

Bycatch of small cetaceans and other marine animals – review of national reports under Council Regulation (EC) No. 812/2004 and other information

Advice summary

ICES summarizes the bycatch of marine animals in 2016 as reported by EU Member States under Council Regulation (EC) No. 812/2004 and other mechanisms. Using data up to 2016, ICES evaluated only the bycatch risk to harbour porpoises (*Phocoena phocoena*) and common dolphins (*Delphinus delphis*) in the southern part of the Celtic Seas and to common dolphins in the Bay of Biscay, finding that these may exceed internationally adopted thresholds of acceptability. ICES has advised on other areas in previous years. Only one country provided extrapolated numbers of bycaught marine mammals, while others only provided observed samples. Some other major fishing countries failed to provide any information. ICES evaluation and external assessments of the numbers of bycaught dolphins recorded on the shores of the Bay of Biscay indicate that a dedicated bycatch observer programme and bycatch mitigation is required for relevant fisheries in this area. Mitigation is required under Regulation 812/2004 in some fisheries in the southern Celtic Seas; this mitigation may not be adequate. The impact of fisheries on seabirds and other vertebrates have not been evaluated due to insufficient available information.

Request

Annex IIA, section 3 of the Administrative Agreement between the EU and ICES requests ICES to:

“c) provide information regarding the impact of fisheries on the ecosystem including marine mammals, seabirds and habitats impacts. This should include information on the location of habitats sensitive to particular fishing activities;

“d) give warnings of any serious threats from fishing activities alone or in conjunction with any other relevant activity to local ecosystems or species as soon as ICES is aware of such threats;”

This advice section covers only aspects of impacts on marine mammals, seabirds, and other marine vertebrates. Information relating to habitats is advised separately (ICES, 2018). ICES Advice in 2017 (ICES 2017) analysed bycatch in further areas than those described here – that advice remains valid.

Elaboration on the advice

In 2016, there were at least 56 incidents of bycatch of marine mammals recorded in the Council Regulation (EC) 812/2004 annual reports from Member States. Four species of cetacean were reported as bycatch: 47 harbour porpoises, two long-finned pilot whales (*Globicephala melas*), two striped dolphins (*Stenella coeruleoalba*) and 64 common dolphins. Additionally, 13 seals from three species were also reported (Table 1). Many other bycaught marine vertebrates were recorded in the data submitted to ICES through the data call; there were at least 42 incidents of bird bycatch amounting to at least 54 specimens of five species, along with 13 turtles of two species (Table 2). Some additional bird bycatch was noted in MS Reg 812/2004 reports but not included in the data submissions due to incompleteness of records; for example, there were an additional 31 seabirds (26 fulmar, *Fulmarus glacialis*, three gannets, *Morus bassanus*, and two gulls) caught in UK longline fisheries.

ICES advises that the total harbour porpoise bycatch in relevant fisheries in Subarea 27.7 (southern part of the Celtic Seas) in 2016 was likely to have been between 620 and 1391 individuals. These figures represent approximately 1.1% and 2.4% of the harbour porpoises present in the subarea. The upper estimate exceeds the threshold of 1.7% of abundance and would be deemed unacceptable by ASCOBANS.

ICES advises that the total common dolphin bycatch in mid-water trawls and in nets in subareas 27.7 and 27.8 (southern part of Celtic Seas and in the Bay of Biscay) in 2016 was likely to have been between 153 and 904 and 1607 and 4355 individuals, respectively. Combined, these figures represent approximately 0.5% and 1.6% of the common dolphins present in the two subareas. The upper estimate for subarea 27.8 (2.0%) exceeds the threshold of 1.7% of abundance.

The approach has been used by ICES previously to assess the risk bycatch poses to harbour porpoise in the North Sea, the Kattegat and Belt Seas, and Celtic and Irish Seas.

The UK reported estimates of total harbour porpoise bycatch in UK gillnet fisheries in UK waters, ranging from 771 to 2994 animals (best estimate 1482; CV = 0.09) in the absence of pingers, and from 606 and 3114 animals (best estimate 1250 CV = 0.11) if all over 12 m boats used pingers in those areas where they are required. Bycatch estimates for common dolphins and seals (harbour and grey seals combined, (*Phoca vitulina*, *Halichoerus grypus*)) in 2016, were 285 (range 137–922) and 610 (range 449–1262), respectively.

