

RECOMMENDATION BY ICCAT ON THE CONSERVATION OF THE NORTH ATLANTIC STOCK OF SHORTFIN MAKO CAUGHT IN ASSOCIATION WITH ICCAT FISHERIES

RECOGNIZING that North Atlantic shortfin mako sharks are primarily caught in association with ICCAT fisheries and that the Commission has adopted management measures for shark species considered vulnerable to overfishing in ICCAT fisheries;

NOTING that the 2017 and 2019 SCRS assessments concluded that there is a 90% probability of the North Atlantic shortfin mako stock being overfished and experiencing overfishing;

RECALLING that according to its Convention, the stated objective of ICCAT is to maintain the stocks at levels which will permit the maximum sustainable catch;

RECALLING measures adopted by the Commission to improve the status of North Atlantic shortfin mako sharks, including the *Recommendation by ICCAT on the Conservation of North Atlantic Stock of Shortfin Mako Caught in Association with ICCAT Fisheries* (Rec. 17-08 and 19-06), which implemented measures aimed at ending overfishing of the North Atlantic shortfin mako stock with a high probability, as the first step in the development of a rebuilding program;

CONSIDERING that the *Recommendation by ICCAT on the Principles of Decision Making for ICCAT Conservation and Management Measures* (Rec. 11-13) calls for the Commission to immediately adopt management measures designed to result in a high probability of ending overfishing in as short a period as possible and adopt a plan to rebuild the stock taking into account, *inter alia*, the biology of the stock and SCRS advice;

RECALLING the ecological risk assessments carried out by the SCRS in 2008 and 2012 which indicate that shortfin mako ranks third in the vulnerability table;

FURTHER NOTING that the updated projections conducted by the SCRS in 2019 outline several scenarios, including the scenario where a certain degree of mortality would still allow the recovery of the stock by 2070 with a probability that is within an appropriate range for elasmobranchs;

FURTHER RECALLING the SCRS advice that regardless of the TAC (including a TAC of 0 t), the spawning stock biomass will continue to decline until 2035 before any increase can occur, owing to the time it takes juveniles to reach maturity and that even a zero TAC will only allow the stock to be rebuilt and without overfishing (in the green quadrant of the Kobe plot) by 2045 and that consequently due to the biology of the stock the recovery period will in any event be long;

AWARE that the SCRS has emphasized that reporting all sources of mortality is an essential element to decrease the uncertainty in stock assessment results, and particularly the reporting of estimated dead discards for all fisheries;

ALSO RECOGNIZING SCRS advice on the need for Contracting Parties and Cooperating non-Contracting Parties, Entities, or Fishing Entities (hereinafter referred to as CPCs) to strengthen their monitoring and data collection efforts in support of future stock assessments, including but not limited to total estimated dead discards and, live releases and the estimation of CPUE using observer data;

FURTHER RESPONDING to the need for additional research on methods to reduce shortfin mako interactions in ICCAT fisheries, including identifying areas with high interactions;

THE INTERNATIONAL COMMISSION FOR THE CONSERVATION
OF ATLANTIC TUNA (ICCAT) RECOMMENDS THAT:

Rebuilding programme objectives

1. The Contracting Parties and Cooperating non-Contracting Parties, Entities or Fishing Entities (hereinafter referred to as “CPCs”), shall implement a rebuilding programme for North Atlantic shortfin mako shark starting in 2022 to end overfishing immediately and gradually achieve biomass levels sufficient to support maximum sustainable yield (MSY) by 2070 with a probability of a range of between 60 and 70% at least.
2. Toward that end, the rules set out in this Recommendation shall be applied by CPCs with the aim to reduce total fishing mortality (the sum of any retention, dead discards, and post-release mortality of live discards), to maintain mortality at sustainable levels to rebuild the stock, and to establish a process to determine whether in any given year there is a possibility for retention.

First step in rebuilding the stock and process to determine future permissible retention

