

1.5.1.3 Interactions between fisheries and seabirds in EU waters

Request

ICES was requested by the European Commission (EC) to provide an initial assessment and advice on interactions between fisheries and seabirds in European Union (EU) waters with a view towards developing a National Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries (NPOA–Seabirds) for European waters. The development of such a plan would be done in fulfilment of the FAO International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries (IPOA–Seabirds). The EC requested that the ICES advice cover the interactions between all fisheries and seabirds in all EU waters, consistent with the ongoing development of FAO best practice guidelines for the development of an NPOA–Seabirds.

ICES advice is to be based upon collection and analysis of information, as recommended by IPOA–Seabirds:

- criteria used to evaluate the need for a NPOA–Seabirds;
- fisheries information pertinent to fisheries-seabird interaction, *inter alia*
 - fishing fleet data (number of vessels by size),
 - fishing techniques data (demersal, pelagic, methods),
 - description of fishing areas,
 - fishing effort by fishery (seasons, species, catch, number of hooks/year/fishery);
- status of seabird populations in the fishing areas, if known;
- total annual catch of seabirds (numbers per 1000 hooks set/species/ fishery);
- existing mitigation measures in use and their effectiveness in reducing incidental catch of seabirds; and
- systems for monitoring incidental catch of seabirds (observer programmes, etc.).

ICES response

ICES advises that the EC should develop an NPOA–Seabirds for EU waters, based on available evidence of seabird–fisheries interactions. ICES further recommends that an EC-wide Plan of Action (EC–POA) be developed to ensure cohesiveness and regulatory coordination among fishing fleets operating in EC waters. ICES advises that this plan of action should cover all fisheries (not just longline) where there is some indication of seabird bycatch. ICES notes that an assessment of seabird bycatch by the International Commission for the Conservation of Atlantic Tunas (ICCAT) is in progress. ICES advises that the development and implementation of an EC–POA is coordinated with any related ICCAT activities that apply to EU waters.

ICES advises that there is an immediate and critical need for more systematic data collection of seabird bycatch data throughout EU waters and for a standard protocol and format for recording these data. It is impossible to accurately assess the extent of seabird bycatch within EU waters without these developments. These deficiencies can cause gross underestimation of the actual amounts of seabird bycatch. Nonetheless, the presently available data are sufficient to indicate that seabird mortality is substantial in the Northeast Atlantic and Mediterranean longline fisheries. There are also too few available data to accurately estimate population trends for all of the seabird species of concern in any of the fishing areas considered. Nevertheless, available information indicates a persistent and possibly severe problem in some waters, especially in the Mediterranean.

To facilitate the development and implementation of appropriate regional mitigation measures, ICES advises that a geographic substructure be adopted for the EC–POA. It is important that this sub-structure can form the basis for an assessment of the total EU impact by seabird species. ICES advises that the following geographic sub-structure be adopted:

- Baltic Sea (ICES Areas IIIb, c, d)
- North Sea (ICES Areas IV and IIIa)
- Northwest waters (ICES Area VI)
- Celtic and Irish Seas (ICES Area VII)
- Bay of Biscay (ICES Area VIII)
- Iberian Seas (ICES Area IX)
- Azorean waters (ICES Area X)
- Western Mediterranean, including Tyrrhenian Sea (FAO subarea 37.1)
- Central Mediterranean, including Adriatic and Ionian Seas (FAO subarea 37.2)
- Eastern Mediterranean, including Aegean Sea (FAO subarea 37.3)
- Black Sea

Next steps

ICES notes the European Commission's commitment to establish an EC-POA by 2009 (COM (2008) 187 final). ICES understands that the EC-POA is meant to be synoptic, covering all EU waters and including all seabird species and all fisheries where seabird bycatch occurs. To ensure that this commitment is met, ICES proposes a 3-step approach (see below) to developing the EC-POA.

The EC-POA should be based on as much information as is available on the extent of the seabird bycatch problem. As noted above, ICES has assessed this with regard to some longlining fisheries but there remain gaps in the initial assessment, both in regard to longlining and to other fishing gears. Fishing effort data are required to scale-up observed bycatch to estimate the total bycatch. Without these data, it will not be possible to develop an adequate and effective EC-POA.

