

ECOREGION: General advice
SUBJECT New information regarding the impact of fisheries on other components of the ecosystem, including small cetaceans and other marine mammals, seabirds, and habitats

Advice summary

New information summarizing bycatches of marine mammals and seabirds is presented. Bycatch levels of small cetaceans are considered in relation to their population sustainability. There is a continuing urgent need for mitigation measures to be applied in the Baltic Sea, Kattegat/Belt Seas, and off the Iberian Peninsula to reduce harbour porpoise bycatch, and in the Mediterranean to reduce bottlenose dolphin bycatch. ICES makes a series of recommendations that could improve information and knowledge on bycatch of these species in the future.

Request

Provide new information regarding the impact of fisheries on other components of the ecosystem including small cetaceans and other marine mammals, seabirds and habitats. This should include any new information on the location of habitats sensitive to particular fishing activities (EC standing request).

ICES Advice





ICES has collated new information on the bycatch of marine mammals and seabirds, and has generated rough estimates of likely bycatch levels for several small cetacean stocks. These bycatch estimates are compared with the reference limit (1.7%¹ of the best estimates of abundance) of several stocks of small cetaceans (Table 1.5.1.4.1). If the European Commission wishes to avoid the risk of further serious population level impacts, ICES advises that immediate mitigation measures need to be implemented for porpoises in the Baltic, Kattegat/Belt Seas, and around the Iberian Peninsula, and also for bottlenose dolphins in the Mediterranean. Certain other stocks require intensified bycatch monitoring in the short to medium term. These recommendations are summarized by stock in Table 1.5.1.4.1.















Advice on fisheries impacts on habitats is contained in Section 1.5.1.3.

¹ The figure (1.7%) is the rate of total removals from a population that would still allow the harbour porpoise population to achieve 80% of its carrying capacity over a very long time horizon, i.e. a proxy for a sustainable population (IWC, 2000). The figure was accepted by the European Commission (Anon., 2010) as the level above which ICES might advise that mitigation measures would become necessary.

Table 1.5.1.4.1 Possible scale of fishery impact through bycatch by species and area (stocks) with comparisons to nominal bycatch reference limits (1.7% of best estimate of stock abundance or of nominal abundance) and caveats. Adapted and updated from ICES (2011a, b).

Summary key:

-  = Recommend immediate mitigation measures.
-  = Enhanced short- and medium-term observation to decide appropriate action.
-  = No action required at present beyond background observation.
-  = Knowledge of effort and bycatch in the Mediterranean and Black seas is particularly poor.

Management region	Gear type	Possible scale of annual bycatch	Bycatch reference limit at 1.7% of nominal stock size	Comment (most important caveats)	Summary of required action
Harbour porpoise – static nets					
Baltic (Subdivisions 24–32)	Static nets	Unknown as bycatch events rare and unreported; gillnet effort very high.	84 ²	Critically-endangered sub-population: bycatch should be as close to zero as possible.	
Kattegat (IIIa S), Belt Seas (Subdivisions 21–23)	Static nets	242–423 animals per year	238	Lowest bycatch estimate is at 1.7%.	
North Sea and Skagerrak	Static nets	715–7364 animals per year	3498	Higher figure is based on one sample off Denmark; other possible figures are all below 3000 per year.	
Atlantic (North)	Static nets	1520–19 634 animals per year 2009: UK 791; France >300; Spain ~300	2617	Highest figure based on one sample off Ireland; incomplete fleet sampling in all member states.	
Atlantic (South)	Static nets	>92 animals per year	48	Low sampling of bycatch rates. 92 alone stem from Portugal.	
Black Sea	Static nets	High in May–June	≈ 510	Low sampling of bycatch throughout the year, but with a pronounced spring peak.	
Common dolphin (+ striped dolphin)					
Atlantic	Static nets	1111 (or 1778 if all fleets extrapolated at UK rate) excl Iberia	5841	Sum of French days x bycatch rate, UK days x bycatch rate, and Spain days x bycatch rate, with the remainder of the fleet extrapolated at the UK rate.	
Atlantic	Bass/tuna pair trawl	1253	5841	Bycatch total for 2009, most recent year of estimates, but it has been higher.	
Atlantic	Other pelagic trawls	0–30	5841	Very low bycatch rate, but observer coverage is incomplete.	
Black Sea	All gears	Unknown	≈ 1700		 
Striped dolphin					
Mediterranean	All gears	Unknown	≈ 8500	Fishing effort not available.	 
Bottlenose dolphin					
Mediterranean	Set nets	9700	850	Potential bycatch rate based on small areas of study.	

