REPORT

OF THE ECS/ACCOBAMS/ASCOBANS WORKSHOP ON CURRENT CETACEAN BYCATCH ISSUES IN EUROPEAN WATERS

Held at the 34th Annual Conference of the European Cetacean Society

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WORKSHOP ON CURRENT CETACEAN BYCATCH ISSUES IN EUROPEAN WATERS

1. Welcome and introduction to the workshop

The Co-Chairs, Ayaka Amaha Öztürk and Peter Evans welcomed everyone and introduced the programme.

2. The Baltic Proper harbour porpoise (by Ida Carlén)

The Baltic Proper harbour porpoise is listed as Critically Endangered by the IUCN. The only existing abundance estimate of the population is 491 (95% CI 71-1105) animals, calculated by the SAMBAH project. The number of fertile females is likely low due to high contaminant loads, and the potential biological removal has been calculated at 0.7 animals per year.

Fishing in the Baltic Sea is mainly pelagic trawling and small-scale gillnet fisheries for herring, sprat, salmon and flatfish. Semi-driftnets are used in some areas. Bottom trawling is rare since the crash of the Baltic cod stocks and the following ban on cod fishing.

Historically, harbour porpoise bycatch has been substantial in the region, both in the now-banned salmon driftnets, as well as in gillnets and trammel nets. It is likely that the semi-driftnets that are still used cause some bycatch.

In 2020, the first steps were taken towards managing harbour porpoise bycatch in the Baltic Proper, when ICES published special request advice on the issue, and the European Commission opened an infringement case against Sweden for not complying with the Habitats Directive in relation to harbour porpoise bycatch. This eventually led to a delegated act under the Technical Measures regulation being put in place in February 2022, closing static net fisheries in some important harbour porpoise areas in the Baltic Proper, all-year or part of the year, and mandating pingers to be used in static net fisheries in other areas, in accordance with the ICES advice.

The ICES advice also proposed pinger use in all remaining static net fisheries within the range of the Baltic Proper harbour porpoise. However, with the military navies of three countries vetoing large-scale pinger use, this measure has not been implemented, and the discussions in the Baltic regional fisheries body BALTFISH have yet to render any alternative proposals of further effective bycatch mitigation measures.

Discussion

It was pointed out that if mid-frequency sound (as used by the military for submarine detection) was the problem, that should be easy to get around, as pingers operated at much higher frequency, in order to be within the main hearing range of porpoises; there were also seal scarers currently being used in the Baltic. Energy exploration in the Baltic was also highlighted, and there would be louder sounds generated during these activities.

3. Bay of Biscay common dolphin

Bycatch of common dolphins in the Bay of Biscay (by Hélène Peltier)

The exploitation of small cetaceans in the Bay of Biscay has a long history, dating back to the early 20th century. Initially seen as direct competitors to fishing activities, they were later considered a

source of protein and exploited for human consumption until the 1970s. They were then classified as a protected species in France, making it illegal to catch, consume, trade or transport them. However, whether hunted or protected, small cetaceans have always been caught in fishing gear at high levels; since the late 1980s, strandings along the Atlantic coast have made it possible to monitor fluctuations, thanks to the Réseau National Echouages (RNE) coordinated by the Pelagis Observatory (La Rochelle University/CNRS).

At the end of the 1980s, the first strandings of common dolphins showing bycatch evidence were recorded. Although they occurred in winter, they were attributed to the tuna drift net fishery, which operated in summer and offshore. This fishery was banned in 2002. A new series of strandings occurred at the end of the '90s, and a working group was set up with representatives of the state, fishermen's organisations and scientists. Research projects focused on interactions between common dolphins and pelagic pair trawlers, which have the highest bycatch levels. No regulatory measures have been taken, but stranding levels decreased, and the attention fell.