Step 1. Accessing fishing effort data

ICES does not have ready access to fishing effort data. As such, ICES recommends that the following information be provided by the EC for each of the following sea regions: ICES Areas IIIb, c, d; IV and IIIa; VI; VII; VIII; IX; X; the western Mediterranean; the central Mediterranean; the eastern Mediterranean; and the Black Sea:

- the average number of hooks set annually per longline fishery from 2002 to 2007;
- the average soak time (km.hours) during which gillnets and/or tangle nets were deployed during 2002–2007.

ICES is aware that the data available to the EC on fishing effort in some of these fisheries are incomplete due to insufficient submission of these data by relevant EU member states. ICES emphasises that it will not be possible to draft an effective EC-POA lacking such data. In addition, if data were made available at a greater spatial definition (e.g. by ICES Subareas) it would be possible to produce a more precise EC-POA in some areas. This would be particularly useful in examining the interaction between coastal fisheries and seabirds.

Step 2. Special ICES meeting in autumn 2008 (late October/early November)

ICES recommends that an extra meeting of the ICES Working Group on Seabird Ecology (WGSE) be convened in autumn 2008 to more fully assess the extent of seabird bycatch in all fishing gears. This meeting should strive to:

- Complete the collation of information on EU seabird populations
- Assess the extent of seabird bycatch in fishing regions within EU waters in fishing gears other than longlines (particularly in bottom-set nets) and make recommendations for mitigating seabird bycatch for inclusion within the EC-POA; and
- Where appropriate and possible, update earlier reports by ICES with respect to longline fishing effort.

ICES experts will ensure that various data on seabird populations and their distribution, including the European Seabirds at Sea Database, are made available for this WG meeting. ICES experts can access these data for the ICES area, but further expertise will be needed from other areas, especially parts of the Mediterranean and Black Seas.

Information on seabird bycatch in bottom-set net fisheries for each of the following sea regions: ICES Areas IIIb, c, d; IV and IIIa; VI; VII; VIII; IX; X; the western Mediterranean; the central Mediterranean; the eastern Mediterranean; and the Black Sea is required for this meeting. This information will be obtained from both published and unpublished literature (and various other sources), but again, additional expertise may be needed to obtain seabird bycatch data for fisheries in portions of the Mediterranean and Black Seas.

Participation at this meeting would include relevant seabird experts and representatives of organisations with expertise in the subject. Expertise would be invited from:

- all Regional Advisory Councils;
- the General Fisheries Commission for the Mediterranean;
- the Secretariat of the Convention for the Protection of the Marine Environment and Coastal Region of the Mediterranean (Barcelona Convention) (including the Regional Activity Centre for Specially Protected Areas);
- the Secretariat of the Commission on the Protection of the Black Sea against Pollution (Bucharest Convention);
- the Commission of the Convention on the Protection of the Marine Environment of the Baltic Sea Area (HELCOM);
- the Secretariat of the OSPAR Convention;
- BirdLife International.

ICES notes that special arrangements may be required to ensure that effort data are available from the EC's Joint Research Centre. ICES is willing to host the special WGSE meeting at ICES HQ.

Step 3. Drafting meeting for Plan of Action

ICES recommends that the first draft of the EC-POA be developed by a group of national and invited experts at a workshop to be convened by ICES in March/April 2009 at ICES HQ. This workshop would include seabird experts from within and outside the ICES community, and would be informed by the Report of the Special WGSE meeting in autumn 2008. Fisheries experts will also be invited to the 2009 Workshop to offer further interpretation of fisheries data and advice on protocols for EC-POA data collection.

Components of the EC Plan of Action

ICES recommends that the EC-POA follow best practice with respect to data collection and mitigation of seabird bycatch as provided in the Commission for the Conservation of Antarctic Living Marine Resources (CCAMLR) model. ICES further recommends that the EC-POA be composed of three broad components (see Technical annex for further details):

- ongoing assessment of the extent of the problem,
- prescription of mitigation measures, and
- education and ensuring compliance.

Source of information

Report of the ICES Working Group on Seabird Ecology, 2008.

