



Pilot Assessment of Abundance and Distribution of Killer Whales



MSFD Descriptor: 1 - Biological diversity

MSFD Criteria: 1.1 - Species distribution; 1.2 - Population size; 4.3 - Abundance/distribution of key trophic groups/species

Key Message Killer whales are long-lived, slow reproducing, top predators. Several populations exist, but data on abundance are scarce. Thus only a pilot assessment can be made. Killer whales are vulnerable to the effects of persistent organic pollutants accumulated through their diet, with high pollutant levels potentially impacting reproduction

Background

OSPAR's strategic objective with respect to biodiversity and ecosystems is to halt and prevent further loss in biodiversity, protect and conserve ecosystems and to restore, where practicable, ecosystems, which have been adversely impacted by human activities. This pilot assessment considers changes in abundance and distribution of populations of killer whales in the North-East Atlantic.

Some killer whales may seasonally reside in relatively small areas, close to shore. As a result, they have the potential to be exposed to a greater level of human activity than populations further offshore due to their proximity to human activities.



Although killer whales are widespread, they are not particularly numerous. Much of the information on population structure comes from photographic identification studies focused on particular groups occurring in coastal waters.

Killer whales are long-lived top predators and are susceptible to changes in their environment. Changes in abundance and distribution provide important information on the state of the population.

Killer whales are vulnerable to the accumulation of pollutants through the food chain, a key pressure identified for this species. Underwater noise can have long and short-term effects on cetaceans (for example, hearing loss or displacement from an area), but it is not known to what extent killer whales are affected.

Results

Within the OSPAR Maritime Area, several thousand killer whales occur in Arctic Waters and the northern parts of the Greater North Sea, Celtic Seas, and Wider Atlantic. These animals are mobile and feed predominantly on pelagic shoaling fish such as mackerel and herring. Some also feed on seals and birds. Further south, killer whales are most frequently sighted near the Strait of Gibraltar and along the Atlantic shelf edge, especially around the United Kingdom and Ireland, including the Northern North Sea. The abundance of these more southerly killer whales may not exceed 100 individuals.

There is a very small distinct group (10 to 12 individuals) occurring around west Scotland and north-west Ireland. The killer whales that live near the Strait of Gibraltar are seasonally resident in the Gulf of Cadiz (spring) and Strait of Gibraltar (summer), following the Atlantic bluefin tuna, on which they feed extensively. They are considered genetically distinct from other killer whale populations.

High persistent organic pollutant loads in individuals leading to health problems and reproductive failure may have contributed to a decline in killer whale numbers and distribution, especially in industrialised areas.

The conservation status of killer whales has been assessed by the European Environment Agency as 'favourable' in terms of range and 'unknown' in terms of population under the European Union Habitats Directive (Council Directive 92/43/EEC).

Conclusion

Killer whales in the OSPAR Maritime Area are found predominantly in Arctic Waters and northern parts of the North Sea, Celtic Seas and Wider Atlantic. Further south there are distinct smaller groups occurring in coastal waters off west Scotland / north-west Ireland and in the Strait of Gibraltar.

Owing to a lack of data only a pilot assessment can be made at present.

Killer whales are vulnerable to the effects of accumulating persistent organic pollutants, with high pollutant levels potentially inhibiting reproduction. Mid-frequency military sonar may also negatively affect killer whales.

The abundance and distribution of killer whales may be indicative of specific aspects of the status of the marine environment, such as food web integrity and pollutant load.



Image: Killer Whales *Orcinus orca* © Christopher Michael



Image: Killer Whales *Orcinus orca* © Robert Pitman NOAA

Knowledge Gaps

Historical information on abundance and distribution of killer whales is either scarce or lacking. Due to this lack of information, no assessment of abundance can be undertaken, so only a pilot assessment of distribution is possible. There is no estimate for the size of killer whale populations within the Greater North Sea, Celtic Seas, and Bay of Biscay and Iberian Coast.

Human activities can affect killer whales. However, the relationship between human activities (e.g. disturbance, pollution, fishing, habitat alteration) and the impact of these activities on killer whale populations needs further study.

This document was published as part of OSPAR's Intermediate Assessment 2017.

The full assessment can be found at www.ospar.org/assessments