In 2016, strandings intensified, reaching unprecedented levels by 2023. Research estimated bycatch levels of between 4,000 and 10,000 per year, with nets having a particularly significant impact. While estimates of abundance do not show a decline, effects on demography have been detected (reduced longevity and age at first reproduction in females).

The government-led working group was re-established, with more or less the same players, and once again research projects were launched to reduce bycatches. Several technical devices were tested to reduce them, but only pingers on pelagic trawls proved to be sufficiently effective and were made mandatory. The other devices are still in the test phase.

Given the increasingly high levels of bycatches, and following advice from ICES, the European Commission initiated an infringement procedure against France in 2020, which is still ongoing. In March 2023, the French Council of State ordered France to take measures to reduce bycatches through fishing closures within 6 months. This advice led to violent protests from the fishing industry, whilst the winter of 2023 saw the highest level of strandings ever recorded on the French coast.

Discussion

It was noted that the latest abundance estimate was 180,000 common dolphins. Bycatch of the species was estimated to be 4,000-5,000 common dolphins. The threshold defined by OSPAR was 980 animals for the management unit, so the current bycatch numbers were clearly over the threshold. Bycatch had been recorded in all fishing gear.

On-board cameras to monitor marine mammal bycatch? The OBSCAMe project on gillnetters in the Bay of Biscay (by Stéphanie Tachoires and Corentin Vignard, French Biodiversity Agency (OFB))

OBSCAMe is a French scientific program based on REM observation with the following objectives: (1) to reinforce the observation of incidental bycatches of marine mammals, while diversifying the methods of data collection, (2) to test the scientific contributions of REM observation to better understand the interactions between gillnetters and marine mammals in the Bay of Biscay, and (3) to evaluate the cost/benefit ratio of these devices for the monitoring of marine mammal bycatches. This project is coordinated by the French biodiversity agency (OFB), in partnership with the French fishermen representatives' organizations, the scientific collaboration of IFREMER and Observatoire Pelagis La Rochelle University-CNRS with political supervision of the Ministries in charge of the environment and fisheries.

After a first phase in 2021 that validated the feasibility of the system on French gillnetters in the Bay of Biscay (with 5 voluntary vessels), and a second one with 20 vessels in total, the project is due to end in summer 2023. The vessels were equipped from January 2021 to July 2022. The boats are distributed along the Atlantic coast with many volunteers located in the harbour of Capbreton. In April 2023, and from 2021 to the beginning of 2023 (analyses are still underway), over 3 760 days at sea

and 11 500 fishing operations (hauling) have been observed with the REM system (the involvement and the fishing activity of the 20 vessels fluctuated during the project). As this is a voluntary program (vessels are volunteers), the data may not be representative of the diversity of the Bay of Biscay gillnet fleet. The coverage represents around 4 to 5% of the fishing effort of French gillnetters in the Bay of Biscay, but not all metiers are covered, and some areas are over-sampled (particularly the area off Capbreton). However, the data do bring several contributions of the system to improving our knowledge of bycatch:

- The REM system can be used on gillnetters to provide information on marine mammal bycatch, as well as on the fishing effort of gillnetters (number of fishing operations, soak time, net length, etc.);
- More than 130 marine mammals have been identified in nets until the end of 2022 (80 common dolphins – 37 harbour porpoises: a relatively high proportion for this species compared to stranding data or at-sea observation data – 7 seals);
- Videos concerning December 2022 are currently being analyzed, but there are at least 40 marine mammals (mainly common dolphin 60%) observed in this month. This observation is consistent with the strandings observed on the coast during this month.
- More than 80% of carcasses could be identified to species level;
- The REM system allows continuous monitoring (unless there are malfunctions or interruptions of the device) which responds to the difficulty of scarce events such as bycatch (see the final report for more details);
- The REM system provides complementary information to the at-sea observation program (ObsMer) at a lower cost per day at sea (however, OBSCAMe project focuses on bycatch and does not provide detailed information on commercial catches)
- The camera records what may not always be observed on board (20% of marine mammals fell into the water and were not brought back on board).