Suggestions

The EU Multiannual Programme aims to improve consistency of bycatch data at a regional scale and should improve the ability of ICES to advise on the impact of fisheries. ICES is moving away from using EU Member State reports under Council Regulation (EC) No. 812/2004 (EU, 2004) as the primary source of data on bycatch of cetaceans and other animals. In future, data will be provided through the ICES regional database and estimating system (RDBES) as a result of the implementation of the EU Multiannual Programme (EU-MAP; EU, 2016). In areas where there is a robust estimate of cetacean population size, advice on the impact of bycatch of protected species is dependent on full and robust information on both monitored and total effort in the relevant fisheries. The quality of fishing effort data gleaned from the RDBES, Vessel Monitoring System and logbooks varies, but ICES recommends that the RDBES provides the most robust record of fishing effort throughout the EU. ICES requires that effort data submitted to them through annual datacalls conforms to agreed standards and formats and is complete.

ICES notes again that the revised Commission Decision on the Marine Strategy Framework Directive (EU, 2017) requires that EU Member States need accurate bycatch rates to assess whether or not species are at risk from fisheries. ICES suggests that the Regional Coordination Groups (RCGs) that are coordinating the implementation of EU MAP will need to adapt at-sea sampling designs to include data on frequency of protected species bycatch events in all relevant fisheries. In particular, gillnet fisheries are currently receiving little observation overall. Advice on the bycatch of protected species will also need information on both monitored and total effort in the relevant fisheries.

ICES acknowledges several comments, in the 812/2004 reports, relating to the appropriateness and spending of resources on the monitoring of bycatch when little or no bycatch has occurred on a species in a particular area. ICES suggests that a review of requirements to monitor bycatch would be helpful in future planning.

Basis of the advice

Background

Reports required by Council Regulation (EC) No. 812/2004 (EU, 2004) for 2016 were received from 14 of the 17 EU Member States affected by that Regulation in that year (some of these reports were provided direct to ICES rather than to the European Commission). Finland, Lithuania, and Spain did not report. The quality and scope of the information provided by the reports for 2016 was variable, with several EU Member States simply repeating the information provided in previous years. It is difficult for ICES to assess the overall impact of fisheries on protected species if data from major fishing nations are not provided.

In 2018, ICES introduced an ICES data call asking for data on bycatch of marine mammals, birds, elasmobranchs and other protected species along with data on fishing effort. Eighteen EU member states were contacted and all submitted data through the call, but the quality and quantity of submitted data varied widely. One of the three non-EU Member States who were contacted, submitted data.

Methods

Bycatch Risk Assessment

Minimum and maximum bycatch was estimated for harbour porpoise in nets (GNS, GND, GTR) in Subarea 7 of the Celtic Sea and nets and midwater trawls (PTM, OTM) for common dolphin in subareas 7 and 8 in Celtic Sea and Bay of Biscay, respectively. The analysis utilized the fishing effort and monitoring data submitted by Member States. To increase sample size, the bycatch data were pooled across 2015–2016 and métier-specific bycatch rates (animals observed per day at sea) and their associated 95% confidence intervals were generated. The confidence intervals were then scaled by available

fishing effort to estimate the likely range of bycatch mortality for each species within each subarea. The results were set in the context of regional abundance of the two cetacean species using the most recent abundance estimates from the SCANS-III survey (Hammond *et al.*, 2017). The levels of bycatch were considered against existing environmental limits that are used as markers for concern about levels of bycatch mortality.

UK

The UK implemented a dedicated protected species bycatch monitoring scheme in 2000. The data collected under the scheme amounted to 12 739 static net haul observations up to 2016. These data were used to calculate observed bycatch rates (number of animals observed per haul) over the period 2000–2016 by fishery stratum (métier, by pinger presence, and by vessel size category (over 12 m and under 12 m)). For each stratum, the 2016 fishing effort was calculated from logbooks and landings using a correction factor based on observed trips to convert days at sea to number of hauls per day. The effort was then used to generate bycatch estimates in each stratum for 2016. Total annual bycatch was estimated for harbour porpoise, common dolphin and seals (pooled harbour and grey seals). For harbour porpoise, bycatch was estimated under two scenarios, the first being that no boats were using pingers in 2016 and the second, being the best case where all vessels were using pingers to fully comply with Regulation 812/2004. The estimates include several assumptions, the most important of which is that net fleet lengths and soak time are the same within a métier regardless of vessel size. This causes positive bias in bycatch rates for smaller inshore vessels and negative bias for larger offshore vessels.

