R., Leopold, M.F. & Øien, N. 2002. Abundance of harbour porpoise and other cetaceans in the North Sea and adjacent waters. *Journal of Applied Ecology*, 39: 361-376.
- Haug, T., Desportes, G., Vikingsson, G.A., and Witting, L. (Eds). 2003. *Harbour Porpoises in the North Atlantic*. NAMMCO Scientific Publications. Volume 5. North Atlantic Marine Mammal Commission, Tromsø. 315pp.
- Read, A. 1999. Harbour Porpoise - *Phocoena phocoena* (Linnaeus, 1758). Pp. 323-356. In: *Handbook of Marine Mammals. Volume 6: The Second Book of Dolphins and the Porpoises* (Eds. S.H. Ridgway and R. Harrison). Academic Press, San Diego. 486pp.
- Reid, J., Evans, P.G.H. and Northridge, S.P. 2003. *Cetacean Distribution Atlas*. Joint Nature Conservation Committee, Peterborough. 68pp.