² This figure is based on the assumption that there could be more than four thousand porpoises in Subdivision 24 in the western Baltic. This was derived from the SCANS II survey that covered this area as part of the whole of the Belt Seas. In reality porpoise densities are probably lower in Subdivision 24 than in other parts of this survey block, so this number represents a likely overestimate of the 1.7% limit for the wider Baltic.

ICES Recommendations

In order to improve information and advice on ecosystem impacts of fisheries ICES recommends that:

- Member States be reminded of their obligations to monitor incidental catch under Article 12 of the Habitats Directive, and reports of that monitoring be made available to ICES;
- Monitoring by Member States be tuned using a risk assessment process so that information be collected primarily from those fisheries with the greatest perceived risk of bycatch and where such sampling programmes are designed to ascertain whether or not bycatch rates in specific fisheries are likely to represent a conservation problem.

In order to improve bycatch monitoring and reporting, ICES recommends that the European Commission encourage:

- the reporting of fleet effort and bycatch data by fishery sector using the sectoral classification of the Data Collection Framework (DCF) (with the specific addition of very high vertical opening trawls), aggregated by ICES subdivision and not across subdivisions or areas;
- the standardization and harmonization of the assessment and reporting requirements of Regulation 812/2004, of Article 12 of the Habitats Directive, and of any future reporting requirements under the Marine Strategy Framework Directive. The European Commission could provide detailed guidance on these standards to EU Member States;
- the further development of monitoring technologies such as Closed Circuit Television (CCTV) or remote platforms, particularly for fisheries where observer schemes are either impractical or very inefficient;
- the implementation of standard recording protocols for marine mammal and seabird bycatch for DCF observers, and appropriate observer training;
- the development of a European-wide observer training and certification scheme to ensure compatible standards are used in bycatch monitoring by all European Member States;
- the use of techniques other than port interviews to assess bycatch, as there is no way of avoiding the risk of misreporting or inattention of skippers to actual bycatch.

ICES notes that it is not possible to determine if the known impacts of fisheries have been reduced through mitigation. **ICES therefore recommends** that (1) more effective means of ensuring the use of acoustic deterrent devices need to be implemented, and (2) relevant sectors of the fishing industry be made aware of Member State obligations under Regulation 812/2004 and encouraged to suggest ways in which the obligations could be met.

ICES notes that there are significant gaps in the knowledge of bycatch of non-commercial species that should be addressed to establish a more complete understanding of the full impact of bycatch. These include:

- insufficient knowledge of cetacean bycatch in set-net fisheries in Subdivision IVc;
- no knowledge of cetacean bycatch levels in very high vertical opening (VHVO) trawl fisheries;
- insufficient knowledge of bycatch by vessels of less than 15 m in length;
- insufficient knowledge of the bycatch of other protected species than small cetaceans (mammals, birds, reptiles, and fish species of conservation concern);
- insufficient knowledge of bycatch occurring in the waters of countries adjacent to EU waters that are used by populations of species also occurring in EU waters. Particular examples include bycatch of harbour porpoise in Norwegian waters and bycatch in non-EU countries in the Mediterranean.

Background

ICES has tabulated the most recently available observations and estimates of bycatch of cetaceans and birds in EU waters in Table 1.5.1.4.2 (from National Reports on the implementation of Regulation 812/2004) and Table 1.5.1.4.3 (from other recently published studies). ICES is aware that the assessment of the impacts of fisheries on non-target species is hampered by poor levels of bycatch monitoring, the inadequate response of Member States to meet their obligations under Regulation 812/2004 and the Habitats Directive, and the limited availability of fleet effort data especially for smaller vessels.