Additional information

Stranding information

Some EU Member States are using strandings records of cetaceans to evaluate bycatch. ICES considers that such data may be useful in providing an initial assessment of whether there is likely to be a problem with bycatch, but that they cannot replace a properly designed at-sea bycatch observer scheme. The difficulties in analyzing strandings data include national and area coverage, inshore and offshore encounter rates, and uncertainties with corpse drift models. There is currently no agreed strategy for dealing with these issues.

Bycatch of elasmobranchs

High bycatch rates for elasmobranchs were observed for some vulnerable (e.g. spurdog, *Squalus acanthias*, thorny skate, *Amblyraja radiata*), and near threatened (e.g. thornback ray, *Raja clavata*) species (as currently classified by IUCN), especially in trawl gears in the Celtic Sea, the Greater North Sea, and the Mediterranean Sea. A total of 12 species of elasmobranch were reported bycaught, although not all nations reported elasmobranch bycatch. Elasmobranch bycatch rates are therefore considered preliminary until additional data are provided/assessed. In general, many elasmobranch stocks are data poor, and better data would improve ICES advice on exploitation and fishing impacts.

Mitigation

Information from the EU Member State reports under Council Regulation (EC) No. 812/2004 (EU, 2004) was not sufficient for ICES to be able to widely assess the level of implementation or effectiveness of pingers and other mitigation measures, and no reliable statement can be made about the mitigation compliance across the EU. Current research results about gear modifications and Acoustic Deterrent Devices illustrated little progress in mitigation of bycatch, and inconsistent and ambiguous results. Further development to test the effectiveness of mitigation measures to reduce the bycatch is needed.

Sources and references

EU. 2004. Council Regulation (EC) No. 812/2004 of 26 April 2004 laying down measures concerning incidental catches of cetaceans in fisheries and amending Regulation (EC) No. 88/98. Official Journal of the European Union, L 150/12. 20 pp. <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32004R0812&from=EN>.

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Hammond, P. S., Lacey, C., Gilles, A., Viquerat, S., Börjesson, P., Herr, H., Macleod, K., Ridoux, V., Santos, M. B., Scheidat, M., Teilmann, J., Vingada, J., and Øien, N. 2017. Estimates of cetacean abundance in European Atlantic waters in summer 2016 from the SCANS-III aerial and shipboard surveys. May 2017. Available from: <https://synergy.st-andrews.ac.uk/scans3/files/2017/05/SCANS-III-design-based-estimates-2017-05-12-final-revised.pdf>.

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Annex

Table 1 Total number of marine mammals and bycatch rates (number of specimens/days-at-sea observed) in 2016 reported by EU Member States in their Council Regulation (EC) No. 812/2004 (EU, 2004) reports and other sources of opportunistically or dedicated data collected on bycatch of cetaceans (e.g. the EU Data Collection Framework or other monitoring programmes). Bycatch numbers and rates are grouped by gear type and ICES fishing area. * Number of incidents/days at sea observed, ** numbers not reported but assumed at least 1.

Species	ICES Subarea	Level 3 metier	Observed days at sea	Total number incidents	Total number of specimens	Bycatch rate (number of specimens/day at sea observed OR * Number of incidents/days at sea observed)
<i>Phocoena phocoena</i>	27.3.c.22	Nets	25.8	1	1	0.04
	27.7.f	Nets	44	6	6	0.14
	27.7.j	Nets	72	2	2	0.03
	27.7.e	Nets	206.31	3	3	0.01
	27.8.a	Nets	192.83	1	1	0.01
	27.8.b	Nets	236.33	1	2	0.01
	27.III.a	Nets	71	-	22	0.31
	27.7D23	Nets	237	-	10	0.04
Subtotal				14	47	
<i>Delphinus delphis</i>	27.8.c	Bottom trawls	105	1	10	0.1
	27.8.b	Nets	236.33	1	1	0.00
	27.8.a	Nets	192.83	16	31	0.16
	27.7.h	Nets	14.9963	2	3	0.20
	27.7.f	Nets	44	1	1	0.02
	27.6a; 27.7.b-c	Pelagic trawls	31	3	17	0.55
	27.7.e	Nets	206.31	1	1	0.00
Subtotal				25	64	
<i>Globicephala melas</i>	27.7.j	Nets	53	2	2	0.04
Subtotal				2	2	
<i>Stenela coeruleoalba</i>	GSA07	Pelagic trawls	41.5	1	1	0.02
	27.7.g	Pelagic trawls	-	1	1	-
Subtotal				2	2	
<i>Halichoerus grypus</i>	27.7.f	Nets	44	5	5	0.11
	27.7.j	Nets	72	1	1	0.01
	27.7.e	Nets	206.31	1	1	0.00
	27.3.d.25	Nets	44	1	1	0.02
Subtotal				8	8	-
<i>Phoca vitulina</i>	27.4.b	Pelagic trawls	17.25	3	3(+)**	0.17*
	27.8.a	Nets	192.83	1	1(+)**	0.01*
Subtotal				4	4	
<i>Cystophora cristata</i>	27.12.b	Bottom trawl	-	1	1	-
Subtotal				1	1	
TOTAL				56	128	

