



**CONVENTION ON
MIGRATORY
SPECIES**

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Agenda Item 27.1

BYCATCH

(Prepared by the Scientific Council and the Secretariat)

Summary:

This document reports on progress to implement Decisions 13.61-13.63 Bycatch and proposes Decisions for adoption.

This document was revised by the Scientific Council at its 6th Meeting of the Sessional Committee in July 2023.

BYCATCH

Background

1. Bycatch of non-target species in fisheries is the greatest cause of mortality of most CMS-listed marine species. At its 12th meeting, the Conference of the Parties (COP) adopted Resolution 12.22 *Bycatch*, and at its 13th meeting, the COP adopted Decisions on Bycatch as follows:

13.61 Directed to Parties

Parties that manage fisheries with identified marine mammal bycatch problems are urged to take account of the Hamilton and Baker (2019) assessment, available as UNEP/CMS/COP13/Inf.11 and, once available, the Food and Agriculture Organization of the United Nations (FAO) Technical Guidelines to reduce bycatch of marine mammals in capture fisheries and the Leaper and Calderan (2018) study of methods used to reduce risks of cetacean bycatch and entanglements (CMS Technical Series Publication No. 38), in addition to the best available scientific advice for the fisheries concerned and implement effective bycatch mitigation measures for marine mammals, as appropriate to their fishing operations including the introduction of alternative gears.

13.62 Directed to the Scientific Council

The Scientific Council and the Working Group on Bycatch are invited, subject to the availability of funds and in cooperation with other relevant organizations such as the Sharks Memorandum of Understanding (MOU) Advisory Committee and regional fisheries management organizations to:

- a) *review current data and knowledge about levels of bycatch of CMS-listed chondrichthyan species and existing measures to mitigate bycatch based on species, fishing area, fisheries, fishing season and gear type;*
- b) *based on the above, identify priorities for bycatch mitigation and make recommendations to Parties and the CMS Sharks MOU on the most effective and appropriate measures to mitigate and reduce bycatch based on the above categories, while ensuring that recommended measures do not act to the disadvantage of other CMS-listed marine species.*

13.63 Directed to the Secretariat

The Secretariat is requested to, subject to the availability of funds:

- a) *upon the request of Parties, and, as appropriate, in collaboration with relevant intergovernmental organizations, including regional fisheries management organizations: i. commission national or regional reviews to determine relative levels of bycatch of all CMS-listed marine species in commercial and artisanal fisheries; ii. identify and prioritize fisheries and areas in which adverse impacts of bycatch are highest for CMS-listed marine species; and iii. organize, if warranted, regional workshops to identify appropriate bycatch mitigation measures for fisheries of highest priority.*
- b) *support the Scientific Council with the implementation of its task agreed in Decision 13.62, including by commissioning a review on bycatch in chondrichthyan species and by facilitating cooperation between the Scientific Council and the Sharks MOU Advisory Committee.*

Progress in implementation of Decisions on Bycatch

2. Through [CMS Notification 2022/013](#) (September 2022), the Secretariat reminded Parties of the COP13 Decisions, including the opportunity to request support from the Secretariat. However, the Secretariat received no such requests.