Technical annex

Evaluating the Need for an EC–POA

In assessing the informational needs for an EC–POA, ICES followed the guidance provided for National Plans of Action–Seabirds contained within the FAO International Plan of Action (IPOA–Seabirds), adopted by the 23rd Session of the FAO Committee on Fisheries in February 1999 and endorsed by the FAO Council in June 1999. ICES notes that these data requirements are consistent with those required to conduct an assessment of seabird–fisheries interactions. Indeed, the EC specifically requested advice on collecting and analyzing such information with a view toward developing an EC–POA. Although other data may be considered, ICES found the stated list to be sufficient for the initial assessment requested by the EC.

ICES considered all available information to determine whether a seabird bycatch problem exists in EU waters. ICES also considered the FAO Code of Conduct for Responsible Fisheries (FAO 1995, Art 6.6), which calls for best practice to avoid unnecessary mortality of non-target species, irrespective of whether this mortality threatens the overall status of the impacted species. Therefore, the bycatch of seabirds within EU waters need not be proven significant nor affect threatened or endangered populations to warrant the use of mitigation measures.

The IPOA–Seabirds does not explicitly recommend that Plans of Action be based on the absolute number of seabirds taken as incidental bycatch or on the conservation status of the affected seabird species. Nevertheless, it calls for the collection and analysis of the *total annual catch of seabirds* and the *status of seabird populations in the fishing areas*. Of course, the need for an EC–POA and any potential remedial actions prescribed within such a Plan would be greater if the seabird mortality is potentially significant. This would be particularly true where any of the affected seabird species is listed as threatened, or is in need of protection according to internationally recognised criteria (e.g. IUCN, the EC Birds Directive).

ICES notes that there are significant gaps in the data required for a more thorough analysis. In particular, ICES views three data categories as particularly relevant in evaluating the need for an EC–POA: *Total annual catch of seabirds*, *Systems for monitoring seabird bycatch* and *Use/effectiveness of mitigating measures*. Data are severely lacking in all three information categories, but are critical to fully assessing and mitigating seabird bycatch. The *Total annual catch of seabirds* cannot be adequately assessed without adequate monitoring systems (especially on-board observer programmes). Likewise, bycatch cannot usually be reduced or eliminated without routine application of effective mitigation measures. As there are *a priori* reasons to consider that neither monitoring nor mitigation are adequately developed in fisheries in EU waters, the acquisition of adequate information is vitally important in the development (and successful implementation) of an EC–POA.

Even with sparse information, ICES finds that 20 species of seabirds interact with EC longline fisheries. Six of these species are notable for their high conservation concern, and their moderate to high frequency of capture (sooty shearwater, Balearic shearwater, Yelkouan shearwater, Cory’s shearwater, Audouin’s gull, and black-legged kittiwake). Two species have high reported numbers of mortalities (northern fulmar and great shearwater). This information signals a potentially large impact of fishing on some or all of the seabird populations in EU waters, whether seasonally or throughout the year. Based on these data, substantial seabird bycatch may be occurring in EC longline fisheries in the western Mediterranean, in ICES Area VII (Gran Sol grounds), and in Azorean waters.

Gillnet fisheries have large seabird bycatches in Polish and Lithuanian waters, off northwestern Spain, and in the western Mediterranean. Unfortunately, even less information is available to make a comprehensive estimation of overall mortality in these and other gillnet fisheries.

Based on an initial assessment, ICES concludes that there is a seabird bycatch problem in EU waters and that an EC–POA should be developed.

Seabirds in EU waters

ICES has compiled data on breeding seabird numbers and trends in seabird abundance for all EU coastlines except the Baltic, Mediterranean, and Black Seas. Information from these latter areas is believed to exist and to be easily available. EU waters are also visited by birds that breed elsewhere, some which breed in the Arctic and some in northern Europe/Asia. Great and sooty shearwaters travel from their southern hemisphere breeding grounds to feed in EU waters. The population size of some of these species is poorly known. Trends in abundance of most species are not well known except around the North Sea, NW waters, Irish Sea, Celtic Sea, and in the Bay of Biscay. Balearic, Cory’s and Yelkouan shearwaters are better understood with documentation of Mediterranean breeding grounds being a primary focus of research. All three of these species (or one or more of their subspecies) are endemic to EU waters and are experiencing population declines. These species face significant threats on their breeding colonies and, where data are

available, appear vulnerable to further mortality from bycatch in longline fisheries. Likewise, the black-legged kittiwake is experiencing severe population declines in ICES Areas IV, VI, and in Norway and are also vulnerable to bycatch mortality in longline or other fisheries.