Bycatches of other species (seabirds, sturgeons, sharks, rays) have also been observed but not analysed.

In conclusion, first results have permitted to validate using REM to monitor marine mammal bycatches on gillnetters. Because of the fishermen's strike in France, some vessels have stopped their participation in the program. A next stage of the project (OBSCAMe+) is planned as part of the French action plan to reduce cetacean bycatch in the Bay of Biscay.

Discussion

A question was raised about when greater statistical certainty would be achieved, but since this was simply a feasibility study as an alternative way to observe bycatch, a wider scale deployment of REM has yet to be decided. If it were to go ahead at a fleet level, it would provide much needed information. It was pointed out that there will be 100 cameras deployed, but the problem is the reaction of the fishers who are opposed to the camera. What is needed is well known but it is important for action to be non-confrontational and have the backing of fishers.

4. Black Sea cetaceans

Monitoring the effectiveness of pingers in reducing cetaceans bycatch in Bulgarian bottom set gillnets (by D. Popov, G. Meshkova)

In the period 2019-2022 in Bulgaria, onboard monitoring was organized to assess bycatch rates of cetaceans in bottom set gillnets for turbot, and different pinger models were tested as a mitigation measure. The following devices were used: Future Oceans – 10 kHz, 132 dB NETGUARD; Future Oceans – 70 kHz, 145 dB NETGUARD, and Porpoise Alerting Devices (PAL) – 10 kHz, 132 dB by F^3: Maritime Technology. In total, 475.53 km of nets were monitored during the four years. Those were set at depths from 45 to 94 m with soak times from 12 to 31 days. Bycatch numbers were 105 in 2019, 47 in 2020, 31 in 2021 and 67 in 2022, with 235 of these being harbour porpoises, 12

bottlenose dolphins and 3 common dolphins. A significant increase of bycatch from spring to summer was observed. PALs spaced at 140 m have shown an 86% ($p<0.05$) reduction of bycatch during trials in 2020 and 2021. No significant difference in bycatch rates between active and control nets was observed for the two Future Oceans models of pingers tested. Collected data were used for estimation of bycatch levels of porpoises in the entire Black Sea and in Bulgarian waters only. For both strata, the estimated annual takes exceeded any globally accepted levels, raising concerns for the survival of the Black Sea harbour porpoise subspecies. We recommended PAL as a successful bycatch mitigation device to Bulgarian authorities (Ministry of Environment and Water, the Executive Agency for Fisheries and Aquaculture) and the General Fisheries Commission for the Mediterranean (GFCM). GFCM initiated further confirmation trials in Black Sea waters of Bulgaria, Romania and Turkey.

Discussion

It was noted that the Black Sea is a touristic area in some parts, and the demand for turbot is quite high. One of the participants suggested that perhaps fishers in the Black Sea should be informed that eating turbot causes a lot of distress to animals. However, it was felt that nothing was happening due to political reasons. Most common dolphin strandings in the Black Sea had net marks, which was unexpected. The common dolphin stranding was not considered very common in the Black Sea.

5. Mediterranean situation

Review of available data on cetacean bycatch in stranding databases from the ACCOBAMS Area (by Célia Le Ravallec)

ACCOBAMS developed a review of available data on bycatch in national stranding databases, which was published in 2021. A questionnaire was distributed among 24 countries in the Mediterranean and Black Sea areas, and responses were received from 18 countries. That was because the stranding networks in different countries had a different status (official recognition and well-coordinated vs voluntary data by experts and/or organizations).

For a large majority (67%) of the nearly 3,000 strandings reported in the last five years, it was not possible to establish the cause of death. The remaining 33% of strandings were somehow related to fisheries. Most frequently observed evidence of fisheries interaction during post-mortem examination were external presence of fishing gear, superficial and penetrating wounds, presence of recent feeding, and marks/linear signs.