Cetaceans

3. Bycatch remains a major threat to cetaceans. The incidental capture, especially of small cetaceans, in gillnets is a global concern. It has been suggested that echolocating cetaceans become entangled due to their inability to perceive conventional gillnets as impassable obstacles, likely due to the gillnet's weak echo.¹ One such species is the Baltic Proper Harbour Porpoise, listed as 'Critically Endangered' by the IUCN. In May 2020, the International Council for the Exploration of the Sea published advice on emergency measures to prevent bycatch of porpoises in the Baltic Proper. The advice included a combination of spatial-temporal closures and application of pingers in static net (i.e., trammel nets, gillnets and semi-driftnets) fisheries.² Furthermore, ASCOBANS Resolution 9.2 *The Baltic Proper Harbour Porpoise* urges Parties to swiftly implement those recommendations, in areas of more than occasional occurrence of the species; and calls on Parties to submit a proposal to CMS COP14 for listing the Baltic Proper Harbour Porpoise in Appendix I of CMS. A Decision related to this critically endangered population is proposed in Annex 3.
4. Within the CMS Family, ACCOBAMS and ASCOBANS have a Joint Bycatch Working Group. At its first meeting in February 2021, recommendations were made:
 - for increased and more targeted sampling of high-risk fisheries (preferably a minimum of 5-10 per cent of annual fleet activity);
 - to improve monitoring, including wider use of Remote Electronic Monitoring, better understanding of factors relating to bycatch risk, support for strandings schemes, pathological examinations, and greater use of drift models; and
 - to prevent and mitigate bycatch through greater stakeholder engagement, area-based measures, alternative gears and new technologies.³
5. At the International Whaling Commission (IWC), the bycatch work is coordinated through its Bycatch Mitigation Initiative (BMI),⁴ which aims to raise awareness on the need for action on cetacean bycatch at both national and international levels and to promote the use of effective tools to understand and tackle the issue. Resolution 12.22 *Bycatch* requests the Secretariat to improve cooperation and communication on bycatch-related issues, and to cooperate with other relevant programmes such as the BMI.
6. The CMS Secretariat is a member of the IWC Bycatch Standing Working Group, which oversees the initiative. In addition, the CMS COP-appointed Councillor for Bycatch is a member of the IWC Expert Panel on Bycatch, which provides specialist advice to the Standing Working Group and the Bycatch Coordinator within the IWC Secretariat.

1 Kratzer et al. (2021). Using acoustically visible gillnets to reduce bycatch of a small cetacean: first pilot trials in a commercial fishery. *Fisheries research*, Vol. 243. <https://doi.org/10.1016/j.fishres.2021.106088>

2 ICES (2020). EU request on emergency measures to prevent bycatch of common dolphin (*Delphinus delphis*) and Baltic Proper harbour porpoise (*Phocoena phocoena*) in the Northeast Atlantic. ICES Advice: Special Requests. Report. <https://doi.org/10.17895/ices.advice.6023>

3 [Recommendations from the 1st Meeting of the Joint Bycatch Working Group of ACCOBAMS and ASCOBANS](#)

4 <https://iwc.int/management-and-conservation/bycatch>

7. FAO published [Guidelines to prevent and reduce bycatch of marine mammals in capture fisheries](#) in 2021 following a consultation process that also involved the ACCOBAMS/ASCOBANS Joint Bycatch Working Group. The guidelines are directed at decision makers, managers, and all who are involved in developing and implementing policy and technical interventions. It concludes that “arguably the greatest need for altering fishing practices, including the reduction of marine mammal bycatch, is to have an effective process that gets fishers to change how they fish”. The guidelines also recognize that there is little incentive for fishers to modify fishing techniques, if there are no regulatory measures, oversight, or adequate penalization for lack of compliance.
8. One of the overarching approaches presented in the guidelines for prevention and reduction of marine mammal bycatch in fisheries is “more detailed region-by-region strategies to identify and prioritize high-risk fisheries and vulnerable populations”. A relevant Decision directed to the CMS Scientific Council is proposed in Annex 3.

Marine Turtles

9. There is no current global overview of bycatch reduction and mitigation measures for marine turtles for all types of fisheries. Accordingly, the Advisory Committee (AC) of the CMS Memorandum of Understanding for Marine Turtles of the Indian Ocean and South-East Asia (IOSEA Marine Turtle MOU) recommends more attention is given to this key threat in the framework of the Convention and its relevant MOUs.
10. After considering the [Technical Mitigation to Reduce Marine Mammal Bycatch and Entanglement in Commercial Fishing Gear: Lessons learnt and future directions](#) (UNEP/CMS/COP13/Inf.11), the AC suggests that a similar overview of the status of knowledge regarding bycatch reduction and mitigation should be prepared for marine turtles. Two separate reviews are necessary, one focused on commercial fisheries, and another on artisanal fisheries.
11. Given the need for both CMS and the IOSEA Marine Turtle MOU to address turtle bycatch, this work is proposed to be undertaken as a joint initiative, with the support of the COP-appointed Councillor for Bycatch. Additionally, initial contacts with the Secretariat of the Inter-American Turtle Convention indicates that they also are interested in joining this effort.