In the absence of detailed bycatch monitoring programmes, ICES has used available estimates of bycatch rates for specific mammal species in relevant fisheries within five geographical regions and applied those rates to estimates of total fishing effort for the same gear types to obtain regional bycatch totals (ICES, 2011a). While these estimates are considered to be very broad they make best use of available data.

The bycatch limit reference point of 1.7% derives from work undertaken by a working group convened by the International Whaling Commission and the then Agreement on the Conservation of Small Cetaceans in the Baltic and North Sea (ASCOBANS) (IWC, 2000). This working group modelled harbour porpoise populations under various scenarios of bycatch and target population size, making best assumptions about a variety of population parameters. This figure (1.7%) is the rate of total removals from a population that would still allow the harbour porpoise population to achieve 80% of its carrying capacity over a very long time horizon (a proxy for a sustainable population). The figure was adopted by ASCOBANS as the rate above which bycatch would become “unacceptable”; subsequently noted by a North Sea Ministerial meeting and accepted by the European Commission (Anon., 2010) as the level above which ICES might advise that mitigation measures would become necessary.

Table 1.5.1.4.2 Summary of bycatch rate observations for small cetaceans taken from Member States annual reports on Regulation 812/2004 for 2009.

COUNTRY	MÉTIER	SUBDIVISION	SPECIES	BYCATCH RATE (ANIMALS PER UNIT EFFORT)	UNIT OF FISHING EFFORT	BYCATCH ESTIMATE BY FISHERY (APPROX) NC=NOT CALC	NOTES
Belgium	GNS	IV		0		0	
Denmark	All gillnets	IIIa	all species	0		0	
Denmark	All gillnets	IVb + IIIa (south)	<i>Phocoena phocoena</i>	0.02381	Trip	-	2 HP + 1 seal in 84 trips. Video- 1 vessel
France	GNS>R >15m	VIII	<i>Stenella coeruleoalba</i>	0.033	Day at sea	(800)	
France	GNS>R < 15m	VIII	<i>Phocoena phocoena</i>	0.0195	Day at sea	300	
France	PTM, winter all sizes	VII	<i>Delphinus delphis</i>	0.0458	Trip	20	
France	PTM, winter all sizes	VIII	<i>Delphinus delphis</i>	0.4773	Trip	300-400	
France	PTM, summer	VII	<i>Delphinus delphis</i>	0.0253	Trip	20	
France	PTM, summer	VIII	<i>Delphinus delphis</i>	0.4934	Trip	900	
France	OTM, summer, <15	VIII	<i>Delphinus delphis</i>	0.0294	Haul	13	
France	OTM, all year, all vessels	Med	<i>Stenella coeruleoalba</i>	0.0073	Haul	70	
France	OTM, all year, all vessels	Med	<i>Tursiops truncatus</i>	0.0014	Haul	10	
Germany	PTM >15m	VI, VII, VIII	All species	0			
Germany	PTM,	IIIa, b, c, d; IV, IX	All species	0			
Germany	GNS >=80mm, < 15m	IIIb, c, d	<i>Phocoena phocoena</i>	0			Very limited fleet coverage
Ireland	OTM	VIa,b, VIIa,g,j	-	0		0	
Ireland	PTM small pelagic fish	IVa, VIa, VIIb,g,j	-	0		0	
Ireland	PTM large pelagic fish	VIIj, k	-	0		0	
Italy	PTM	GSA 16	All species	0	haul	0	
Italy	PTM	GSA 17	All species	0	haul	0	
Netherlands	OTM	VI, VII, VIII	All species	0		-	
Netherlands	OTM	All areas except VI, VII, VIII	All species	0		-	
Netherlands	PTM	VI, VII, VIII	All species	0		-	
Netherlands	PTM	all areas except VI, VII, VIII	All species	0		-	
Latvia	PTM	25-32		0		0	
Latvia	PTM > 15	28.1		0		0	
Latvia	Netters?	22-32		0		0	
Poland	GNS	25	-	0		-	
Poland	GNS	26	-	0		-	
Poland	OTM	24	-	0		-	
Poland	OTM	25	-	0		-	
Poland	OTM	26	-	0		-	
Spain	GNS	VIIIa	<i>Delphinus delphis</i>	0.28	Day at sea	nc	
Spain	GNS	VIIIa	Unidentified dolphin	0.01	Day at sea	nc	
Spain	GNS	VIIIa	<i>Phocoena phocoena</i>	0.11	Day at sea	nc	
Spain	GNS	VIIIb	<i>Phocoena phocoena</i>	0.15	Day at sea	nc	
United Kingdom	PTB < 15 (without pingers)	VIIe	<i>Delphinus delphis</i>	0.6	Day at sea	nc	Very limited fleet coverage; Released alive (n=3).
United Kingdom	PTB < 15 (with pingers)	VIIe	<i>Delphinus delphis</i>	0			
United Kingdom	PTM < 15 (with pingers)	VIIe	<i>Delphinus delphis</i>	0.1	Day at sea	4	Census not estimate

