



# Harbour Porpoise Bycatch

MSFD Descriptors: 1 - Biological diversity  
MSFD Criterion: 1.3 - Population condition



**Key Message** Bycatch is recognised as a major cause of human-induced mortality of harbour porpoise. Nearly 4 000 harbour porpoises of a total population in excess of 490 000 are drowned in fishing nets annually in the areas assessed. However, there is low confidence in these bycatch estimates due to incomplete monitoring data

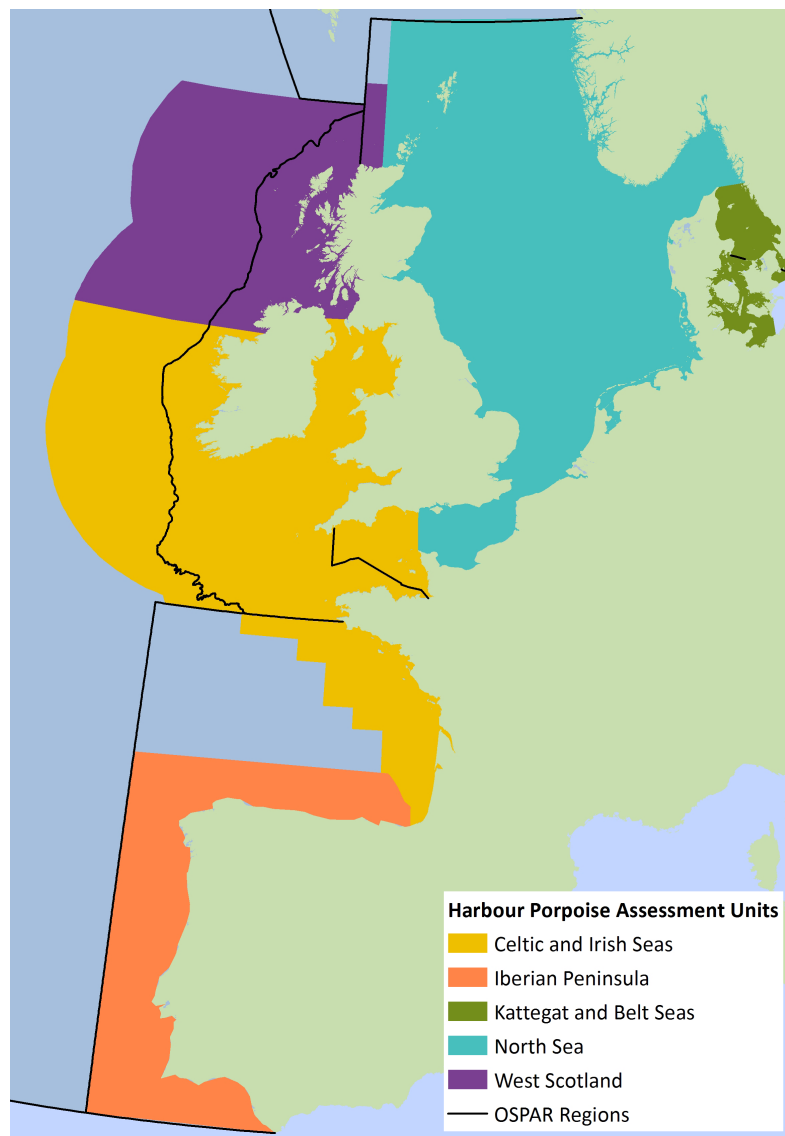
## Background

The main human-induced cause of mortality of cetaceans in the OSPAR Maritime Area is being caught and entangled in fishing nets. Seals are also bycaught but there is insufficient knowledge to include them in this assessment.

Harbour porpoise has been included in the OSPAR List of Threatened and / or Declining Species and Habitats for the Greater North Sea and Celtic Seas owing to evidence of a decline in populations, their sensitivity and the threat of incidental capture and drowning in fishing nets. This assessment is taken solely from the latest advice on the numbers of cetaceans that are incidentally caught and killed by fishing, provided to the European Commission by the International Council for the Exploration of the Sea (ICES). No additional information has been provided by OSPAR Contracting Parties. ICES estimated the numbers of harbour porpoise caught in commercial nets (mainly set gillnets) in the ICES derived Assessment Units shown in **Figure 1**. The bycatch estimates are derived from estimates of annual fishing effort and counts of bycaught harbour porpoises made by observers or remote electronic monitoring on commercial fishing vessels.

Owing to uncertainty concerning the reliability of the fishing effort data and the potential for biases in the bycatch data, this assessment does not compare the ICES bycatch estimates with assessment values used by the OSPAR North Sea Ecological Quality Objective (EcoQO) for bycatch of harbour porpoise.