Sharks and Rays

- a) *Assessment of overall fisheries-induced mortality instead of 'bycatch'*
12. Decisions 13.62 (a) and parts of 13.63 (b) could not be implemented as reported data on bycatch are often difficult to compare. This is because the term ‘bycatch’ is not consistently defined, and reporting standards differ between countries and organizations. An analysis of current levels of bycatch based on available data is, hence, complicated and might lead to false results.
13. In addition, it should be noted that fisheries encompass a range of sectors, including commercial, artisanal, subsistence and recreational fisheries. While there are national and international programmes to collate reported landings from fisheries (primarily commercial fisheries), these data may be incomplete for some fisheries and areas. Data relating to other forms of mortality (e.g., total dead discards) are often lacking or estimated.
14. Finally, bycatch may not accurately reflect the overall impact of fishing on shark and ray populations, as it only captures a portion of the mortality caused by fishing.

15. To develop effective conservation and management measures for sharks and rays, the COP-appointed Councillors for Marine Fish and for Bycatch, the Sharks MOU Advisory Committee (AC), and the Secretariat suggest an alternative approach. It would be important to accurately assess the overall impact of fishing on shark and ray populations, considering all sources of fisheries-induced mortality, which includes both targeted take and bycatch (for the purpose of this document defined as 'incidental catch' or 'non-targeted catch'). Catches will include components that are retained (landings or on-board consumption), discarded dead (i.e., at-haul back, or at-vessel mortality), and those that are discarded alive but may subsequently die due to post-release mortality. Hence, an improved understanding of total 'fisheries-induced mortality' is required.
16. Therefore, Parties are recommended to delete Decision 13.62 (a) and replace it with a new Decision that aims to review and critically appraise current data and knowledge regarding the levels of 'fisheries-induced mortality' of CMS- and Sharks MOU-listed shark and ray species. The results would inform and enable decision makers to prioritize areas and species for the application of bycatch mitigation measures to reduce fisheries-induced mortality.
17. The review would focus on current levels of fisheries-induced mortality (landings, dead discards, and estimated post-release mortality) utilizing different data sources, such as peer-reviewed literature, international, regional and national databases, and grey literature (which may be of greater relevance to some species or regions). Furthermore, relevant Regional Fisheries Bodies (RFBs), governments, agencies and researchers will be contacted to obtain further data through data requests or bilateral interviews.
18. The review would help identify some of the priorities that need to be addressed to reduce fisheries-induced mortality of CMS- and Sharks MOU-listed shark and ray species, particularly in the pilot-study areas. It will also collate and summarize available knowledge of at-vessel and post-release mortality at a global level, including sub-lethal effects, for those species interacting with various fisheries.
19. This approach was also supported by Signatories of the Sharks MOU at their 4th Meeting, in February 2023, who welcomed the proposed approach to focus on fisheries-induced mortality instead of bycatch in implementing Decision 13.62 (a) for the reasons outlined above.
 - b) *Pilot studies to develop a standardized methodology for understanding fisheries-induced mortality*
20. Sharks MOU Signatories further agreed to conduct a pilot study for two defined regions, based on the Fishing Areas used by FAO, in cooperation with the Sharks MOU AC. The purpose would be to develop a standardized methodology for understanding fisheries-induced mortality of sharks and rays that can subsequently be applied to other areas. Data would be broken down by FAO Fishing Area, taxon and, where available, the type of fishery (e.g., industrial, artisanal, recreational), gear type and fishing season.
21. The pilot studies would also aim to identify important data gaps and qualitatively infer the potential magnitude of under-reported catch (dead discards, landings and live releases) for species or fisheries for which such data are limited within the two case-study areas.
22. Sharks MOU Signatories agreed at their 4th Meeting that FAO Fishing Areas 37 (Mediterranean and Black Seas) and 87 (Southeast Pacific) should be the focus. These regions are important for a contrasting range of shark and ray species listed in the