COUNTRY	MÉTIER		SUBDIVISION	SPECIES	BYCATCH RATE (ANIMALS PER UNIT EFFORT)	UNIT OF FISHING EFFORT	BYCATCH ESTIMATE BY FISHERY (APPROX) NC=NOT CALC	NOTES
United Kingdom	PTM < 15 (without pingers)		VIIe	<i>Delphinus delphis</i>	n.a.			
United Kingdom	GNS (with pingers)		VIIId, e, f, g, h	<i>Delphinus delphis</i>	0	Haul	237	
United Kingdom	GNS (without pingers)		VIIId, e, f, g, h	<i>Delphinus delphis</i>	0.0046			
United Kingdom	GNS (with pingers)		VIIId, e, f, g, h	<i>Phocoena phocoena</i>	0	Haul	791	
United Kingdom	GNS (without pingers)		VIIId, e, f, g, h	<i>Phocoena phocoena</i>	0.0152			

Table 1.5.1.4.3 Additional recently published information on bycatch rates or estimates of bycatch totals for protected species or species of conservation concern from published sources.

COUNTRY	REGION	GEAR/FISHERY	YEAR	COVER AGE %	SPECIES	OBSERVED NO OF ANIMALS	BYCATCH ESTIMATE (CV; 95% CIs)	BYCATCH RATE (INDIVIDUAL PER ...)	SOURCE
DK	Waters around Ærø	Gillnets	2001–2003	66	Seabirds-total	426	598	0.39 ind/1000 NDM	Degel <i>et al.</i> , 2010.
					Eider ducks	308		0.27 ind/1000 NDM	
					other seabirds	118		0.12 ind/1000 NDM	
Spain	NW Spain (Eastern Atlantic)	Pair trawling	2001–2002	NA	<i>Delphinus delphis</i>	29	394 (230–632)	0.03255 ind/FT**	Fernández Contreras <i>et al.</i> , 2010

Sources

- Anon. 2010. Letter from the European Commission to ICES, dated 29 July 2010.
- Degel, H., Krag Petersen, I., Holm, T.E., Kahlert, J. 2010. Fugle som bifangst i garnfiskeriet Estimat af utilsigtet bifangst af havfugle i garnfiskeriet i området omkring Ærø. DTU Aqua-rapport, 227-2010.
- Fernandez-Contreras, M. M., Cardona, L., Lockyer, C.H., and Aguilar, A. 2010. Incidental bycatch of short-beaked common dolphins (*Delphinus delphis*) by pair trawlers off northwestern Spain. *ICES Journal of Marine Science*, 67: 1732–1738.
- ICES. 2011a. Report of the Workshop to Evaluate Aspects of EC Regulation 812/2004 (WKREV812). ICES CM 2010/ACOM:66. 65 pp.
- ICES. 2011b. Report of the Working Group on Bycatch of Protected Species (WGBYC). ICES CM 2011/ACOM:26. 73 pp.
- IWC. 2000. Report of the IWC-ASCOBANS Working Group on Harbour Porpoises. *Journal of Cetacean Research and Management*, (supplement) 2: 297–305.