Figure 1: Harbour porpoise ICES Assessment Units (AUs) (as proposed by ICES, 2014) – note that these are ecologically derived and do not align with the OSPAR regions



## Results

Bycatch mortality in harbour porpoise have been estimated by the International Council for the Exploration of the Sea (ICES) in three of their five assessment units (AUs): the Kattegat and Belt Seas, the North Sea, and the Celtic and Irish Seas. The results are shown in **Table 1** overleaf. Data on harbour porpoise bycatch from observers on fishing vessels were insufficient for the Iberian Peninsula AU and the risk of bycatch in the West of Scotland AU is very low. As a result these are not represented in this assessment.



Image: Dead harbour porpoise with marks from being caught in a fishing net ©Jan Haelters/RBINS

## Results cont...

ICES expressed the estimated total harbour porpoise bycatch in the form of lower and upper 95% confidence limits rather than as a single estimate. The confidence intervals were used by ICES to better reflect uncertainty in the estimates of overall bycatch within each AU. ICES considers this uncertainty to result from the following factors:

- The data on fishing effort (in number of days at sea) are likely to be underestimated because effort from smaller commercial vessels (particularly <10 m in length), from recreational vessels, and from fisheries from the beach is not represented. This would lead to underestimates in bycatch;
- The bycatch rates may be overestimated because the majority of bycatch records were collected by observers on large vessels (>15 m) that use more gear than smaller vessels and may have higher likelihood of catching cetaceans;
- The data on fishing effort and the bycatch records from observers on vessels cover a wide range of vessel types and fishing gear types (i.e. trammel nets, set gillnets, driftnets). No account was taken of any spatial heterogeneity (i.e. patchiness) or of any differences in mesh size, net length or other important gear characteristics. ICES point out “there is an implicit assumption that the summarized observations are representative of the nature and diversity of the gillnet fisheries within each assessment region, and this is not likely to be true”.

ICES concluded that their approach to estimating bycatch “does not address several potential biases. An examination of these will require detail of the fleet structure and how the observations are stratified”.

Confidence is rated as moderate / low for the method of this assessment and low for data availability.

Table 1. Harbour porpoise bycatch mortality from fishing nets in each assessment unit (AU), compared against the best estimate of abundance. Data were insufficient for the Iberian Peninsula AU and the risk of bycatch in the West of Scotland AU is very low. These have not been included in the assessment

<sup>a</sup>2016 Data from preliminary analysis of the results from SCANS-III survey; <sup>b</sup>2005 data from SCANS-II survey because SCANS III estimates are not yet complete in the Celtic and Irish Seas AU (Source: ICES)

Note<sup>1</sup>: The data on fishing effort (in number of days at sea) are likely to be underestimated as effort from smaller commercial vessels (particularly <10 m in length), from recreational vessels and from fisheries from the beach is not represented. This would lead to underestimates in bycatch. Furthermore, variation in “Best abundance estimate” is not included in the calculation of annual bycatch rate

ASSESSMENT UNIT	Kattegat and Belt Seas	North Sea	Celtic and Irish Seas
<b>Estimated total bycatch 95% Confidence Limits (CLs) (year)</b>	165-263 (2014)	1235-1990 (2013)	1137-1472 (2013)
<b>Best abundance estimate (year)</b>	42 300 (23 368 - 76 658) (2016) <sup>a</sup>	345 400 (246 526 - 495 752) (2016) <sup>a</sup>	106 382 (57 689 - 196 176) (2005) <sup>b</sup>
<b>Annual bycatch as a percentage of the best abundance<sup>1</sup> estimate</b>	0.39-0.62%	0.36-0.58%	1.06-1.37%

## Conclusion

In 2013 up to 2 000 harbour porpoise died as a result of entanglement in commercial nets in the ICES defined North Sea Assessment Unit (AU), out of a total abundance estimate of 345 400. In the same year, an estimated 1 500 individuals died in the Irish and Celtic Seas AU, out of a total abundance estimate of 107 300. In 2014, a further 260 harbour porpoise were estimated to have died in the Kattegat and Belt Seas AU, out of a total abundance estimate of 42 300.

Bycatch estimates provided by the International Council for the Exploration of the Sea (ICES) represent the best available estimates given the underlying data. More accurate bycatch rates could be obtained by observing bycatch on a sample of vessels that represents the wider fishing fleet in terms of fishing gear type, vessels size and distribution of fishing activity over space and time. The current bycatch estimates are derived from observing only 0.28% of the fishing effort for the fishing gear types classified as ‘nets’; a higher observer coverage in dedicated surveys would also improve the reliability of future estimates of bycatch rate.

## Knowledge Gaps

This indicator assessment has not used an assessment value. The Agreement on the Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas (ASCOBANS) recommends that ‘total anthropogenic removal’ of harbour porpoise should not exceed 1.7% of the best available estimate of abundance, with the precautionary objective of reducing bycatch to less than 1% and ultimately 0%.

The use of ‘Net meter per day’ could provide a more accurate record of fishing effort than ‘days at sea’, especially in the case of net types (e.g. set gillnets) that are more likely to catch harbour porpoise than mobile gear (e.g. trawls).

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

The full assessment can be found at [www.ospar.org/assessments](http://www.ospar.org/assessments)