Appendices of CMS and may have varying degrees of information and data available:

- The Mediterranean Basin, which is known to have a range of shark and ray species of unfavourable conservation status, includes more than 20 Range States and Territories, as well as a range of fisheries and data availability (including national data, and data compiled by the General Fisheries Commission for the Mediterranean, International Commission for the Conservation of Atlantic Tunas and FAO).
- The Southeast Pacific is bordered by a more limited number of Range States, but has a larger spatial extent of high seas that may be exploited by long-distance fleets and with data potentially available through other fisheries bodies (e.g., Inter-American Tropical Tuna Commission and the South Pacific Regional Fisheries Management Organization).
- Focusing on two contrasting geographical areas is expected to help inform and refine the methods that would subsequently be applied in regional studies.

c) *Bycatch mitigation measures*

23. As requested in Decision 13.62 (b), the Scientific Council has reviewed existing bycatch mitigation measures based on species, fishing area, fisheries, fishing season and gear type. The review, *Technical mitigation techniques to reduce bycatch of sharks – There is no silver bullet*, is provided in Annex 1 to this document. Based on the findings of the report, the Council prepared a summary and recommendations to Parties and the CMS Sharks MOU on the most effective and appropriate measures to mitigate and reduce bycatch, while ensuring that recommended measures do not act to the disadvantage of other CMS-listed marine species. The *Technical mitigation techniques to reduce bycatch of sharks – Summary and Recommendations* are contained in Annex 2 of this document.
24. The review found that no universal technique can be applied to all species, fishing gears and regions, except for improving handling practices. Responses to gear modifications vary between regions, depending on local environmental conditions, species composition and other confounding factors, so that techniques that are effective in one area cannot be assumed to work in another. Addressing shark bycatch is a complex issue that requires customized solutions for each fishery, considering species and management objectives. Balancing target catch, minimizing bycatch, and accounting for unintended impacts are crucial. It's important to prioritize collecting detailed data on shark movements and life histories, as well as involve the fishing industry for effective bycatch mitigation strategies.

Discussion and analysis

25. Bycatch remains one of the key threats to marine migratory species, and one that, despite decades of effort, remains very difficult to address. While fisheries management is outside the remit of the Convention, CMS can have an important role in ensuring that avoiding or mitigating bycatch of migratory species remains a focus in the deliberations in relevant forums, and that Parties and other stakeholders have the information at hand that enables them to address this threat more effectively. The review of technical mitigation to reduce marine mammal bycatch and entanglement in commercial fishing gear presented to COP13 ([UNEP/CMS/COP13/Inf.11](#)) and the review of technical mitigation techniques to reduce bycatch of sharks presented to COP14 (Annex 1) are highly valuable resources in this regard.

26. Similar reviews, one focusing on commercial and one on artisanal fisheries, are proposed to be prepared for marine turtles, closing a major gap in material provided by CMS to date.
27. When assessing the impact of fishing activities on shark and ray populations, it is crucial for Parties to shift their focus from solely considering bycatch to evaluating fisheries-induced mortality as a whole, encompassing both targeted take and incidental catch. Bycatch alone does not provide a comprehensive understanding of the overall impact of fishing on these populations, as it only captures a portion of the mortality caused by fishing. Achieving an improved understanding of fisheries-induced mortality will contribute significantly to the conservation of shark and ray populations.