Training and funding were the most frequently reported needs by the respondents to improve data collection and capacity for identifying the causes of death of a stranded cetacean.

State of the Mediterranean and Black Sea fisheries (SoMFi 2022): Incidental catch of vulnerable species in the Mediterranean and Black Sea (by Paolo Carpentieri, General Fisheries Commission for the Mediterranean (GFCM), Food and Agriculture Organisation of the United Nations)

The third edition of the State of Mediterranean and Black Sea Fisheries (SoMFi, 2022), presents a compilation and a review of the more recent available information on the incidental catch of vulnerable species in different fisheries within the GFCM area of application.

Sea turtles (around 470 000 individuals) and elasmobranchs (40 253 individuals) showed the highest numbers of reported individuals incidentally captured in the whole region, with longliners (211 864 total individuals between both species groups) and bottom trawlers (187 449 total individuals) representing the most relevant vessel groups affecting the conservation of these two species groups. Seabirds (7 004 individuals) and cetaceans (9 829 individuals) are the two vulnerable species groups with the lowest numbers of reported interactions and individuals incidentally caught. Concerning cetaceans, the majority of data are reported from the Black Sea (9 159 individuals), where coastal

fisheries targeting Black Sea turbot continue to have an impact on the cetacean population – which is composed of three endemic species, Black Sea common dolphin (*Delphinus delphis ponticus*), Black Sea bottlenose dolphin (*Tursiops truncatus ponticus*) and the most impacted, Black Sea harbour porpoise (*Phocoena phocoena relicta*). Few data are reported from the other GFCM subregions.

It is clear that in the Mediterranean and Black Sea there are still several important knowledge gaps for many types of fishing gear and for several countries, and only few measures are in place to protect vulnerable species. More systematic data collection and studies, following standard protocols, can contribute to better understanding the different types of impacts, filling knowledge gaps and indicating which types of fishing gear are most harmful and whether fishing patterns reveal any geographical or seasonal trends. This information may in turn, be useful in applying adequate mitigation measures in order to reduce the impact of fishing activities on marine living resources and to ensure the survival of Mediterranean and Black Sea vulnerable populations.

Bycatch of bottlenose dolphins in Slovenia and the Gulf of Trieste (by Tilen Genov)

Genov presented information on bycatch of common bottlenose dolphins (Tursiops truncatus) in Slovenia and the Gulf of Trieste, northern Adriatic Sea. The Gulf of Trieste, together with its neighbouring waters, hosts a resident population of about 150 bottlenose dolphins, which has been studied since 2002 and is now relatively well known. Despite this population being studied in relatively great detail, little information on bycatch is available. Onboard observer monitoring is not feasible, due to the majority of the fishing fleet being composed of small-scale artisanal fishers with predominantly small boats. Therefore, bycatch was assessed through a combination of approaches, including cases of dolphins found directly entangled in fishing gear, post-mortem diagnosis of bycatch based on necropsy findings, diagnosis of other fisheries-related mortality, and evidence from observations of live animals. Dead animals were either found at sea or onshore by the research team or the general public. In a number of cases, fishers themselves reported bycatch in their fishing nets directly to the research team and enabled access to the animals. Standard necropsies were carried out on all dolphin carcasses, regardless of decomposition stage. Between 2002 and 2020, a total of 23 dead dolphins were documented. In 39.1 % of these, the cause of death was attributed to fisheries as either confirmed or strongly suspected. In 17.4 % of recovered dolphins, bycatch resulting in asphyxiation was the confirmed cause of death, all in bottom-set gill and trammel nets. Other causes of fishing-related mortality included partial or full ingestion of fishing gear, resulting in larynx strangulation or blockage of the digestive tract. Among animals that died from fishing-related causes, 78 % were adults and 22 % were calves. Despite several caveats, bycatch in this population may be more substantial than previously thought. In addition, several animals observed alive in the field featured evidence of previous entanglement. This study showed that even when ideal bycatch monitoring cannot be achieved, combining various approaches can be informative.