In general, the ICES review revealed a paucity of data for many species, including information on distribution, threat vulnerability, and overall conservation status. Furthermore, the quality of information among seabird species in EU waters is variable and presents a challenge for fully assessing the impact of fisheries on these species.

Bycatch of seabirds in EU waters

ICES conducted a complete search for information on bycatch of seabirds in longline fisheries, including data contained in the published literature, in reports of observer programmes, and in other sources. ICES concludes that insufficient data exist to document seabird bycatch in the northeast Atlantic, making it impossible to fully understand the extent of seabird–fisheries interactions. For example, in ICES Areas III, IV, and VI–X, the only data available on seabird bycatch in longline fisheries were derived from:

- 1) three trips (2006–2007) on Spanish hake longliners (a fleet of *c.* 20 vessels) fishing the Gran Sol in ICES Area VII;
- 2) questionnaire returns from NW Iberia (ICES Area VIII);
- 3) limited observations from vessels fishing near the Azores (ICES Area X) in 2000–2005; and
- 4) occasional events reported elsewhere.

Within the Mediterranean area, some longline bycatch data exist (including a compilation of seabird bycatch data in 2003). However, only half of the Mediterranean countries with longline fleets reported information on seabird bycatch and mortality. Therefore, additional seabird bycatch is likely in the longline fisheries of the non-reporting Mediterranean countries, as well as in the longline fisheries of countries such as Japan, Korea, and Taiwan, fisheries which are also conducted in the Mediterranean Sea. The most extensive information on longline bycatch is for Spain. These data were sufficient to enable identification of the main species taken by longlines, as well as to derive qualitative estimates of seabird mortality. Bycatch occurs in both pelagic and demersal longline fisheries, with the latter appearing to be the main threat to seabirds. The Spanish longline fleet accounts for only a small proportion of the total fishing fleet in the Mediterranean. Balearic, Yelkouan, and Cory’s shearwaters are prominent in the recorded seabird bycatch of the Spanish longline fleet.

Although observer programmes exist in Azorean waters to document both target and non-target catch in longline fisheries, there is only one record of seabird bycatch in either demersal or pelagic longline fisheries. However, the proportion of the fleet observed is low. Expanding the observer programme to cover a larger proportion of the Portuguese national fleet, as well as other national fleets present in the Azorean EEZ, would provide a greater understanding of seabird–fisheries interactions in this region.

Most records of bycatch are associated with larger fishing vessels; it is likely, however, that seabird bycatch is substantial in the small-vessel fleets. Observing and documenting bycatch in these fleets has been particularly challenging.

Seabird bycatch data from a single vessel fishing in the vicinity of Iceland and the Faroes during 1996–1998 (ICES Areas V and II) are also available, being perhaps also representative of the bycatch of vessels fishing in the northern part of ICES Area VI. These data are supplemented by some bird ring recoveries. Observations have also been made off western Norway which may be applicable to the extreme northern part of the North Sea (ICES Area VI).

ICES concludes that there is an immediate and critical need for more systematic data collection of seabird bycatch data throughout EU waters and for a standard protocol and format for recording these data. It is impossible to accurately assess the extent of seabird bycatch within EU waters without these developments. These deficiencies can cause gross underestimation of the actual amounts of seabird bycatch. Nonetheless, the presently available data are sufficient to indicate that seabird mortality is substantial in the Northeast Atlantic and Mediterranean longline fisheries.

Existing mitigation methods

ICES reviewed seabird bycatch mitigation methods used throughout the world’s oceans, many of which have potential applicability in EU waters. Seabird bycatch on longlines seems particularly amenable to mitigation; many effective methods have been developed and are currently in use around the world. Development of these mitigation methods has relied heavily on the assistance and expertise of fishers, which has helped to ensure that these methods are safe, cost-effective, and practicable.

The effectiveness of each method (and combination of methods) varies due to their nature and usage as determined by various factors. These factors include: the nature of the target fishery, gear used, location and suite of seabird species encountered, and sea conditions. Options for mitigation include: offal and discard management, area/seasonal closures, underwater setting devices, bait casting/throwing machines, blue-dyed bait, side-setting, night-setting, bird-scaring lines, bird curtains, fish oil, integrated and external weight lines, line shooter, and bait condition and species.