Recommended actions

28. The Conference of the Parties is recommended to:
 - a) note the Report contained in Annex 1 of this document;
 - b) note the Recommendations as contained in Annex 2 of this document;
 - c) adopt the draft Decisions as contained in Annex 3 of this document;
 - d) delete Decisions 13.61-13.63

ANNEX 1

**TECHNICAL MITIGATION TECHNIQUES TO REDUCE BYCATCH OF SHARKS -
THERE IS NO SILVER BULLET**

NB. The annex is presented in a separate file [here](#).

ANNEX 2

TECHNICAL MITIGATION TECHNIQUES TO REDUCE BYCATCH OF SHARKS⁵

Summary and Recommendations

Based on: David Drynan, G. Barry Baker (2023): *Technical mitigation techniques to reduce bycatch of sharks -There is no silver bullet*, provided as Annex 1.

Summary

The review of existing technical mitigation techniques to reduce bycatch of sharks showed that there is no single technique that can be applied to all species, fishing gears and regions, except for improving handling practices. Responses to gear modifications vary between regions, depending on local environmental conditions, species composition and other confounding factors, so that techniques that are effective in one area cannot be assumed to work in another.

Therefore, to effectively mitigate bycatch of sharks, most fisheries will require a combination of techniques to be employed which may result in unintended impacts on other species. This will require that each fishery with unintended catches of sharks assesses what species they are catching, what they should not be catching and which of these are most at risk, and the life history traits and behavioural and feeding characteristics that could be exploited to minimize their catch.

There is also a need to address interactive factors of biological, environmental and technical issues to find a solution for these particular circumstances.^{6, 7} Trials of techniques should be undertaken in relevant areas to ensure efficacy prior to mandating a particular approach to reducing bycatch.

One of the fundamental problems for identifying and assessing mitigation methods is the paucity of detailed data on life history and movement characteristics of many shark species, the factors that contribute to the probability of a species being caught and escaping, and the stressors that increase mortality. A recent study outlined advances in technology that could assist greatly in identifying what actually occurs when a shark is captured, including the use of autonomous underwater vehicles and aerial drones to assist fishers in deciding where and when gears should be set to maximize target catch and minimize bycatch.⁸ The cost of using these technologies may be prohibitive for many fisheries and States, requiring technical and financial support to ensure widespread use.

There are multiple approaches to mitigating bycatch that can be split into regulatory (e.g., quotas, bans on take, time/area closures, full retention, etc.) and technical methods (e.g., gear modifications, changes to fishing methods and techniques, etc.). We have only dealt with technical mitigation techniques in this paper.

⁵ 'Shark' means any of the migratory species, subspecies or populations in the Class *Chondrichthyes* (which includes sharks, rays, skates and chimaeras) that are included in the Appendices of the Convention.

⁶ Broadhurst, M. K., P. Suuronen and A. Hulme (2006) Estimating collateral mortality from towed fishing gear. *Fish and Fisheries* 7(3): 180-218.

⁷ Gallagher, A., E. Orbesen, N. Hammerschlag and J. Serafy (2014) Vulnerability of oceanic sharks as pelagic longline bycatch. *Global Ecology and Conservation* 1: 50-59.

⁸ Poisson, F., P. Budan, S. Coudray, E. Gilman, T. Kojima, M. Musyl and T. Takagi (2021) New technologies to improve bycatch mitigation in industrial tuna fisheries. *Fish and Fisheries* 23(3): 545-563.