Table 2 Summary of the numbers of seabird and turtle bycatch specimens recorded in the data submitted to ICES from EU Member States through the data call. ** numbers not reported but assumed at least 1.

Species	ICES Subarea	Level 3 métier	Observed days at sea	Total number incidents	Total Number of specimens * Incident reported but not number of specimen	Bycatch Rate (number of specimen per day at sea observed *Number of incidents per days at sea)
Anatidae	27.3.c.22	Nets	25.8	1	12	0.47
<i>Melanitta fusca</i>	27.3.d.24	Nets	12.9	1	2	0.16
<i>Gavia arctica</i>	27.3.d.25	Nets	44	1(+)**	1(+)**	0.02*
<i>Phalacrocorax</i> spp.	27.7.f	Nets	44	3	3	0.07
<i>Uria aalge</i>	27.7.f	Nets	44	15	15	0.34
<i>Morus bassanus</i>	27.7.g	Nets	29	1	1	0.03
<i>Uria aalge</i>	27.7.g	Nets	29	1	1	0.03
<i>Morus bassanus</i>	27.7.j	Nets	53	2	2	0.04
<i>Phalacrocorax</i> spp.	27.7.e	Nets	122	2	2	0.02
<i>Uria aalge</i>	27.7.e	Nets	122	14	14	0.11
<i>Phalacrocorax aristotelis</i>	17	Bottom trawls	25	1	1	0.04
<i>Caretta caretta</i>	17	Bottom trawls	25	1	1	0.04
<i>Caretta caretta</i>	25~24~26	Longlines	10	1	1	0.1
<i>Caretta caretta</i>	25	Nets	2	2	6	3
<i>Chelonia mydas</i>	25	Nets	2	1	1	0.5
<i>Caretta caretta</i>	17	Pelagic trawls	342	4	4	0.01

Table 3 Estimates of bycatch mortality for harbour porpoise in Subarea 27.7 of the Celtic Seas in the context of the best current abundance estimate in this area.

Subarea	Year	Fishing effort (days at sea)	Estimate of bycatch rate (number of bycatch events/observed day at sea)		Estimate of harbour porpoise bycatch		Best estimate of abundance	% mortality using lower bycatch estimate	% mortality using higher bycatch estimate
			Lower 95% CI	Upper 95% CI	Lower 95% CI	Upper 95% CI			
Subarea 27.7	2015/2016	17 466	0.035	0.079	620	1391	57 491	1.08	2.42

Table 4 Estimates of bycatch mortality for common dolphin in subareas 27.7 and 27.8 in the context of best current abundance estimates for these areas.

Subarea	Métier	Year	Fishing Effort (days at sea)	Estimate of bycatch rate (number of by-catch events/observed day at sea)		Estimate of bycatch common dolphin		Best estimate of abundance	% mortality using lower bycatch estimate	% mortality using higher bycatch estimate
				Lower 95% CI	Upper 95% CI	Lower 95% CI	Upper 95% CI			
Celtic Sea Ecoregion 27.7 (a-c, g-h, j-k)	Mid-water trawl (OTM, PTM)	2015/ 2016	4 767	0.010	0.075	49	355	221 933	0.02	0.16
	Nets (GNS, GND, GTR)		17 485	0.006	0.031	104	549		0.05	0.25
Bay of Biscay 27.8 (a-e)	Mid-water trawl (OTM, OTM)	2015/ 2016	10 962	0.084	0.199	924	2187	111 990	0.83	1.95
Bay of Biscay and Iberian sea 27.8 (a-e)	Nets (GNS, GND, GTR)	2015/ 2016	61 124	0.011	0.035	683	2168		0.61	1.94
Total	Mid-water trawls and Nets	2015/ 2016	94 338			1760	5259	333 923	0.53	1.57