6. Advances in potential mitigation measures

Testing deterrent devices to reduce depredation and bycatch of cetaceans in Southern Portuguese coastal fisheries (Marçalo, A., Carvalho, F., Frade, M., Bentes, L., Monteiro, P., Pontes, J., Alexandre S., Oliveira, F., Kingston, A., Erzini, K., and Gonçalves, J.M.S.)

Limited mitigation trials have been carried out in Portuguese fisheries where both cetacean bycatch and depredation are known to occur.

We presented the results of mitigation trials occurring within the scope of two projects (iNOVPESCA and CetAMBICion) that occurred from June 2019 to June 2022 in bottom set-net (gillnet and trammel net) and purse seine fisheries.

Acoustic alarms of the models DDD 03N and DiD (STM Products, Verona, Italy) were used in different métiers in set net fisheries and the reduction of bycatch and depredation of cetaceans evaluated. In turn, the model DDD 03H was used in the purse seine fishery to evaluate the reduction

of bycatch of cetaceans. Data collection was performed by onboard observers and vessel crew observers (using logbooks specifically prepared for the project) in vessels participating in the trials. For both fisheries, the data were analyzed to compare fishing hauls with and without the acoustic alarms and accounted for differences in CPUE, interaction level (bycatch in both fisheries and depredation in set nets), factors affecting the interaction, probability of interaction, and habituation (in set nets only).

The results obtained allow us to conclude that the mitigation trials with the two models of acoustic deterrent devices in set nets (gill and trammel nets) and the model for purse seine nets provided important information about the efficiency of these acoustic deterrent devices as tools to mitigate negative interactions with cetaceans such as bycatch or depredation. The use of these models of deterrents, at each specific fishery reduced the negative interactions between cetaceans and the fishing gear, specifically depredation from bottlenose dolphins, T*ursiops truncatus*, and bycatch of different species in set nets, and bycatch of common dolphins, *Delphinus delphis*, in purse seine nets.

In set nets (gill and trammel nets), this long term (three year) study showed that interaction rate (depredation or bycatch with mortality) was significantly lower in hauls using acoustic devices. Moreover, in the 3 years for set nets (gill and trammel nets), for both models tested (DiD or DDD), the depredation rate was about 50 % lower with the use of the alarms for all metiers tested. Furthermore, with up to three years of testing, alarms in set nets are still about 70 % efficient in deterring depredation from set nets, revealing what seems to be a gradual but slow habituation of the bottlenose dolphins to the equipment. In purse seine nets, bycatch was 100 % reduced in this fishery when using the acoustic alarms.

These results allowed us also to conclude that mitigation with deterrent devices should always be considered with caution and not as the only solution, since it may be financially challenging to be applied in small scale fishing vessels, and also because the large-scale use of acoustic devices can contribute to added noise to the environment. Moreover, acoustic alarms are also dependent upon several variables such as type of area, environment (e.g. season), biology (e.g. species) or operation (e.g type of fishing métier or gear). Some best practice associated with the use of alarms and other mitigation suggestions are also presented.

Discussion

In the discussion about depredation, it was mentioned that 50% of all bycatch were bottlenose dolphins. However, nation-wide, the common dolphin was the most bycaught, probably because it was the most abundant. There were reports of striped dolphins and juvenile whale (e.g. minke whale) bycatch as well. In response to a question, Ms Marcalo emphasised that she wanted to find a bycatch mitigation solution that addressed the depredation concerns of fishers. With respect to purse seining, the problem is one solely of bycatch with an annual bycatch rate of c. 500 animals. That is not a depredation issue.