Whatever approach is taken (including the combination of both regulatory and technical measures), consideration must be given to the level of intended reduction in bycatch required, the impact on catch of target species, the impact on non-target species, unintended impacts on other non-target species, and the economic impact for any technique.⁹ Balancing these impacts often requires a trade-off approach to maximizing bycatch reduction while maintaining the economic viability of the fishery.¹⁰ Any bycatch mitigation technique must be practical and economically viable for fishers to willingly adopt it, requiring close involvement and input by industry and fishery managers.¹¹

Recommendations

- The **priority for bycatch mitigation must be to avoid capture**. There are multiple benefits for both fishers and sharks when this is achieved, which may include higher value landed catch, more opportunity to catch target species, fewer injuries to fishers, less damage to and loss of gears and reduced ecosystem impacts.
- **The most promising technical mitigation measures for reducing shark bycatch mortality are choice of bait type, not using baits at all, constructing non-entangling fish aggregating devices (FADs), change of fishing strategy when using FADs, using effective mesh sizes, removal of tickler chains, or changing capture method**. Some techniques can be much more effective if used in concert with each other,¹² but care needs to be taken to ensure that these methods do not conflict with one another or unintentionally impact other species groups. Other pre-capture methods require more research, development and field trials as, currently, many do not seem to be a practical option, or require more empirical evidence of their efficacy. These include the use of artificial baits laced with olfactory repellents such as necromones, optimal bait size, active electrical repellents, strobe lights, removal of light sticks, increasing net tension in gillnets, and drawing sharks away from FADs prior to making sets.
- **If capture cannot be avoided, then efforts need to be made to allow escape prior to haulback**. Like avoiding capture, the benefits for fishers include saving time at haulback by not having to untangle and/or unhook sharks on deck, which will also result in fewer injuries to fishers. Allowing escape also eliminates time out of the water for sharks, and reduces damage to target catch. The most effective measures include using monofilament nylon leaders in place of wire leaders or cutting through leaders at the hook in hook and line gear and using excluders in concert with appropriately configured bycatch reduction measures such as escape panels or hatches in trawls.
- **If haulback after capture is unavoidable, efforts need to be made to reduce at-vessel mortality and increase post-release survival**. Careful handling and quick release of sharks, regardless of the gears used, is essential. Changes to fishing practices through reduced soak time, releasing sharks from the net when the gear is still in the water, and the use of circle hooks appear to be the most appropriate techniques currently available. The use of equipment such as water sorting tables and release chutes could also be beneficial for sharks, especially for obligate ram ventilators that suffer the highest mortality once out of the water, but this requires

9 O'Keefe, C. E., S. X. Cadrin and K. D. Stokesbury (2014) Evaluating effectiveness of time/area closures, quotas/caps, and fleet communications to reduce fisheries bycatch. *ICES Journal of Marine Science* 71(5): 1286-1297.

10 Booth, H., D. Squires and E. J. Milner-Gulland (2020) The mitigation hierarchy for sharks: A risk-based framework for reconciling trade-offs between shark conservation and fisheries objectives. *Fish and Fisheries* 21(2): 269-289.

11 Favaro, B. and I. M. Cote (2015) Do by-catch reduction devices in longline fisheries reduce capture of sharks and rays? A global meta-analysis. *Fish and Fisheries* 16(2): 300-309.

12 Restrepo, V., L. Dagorn and G. Moreno (2016). Mitigation of Silky Shark Bycatch in Tropical Tuna Purse Seine Fisheries. ISSF Technical Report 2016-17. International Seafood Sustainability Foundation, Washington, D.C., USA.

further study.

- Overall, mitigating shark bycatch is an extremely complex problem that no single technique is going to solve. **Solutions need to account for species specificity, be tailored to individual fisheries and their management framework and objectives, account for interactions between mitigation strategies and unintended impacts, and make trade-offs between maintaining target catch and minimizing bycatch.**
- **The need for fine grained data on shark species movements and life histories is urgent and should be prioritized.**
- **Techniques need to be assessed for the species and region where they will be deployed, and the involvement of the fishing industry must be encouraged and actively sought early in the process.** Fishers already hold a huge body of knowledge that must be recognized, respected, and utilized in designing any mitigation strategy. Without their input and support, no bycatch mitigation solution will be effective.