ICES Ecoregions including ICES Statistical Areas, ices.dk, Dec 2017

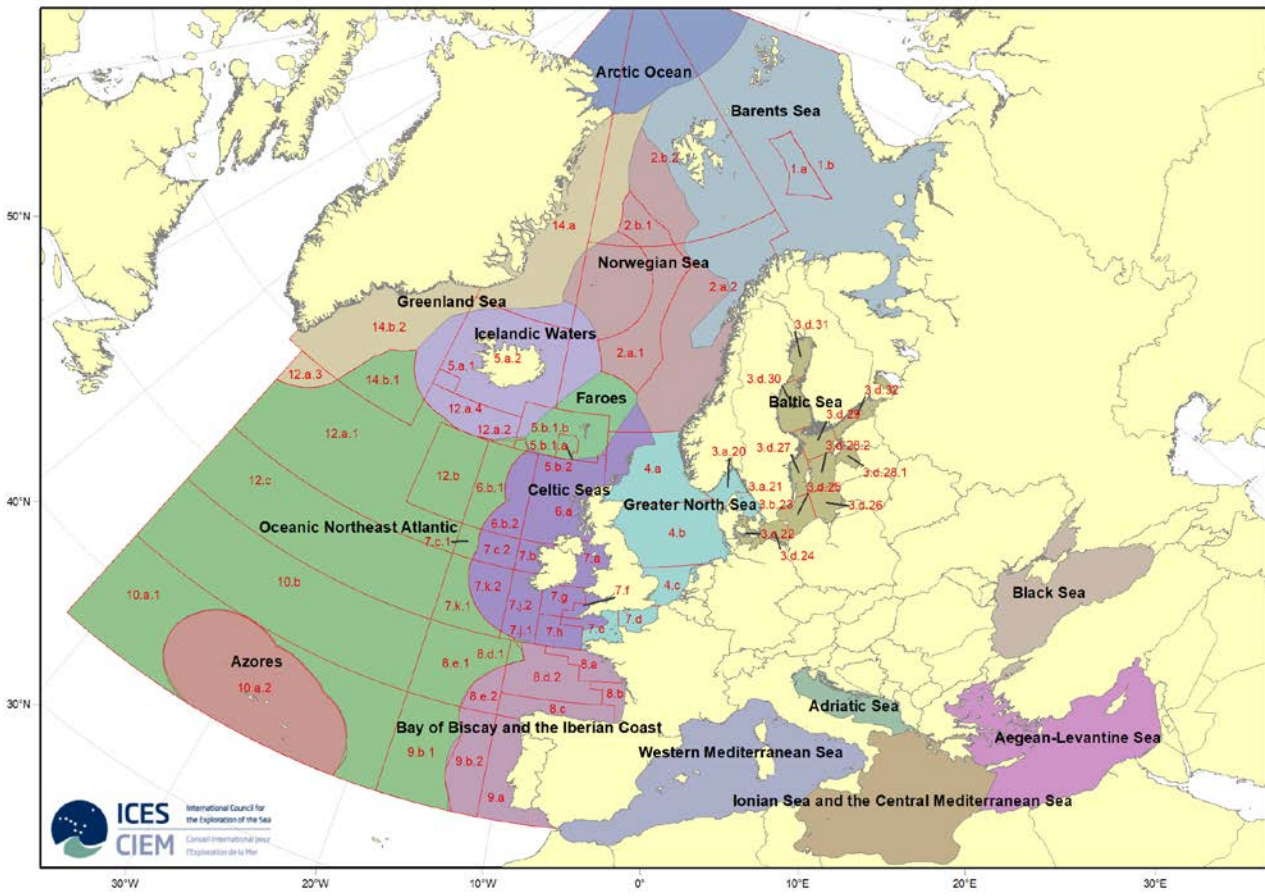


Figure 1 ICES ecoregions including statistical areas.