Can pearls protect porpoises? Application of acoustic reflectors in gillnets to reduce bycatch of harbour porpoises and other odontocetes while keeping fish catches high (by Hannah Schartmann[1], Isabella Kratzer[2], Thomas Noack[1], Sara Berzosa[1], Uwe Lichtenstein[1], Daniel Stepputtis[1])

The incidental catch in fishing gear, especially in gillnets, is one of the main threats to marine mammals around the world, including harbour porpoises (*Phocoena phocoena*). Consequently, there is an urgent need for the mitigation of bycatch to protect marine mammals while maintaining fisheries. Our study aims to develop and test fishing techniques that reduce the bycatch of porpoises in gillnets but ensure profitable catches of targeted fish species. Since porpoises use echolocation for orientation, one way to achieve this might be to increase the acoustic detectability of gillnets. By attaching small acrylic glass spheres to a gillnet as those pearls were found to have a strong echo.

[1] Thünen Institute of Baltic Sea Fisheries, Germany
[2] Federal Maritime and Hydrographic Agency, Germany

By making the netting acoustically “more visible”, the bycatch of harbour porpoises might be reduced in the so-called “pearl net” as the animals should recognize the netting as an impenetrable object.

To investigate the pearl net´s effects on fish catches, catches of target species like plaice (*Pleuronectes platessa*), but also other species were compared between a pearl net and a conventional flatfish gillnet net. The positive results of these trials show that, where bycatches of harbour porpoise can be reduced significantly, the pearl net could be a fair compromise between fisheries interests and marine conservation goals, not only in the Baltic Sea but also worldwide. Investigating the bycatch reduction of harbour porpoises by using the pearl net compared to a standard gillnet in a large-scale experiment will be the next step.

Discussion

In discission it was noted that more studies were needed before it could be said that pearl nets are effective. Some Turkish fisheries in Sinop had already used the pearl nets from September to December, but there were virtually no porpoises there at that time.

Fishery bycatch of cetaceans in the Iberian Peninsula and Bay of Biscay: the CetAMBICion and MermaCifra projects and the Iberian porpoise (by Graham Pierce)

The presentation summarised the objectives and structure of the CetAMBICion project (2021-2023, EU MSFD 2020 call), under which partners from Spain, France and Portugal aim to develop better coordinated monitoring, assessment and mitigation of cetacean bycatch mortality in fisheries in the Bay of Biscay and Iberian coastal waters, in the context of the Marine Strategy Framework Directive. Some project results were also presented:

- A preliminary analysis of observer data on cetacean bycatch highlighted seasonal and spatial (related to depth and latitude) differences in bycatch rate.
- Maps of bycatch risk for the northern coast of Spain were presented, highlighting differences between gears. These were created by combining data on fishing effort and (modelled) cetacean distribution.
- Trials of a cetacean excluder device for use with (pair bottom) trawl nets suggested that deployment of the devices was feasible and would not affect target species catches, also that larger non-target species could be excluded, although no cetaceans entered the nets during trials.

In addition, some estimates of bycatch mortality in stranded animals and results of trials of pingers in trawl and set nets under a national project (MermaCifra) were reported.

The third topic presented concerned estimates of bycatch mortality in the Iberian porpoise, using compiled observer and strandings data. Although data are generally poor, it is almost certain that bycatch mortality is unsustainably high.

Finally, the presentation reviewed current Spanish legislation to improve monitoring and mitigation of bycatch mortality of cetaceans.

7. Policy

EU Action Plan: Protecting and restoring marine ecosystems for sustainable and resilient fisheries (by Kenneth Patterson, DG MARE)

The Commission Communication “EU Action Plan : Protecting and restoring marine ecosystems for sustainable and resilient fisheries (COM(2023) 102 final)” is a call to action for Member States to implement the political obligations under the Kunming-Montreal Global Biodiversity Framework and the Council Conclusions following the Biodiversity Strategy for 2030, and to implement the legal

obligations under the Habitats, Birds, and Marine Strategy Framework Directives as well as Common Fisheries Policies. Its objectives include:

- The protection of sensitive species, with measures to protect the most urgent species by 2023 and 2024, with all relevant species protected by 2030.
- The protection of sensitive habitats, with the protection of seabed habitats within existing Marine Protected Areas from mobile bottom-contacting fishing gear a priority.
- The improvement of governance, so that fishers become more closely involved in decision making and the development of lower impact fishing, and administrators from fisheries and environmental administrations work more closely together.
- The achievement of just transitions, providing support from EU funds for research, new equipment and operational and social adjustments when changing fishing practices.