DRAFT DECISIONS

BYCATCH AND OTHER FISHERIES-INDUCED MORTALITY***Directed to Parties***

14.AA Parties are requested to:

- a) take account of the Food and Agriculture Organization of the United Nations (FAO) Technical Guidelines to prevent and reduce bycatch of marine mammals in capture fisheries and the associated Technology Fact Sheets (2023) in addition to the best available scientific advice for the fisheries concerned, and implement effective bycatch mitigation measures for marine mammals, as appropriate to their fishing operations including the introduction of alternative gears;
- b) apply the recommendations included in Drynan and Baker (2023), *Technical mitigation techniques to reduce bycatch of sharks*, provided in Annex 2 to UNEP/CMS/COP14/Doc.27.1.1, with emphasis on
 - i) applying tailored solutions with timebound action plans for individual fisheries;
 - ii) considering species specificity and management objectives;
 - iii) balancing target catch and minimizing bycatch while accounting for unintended impacts;
 - iv) collecting detailed data on shark species movements and life history characteristics as a matter of priority; and
 - v) capitalizing on the knowledge of and support from the fishing industry, that are necessary for the developing and deploying effective bycatch mitigation strategies.
 - vi) supporting fishers to modify fishing techniques as well as ensuring appropriate regulatory measures, oversight, and adequate penalization for lack of compliance.
- c) report to the Conference of the Parties at its 15th meeting on the implementation of Decision 14.AA b) through their National Reports.

Directed to Parties that are Range States of the Baltic Proper Harbour Porpoise

14.BB Parties that are Range States of the Baltic Proper Harbour Porpoise are requested to:

- a) urgently implement time-bound action plans and measures for effective bycatch mitigation;
- b) Report to the Conference of the Parties at its 15th meeting on the implementation of Decision 14.BB a) through their National Reports.

Directed to the Scientific Council

14.CC The Scientific Council is requested to, subject to the availability of external resources:

- a) Identify regions where reviews of relative levels of bycatch of CMS-listed marine mammals and marine turtles in commercial and artisanal fisheries would be a priority and/or beneficial; develop regional reviews for those identified areas to determine relative levels of bycatch of all CMS-listed marine mammals and turtles in commercial and

artisanal fisheries; identify and prioritize fisheries and areas in which adverse impacts of bycatch are highest for CMS-listed marine mammals and turtles; organize, if warranted, regional workshops to identify appropriate bycatch mitigation measures for fisheries of highest priority; and develop appropriate bycatch mitigation measures with associated timebound action plans;

- b) in collaboration with the IOSEA Marine Turtle MOU and, if possible, the Inter-American Convention for the Protection and Conservation of Sea Turtles, review current knowledge about existing measures to reduce and mitigate bycatch of marine turtles for both commercial fisheries and artisanal fisheries, and make recommendations to Parties and the Signatory States of the IOSEA Marine Turtle MOU on the most effective and appropriate measures to reduce and mitigate bycatch, while ensuring that recommended measures do not act to the disadvantage of other CMS-listed marine species;
- c) in collaboration with the Advisory Committee of the Sharks MOU, review and appraise current data and knowledge regarding the levels of fisheries-induced mortality of CMS- and Sharks MOU-listed shark and ray species;
- d) In collaboration with other relevant stakeholders, ensure cross-referencing with seabird bycatch work, to ensure consideration of cross-taxa implications, and identify opportunities for further collaboration on addressing fisheries-induced mortality across taxa.
- e) Report to the Conference of the Parties at its 15th meeting on the progress in implementing Decisions 14.CC a) - c).

Directed to the Secretariat

14.DD The Secretariat shall, subject to the availability of external resources:

- a) support the Scientific Council with the implementation of Decision 14.CC; and
- b) engage with the International Whaling Commission (IWC), Food and Agriculture Organization (FAO) of the United Nations, Regional Fisheries Bodies (RFBs), and Regional Seas Conventions (RSCs) and Action Plans regarding bycatch of CMS-listed aquatic species.