ICES has compiled information on each of these methods, including data on their efficacy and safety. Some practices such as offal and discard management and area/seasonal closures are already in place in some fisheries for reasons other than reduction of seabird bycatch. Other mitigation methods have been specifically designed and tested to reduce seabird bycatch.

ICES has also reviewed and compiled descriptions of regulations to reduce longline seabird bycatch that have been implemented in many longline fisheries around the world. Some of the measures have been in place for several years and have been modified in light of actual experience and subsequent research findings. Area/seasonal closures can probably be fine-tuned to avoid or minimize seabird bycatch. Regulatory experience indicates that most fisheries require a combination of mitigation methods to achieve significant reductions in seabird bycatch. The efficacy of some measures (i.e., the use of thawed bait) is not supported by empirical evidence.

As a model of best practice, the Commission on the Conservation of Antarctic Marine Living Resources (CCAMLR) has required seabird bycatch mitigation measures for demersal longline fisheries since 1992. CCAMLR uses risk assessment to determine how and where to apply such measures based on: (a) assessing the relative risk of seabird bycatch within subareas of their Convention Area, and (b) specific information regarding the seabird species themselves and their relationship to CCAMLR fisheries. Seabird bycatch in the CCAMLR area is now very low.

There is little information on EU countries implementing seabird bycatch mitigation methods, through either mandatory or voluntary means. Some fishers voluntarily use bycatch mitigation measures to reduce bait loss to seabirds. However, there is insufficient information to determine whether any of these initiatives have been effective.

Suggested contents list of EC Plan of Action

ICES has initiated the process of assembling the information needed to develop an EC-POA. This has been done on the basis of geographic sub-regions of the EU waters:

- Baltic Sea (ICES Areas IIIb, c, d)
- North Sea (ICES Areas IV and IIIa)
- Northwest waters (ICES Area VI)
- Celtic and Irish Seas (ICES Area VII)
- Bay of Biscay (ICES Area VIII)
- Iberian Seas (ICES Area IX)
- Azorean waters (ICES Area X)
- Western Mediterranean, including Tyrrhenian Sea (FAO subarea 37.1)
- Central Mediterranean, including Adriatic and Ionian Seas (FAO subarea 37.2)
- Eastern Mediterranean, including Aegean Sea (FAO subarea 37.3)
- Black Sea

Progress is summarized below:

- a) fishing fleet data (e.g. number of vessels by size);
- b) fishing metier data (*Nantes level 4* or similar);
- c) fishing effort by fishery (by season where relevant and using appropriate effort descriptor, e.g. number of hooks/year, soak time of gillnets);

However, ICES has not been provided with sufficient data for any of the above items (i.e., a, b, and c).

- d) status of seabird populations;

ICES has compiled and assessed information on the distribution and status of many breeding seabird populations within EU waters, but this has not been done for populations breeding in the Baltic, Mediterranean, and Black Seas. The status of seabird species that forage in EU waters—but breed elsewhere—has not been assessed.

- e) total annual catch of each seabird species in each fishery (preferably with confidence limits);

ICES has reviewed available information on the catch of seabirds in longline fisheries within EU waters. These data are incomplete, describing only subsets of some longline fisheries and containing no information on gillnet or trawl fisheries (although there is no evidence of significant interactions between trawl fisheries and seabirds).

f) existing mitigation methods;

ICES compiled information on all existing seabird bycatch mitigation methods worldwide and summarized their effectiveness in reducing seabird bycatch. No single mitigation method is likely to be fully effective, and hence a combination of methods used simultaneously is recommended. The specific combination will depend on such factors as the target fishery, gear used, location and suite of seabird species encountered, and sea conditions. Furthermore, this may need to be fine-tuned on an individual vessel basis to optimize performance.

g) systems for monitoring incidental catch of seabirds (observer programmes etc)

ICES has summarized the need for a well-organized and standardized at-sea observer programme. The observer programme should cover a representative sample of fisheries and target species, and should monitor bycatch rates and the efficacy of mitigation methods. ICES has recognized the need for the observer programme to be complemented by a series of questionnaires to fishers concerning their attitudes and reactions to seabird bycatch.

h) systems for appropriate data storage and reporting of seabird bycatch.

ICES has made no progress in devising possible systems for the reporting or storage of relevant data.