The means to implement the measures should be through the regionalisation provisions of the Common Fisheries Policy which requires Member States to work together on a regional basis to develop joint recommendations concerning marine protected areas and altered fishing practices to reduce environmental impacts.

As a Communication, the Action Plan is non-binding, and the Commission is not proposing new legislation at this stage. It is an opening for dialogue with Member States. Its aim is to hasten the implementation of existing EU legislation and policy commitments.

The Commission has made contact with scientific agencies including ICES to secure improved science support for the measures in the action plan, particularly concerning the prioritisation of work on sensitive species.

Discussion

In answer to a question concerning whether proceedings against countries showing infringements of EU legislation on bycatch, Mr Patterson said the matter was still with the European courts and he was unable to comment further at this stage. Concerning fishing within MPAs the question was raised whether protection from fishing would be given to taxa beyond coral reef protection. Mr Patterson responded that fishers do ask whether there is any reason for an MPA established to protect seabirds should ban bottom fishing that might not be affected. However, the aim of these MPAs is to protect the whole ecosystem.

Roadmap for ICES bycatch advice on PETS (by Henn Ojaveer, ICES)

The ecosystem approach to fisheries management obliges ICES to consider the effects of incidental bycatch of marine biota. This incidental bycatch can potentially include more than 200 protected, endangered, and threatened species (PETS) of seabirds, fish, marine mammals, and marine turtles. Various legislative instruments have been put in place to eliminate or reduce rates of bycatch. In response to this, ICES is requested to provide annual advice on bycatch of PETS, covering the Northeast Atlantic Ocean, the Baltic Sea, and the Mediterranean Sea. The ICES Roadmap for PETS bycatch advice, first published in 2020, describes the legislative background, the science needs, and a path for ICES to strengthen its advice on incidental bycatch.

The Working Group on Bycatch of Protected Species (WGBYC) serves as the central expert group, supported by the wider science network, to evaluate all bycatch data/information from multiple sources and determine the primary sources to be utilized for advisory purposes. Considering important differences and limitations in the evidence basis available for population-level assessments of PETS, and the absence of agreed and comparable objectives for the management of PETS bycatch, ICES will provide advice in accordance with the generic and precautionary objective to “minimize and, where possible, eliminate bycatch of PETS to prevent any serious harm to the species concerned”, consistent with several legislative instruments and governmental initiatives. Cooperation with ACCOBAMS, ASCOBANS, GFCM, HELCOM, NAMMCO, NEAFC, OSPAR, RCGs, and other RFMOs and RSCs for data/information sharing, bycatch assessments,

and risk evaluations is a key mechanism to achieve the objectives of the roadmap. Species lists of seabirds, fish, and marine mammals of bycatch relevance for each ICES ecoregion are contained in the Annex of the roadmap. The strategic developments being considered include, amongst others, methodological work towards developing threshold values for bycatch based on agreed conservation/management objectives, development of new (bycatch) indicators and estimation methods, and development of new metrics to measure fishing effort for different fisheries.

Implications to cetaceans from EU policy developments (by Sarah Dolman, Environmental Investigation Agency)

Cetacean populations are at risk from high levels of bycatch in every European ocean basin. Bycatch thresholds, calculated for harbour porpoise and common dolphin by OSPAR, are all exceeded. EU expert advisors have stated that thresholds cannot be determined for most populations due to lack of monitoring effort and an inability to calculate bycatch rates. Legal action at national, EU and overseas (US Import Rule) levels have and will continue to result in increased efforts, but there is much more to be done.

Key issues include weak national enforcement of legal requirements in all European countries; inadequate monitoring at the scale required to produce bycatch rate for each cetacean species; use of thresholds requires effective bycatch monitoring at much higher rates than are currently undertaken; thresholds should be seen as a 'red line' with focused efforts below this level; poor join up between management at a national level and regional populations (e.g. NE Atlantic common dolphins); focus on small scale 'trials' rather than fleet wide requirements; inadequate attention is paid to EU vessel bycatch in distant water fleets; inadequate attention is paid to cetacean welfare issues occurring in relation to bycatch, and EU Joint Recommendations are rarely fit for purpose being slow to develop, requiring consensus and as a result, lacking ambition.

Solutions include scientific measures for each ocean-basin on priority species and bycatch solutions; National Action Plans including targeted timebound measures for high risk fleets; implementation of targets and timelines to continually reduce bycatch at appropriate scale, accounting for all relevant fleets; prioritise the use of alternative and modified gear (particularly for gillnets); dedicated on-board monitoring at levels that enable bycatch rates for all species; bycatch measures on vessels as required, regardless of size; adequate EU funding to progress bycatch monitoring and prevention at pace; enforcement of regulations; work with fishers for effective implementation; and European countries must meet requirements of the US Import Rule comparability findings by November 2023.

Discussion

In discussion it was noted that area closures are not in anyone's interest, but in trying to minimize and reduce bycatch to zero, we need to start before the situation is bad. Adequate political will to take on the proposed solutions can be generated by keeping up the pressure. The US Marine Mammal Commission was paying close attention to what is going on in Europe in terms of combating bycatch.

It was noted that fishers would be interested in solutions, so they needed to be included in the discussion about efficient, non-harmful gear. However, it was difficult to do. In the Indian Ocean, static nets had been dropped. Sometimes pingers were a good option, but more options were needed in the toolbox.

It was highlighted that the infringement procedures cost a huge amount of manpower in a small DG MARE team at the European Commission. There was a long list of useful things to do. Looking at only bycatch rates was problematic – Member States needed to report abundance estimates as well. The biggest challenge was the data on bycatch for rare species, and not just abundant species. One participant mentioned that there was likely a major problem defining the quantitative thresholds for many species, and an alternative approach should be considered. Another participant noted that there are different ways to undertake threshold-setting. Using PBR, one can do that with only abundance estimates, as used in MSFD, and then comparing those to estimated total bycatch.

Another participant highlighted that there is the precautionary principle that should be followed, rather than always talking about the lack of data.

8. Concluding remarks

The Co-Chairs summarized that the workshop programme started with a depressing view, then moved to action and mitigation, which showed promise, but clearly needed to be implemented on a larger scale. There was undoubtedly a need to overcome some of the issues Ms Dolman had mentioned in her presentation, the political ones included. The Co-Chairs concluded that some things were not changing quickly, but they were changing. It was good to have people from fishing communities at the workshop.

9. Close of the workshop

The Co-Chairs noted there was no time for a discussion on task assignment of the Programme of Work of the Joint Bycatch Working Group of ACCOBAMS and ASCOBANS, mentioned in the programme, but it should be addressed in the near future. They declared the workshop closed at 18:45 CEST on Monday 17 April 2023.

Annex 1: List of participants

First Name	Family name	Affiliation	Country
Alberto	Hernández González	Institute of Marine Research (IIM-CSIC)	Spain
Ana	Marçalo	Center of Marine Sciences of the Algarve (CCMAR)	Portugal
Andrea	Fariñas-Bermejo	Institute of Marine Research (IIM-CSIC)	Spain
Anita	Gilles	University of Veterinary Medicine Hannover, Foundation	Germany
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Ayaka	Amaha Ozturk	Istanbul University/TUDAV	Turkey
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