3. CPCs shall implement a prohibition on retaining on board, transshipping and landing, whole or in part, North Atlantic shortfin mako caught in association with ICCAT fisheries in 2022 and 2023 as a first step in rebuilding the stock.
4. The total fishing mortality tonnage associated with the probability level established in paragraph 1 shall be based on the most recent Kobe II strategy matrix provided by the SCRS for North Atlantic shortfin mako (the probability of both $F < F_{MSY}$ and $SSF^1 > SSF_{MSY}$). Following every stock assessment, the SCRS shall update the Kobe II strategy matrix consistent with the objectives established by paragraph 1 for endorsement by the Commission.
 - a) Consistent with the objectives established under paragraph 1 and the 2019 SCRS Kobe II strategy matrix the total fishing mortality for North Atlantic shortfin mako shall be no more than 250 tonnes until new SCRS advice is provided to the Commission.
5. Future permissible retention shall be pursuant to the following process:
 - a) During 2022 and 2023 the SCRS and Panel 4 shall work together to test and confirm the appropriateness of the approach in **Annex 1**, or alternative approaches, for determining the amount of permissible retention of North Atlantic shortfin mako in the future. Any alternative approaches shall take into consideration, among other factors, the relative contributions made by CPCs to conserve, manage, and rebuild the stock (including a CPC's performance in reducing its mortality in line with the objectives of previous ICCAT Recommendations 17-08 and 19-06) and other criteria as set out in Resolution 15-13, as well as the need to continue to incentivize individual CPC accountability to achieve fishing mortality reductions in line with the objectives of this rebuilding program. To assist with this work, the SCRS shall, as appropriate, provide to the Commission estimates of post release mortality and, where needed, estimates of dead discards, taking into account data submitted by CPCs and other relevant information and analyses.
 - b) Notwithstanding paragraph 3, in 2022, the SCRS will use **Annex 1** to calculate possible retention allowed in 2023 and provide the results to the Commission, which shall then validate the amount of any permissible retention in 2023.
 - c) Starting in 2023 and annually thereafter, the SCRS will use **Annex 1**, unless an alternative approach to calculating future permissible retention is agreed (as per paragraph 5(a)), to calculate a possible level of retention, including eligible CPCs' individual retention allowances, allowed in the subsequent year, and provide the results to the Commission.

¹ SSF is Spawning stock fecundity, which is used for Kobe II risk matrix for North Atlantic shortfin mako.

- d) Starting in 2023 and annually thereafter, the Commission shall validate the amount of permissible retention in the subsequent year, based on advice from the SCRS in accordance with paragraph 5(c).
6. CPCs whose fishing vessels retain North Atlantic shortfin mako shall prohibit transshipping, whole or in part, North Atlantic shortfin mako caught in association with ICCAT fisheries.
 7. Any retention permissible in accordance with paragraph 5 shall be allowed only when the fish is dead on haulback and the vessel has an observer or a functioning electronic monitoring system (EMS) on board to verify the condition of the sharks.
 - a) For vessels of 12 meters or less, no more than one specimen of North Atlantic shortfin mako shall be retained by a vessel for any fishing trip.
 - b) For the purposes of this paragraph, a fishing trip is defined as the time period that begins when a fishing vessel departs from a dock, berth, beach, seawall, ramp, or port to carry out fishing operations and that terminates with a return to a dock, berth, beach, seawall, ramp, or port.
 8. Paragraphs 3 to 7 shall not apply to Iceland and Norway whose domestic law requires that any dead fish be landed, provided that:
 - a) The fish is dead on haulback;
 - b) Directed fishing for shortfin mako sharks is prohibited;
 - c) The amount of landed North Atlantic shortfin mako is reported in the CPC's Shark Implementation Check Sheet, as required by Recommendation 18-06 and any future successor or revision thereto;
 - d) North Atlantic shortfin mako be landed with their fins naturally attached; and
 - e) Fishermen are prohibited from drawing any commercial value from such fish.

Safe handling and release

9. Upon entry into force of this Recommendation, CPCs shall require vessels flying their flag to implement, while giving due consideration to the safety of the crew, the minimum standards for safe handling and release procedures of North Atlantic shortfin mako shark, as provided under **Annex 2** of this Recommendation, in order to promptly release unharmed, to the extent practicable, and to improve survivability of live North Atlantic shortfin mako shark when brought alongside the vessel. Revisions to **Annex 2** may be considered by the Commission as new information from the SCRS becomes available.

Requirements for reporting on implementation

10. In accordance with Rec. 18-06, CPCs shall submit a Shark Implementation Check Sheet to provide information on how this Recommendation is being implemented. If the Compliance Committee determines that any CPC fails to report as required by Rec. 18-06, that CPC shall immediately require its fishing vessels to refrain from retaining or landing North Atlantic shortfin mako sharks until the required reporting is made to ICCAT.
11. CPCs shall report to the ICCAT Secretariat, in accordance with ICCAT data reporting requirements, total catches, including any landings, dead discards and live releases, of North Atlantic shortfin mako. The frequency of reporting shall be monthly for any permissible landings in order to closely monitor the uptake of the retention allowance, and annually for dead discards, live releases and total catches. The Secretariat shall notify all CPCs when a CPC has reached its limit in retention based on monthly reported landings.
12. Any retention by a CPC in excess of its retention allowance calculated in paragraph 5 will result in a reduction of that CPC's allowance the following year by an amount equal to the excess. Retention by that CPC shall be prohibited until any overages are repaid in full.

13. No later than 31 July 2022, CPCs that reported annual average catches (landings and dead discards) of North Atlantic shortfin mako over 1 t between 2018-2020 shall present to the SCRS the statistical methodology used to estimate dead discards and live releases. CPCs with artisanal and small-scale fisheries shall also provide information about their data collection programs. The SCRS shall review and approve the methods and, if it determines that the methods are not scientifically sound, the SCRS shall provide relevant feedback to the CPCs in question to improve them.
14. As part of their annual Task 1 and 2 data submissions, CPCs shall provide all relevant data for North Atlantic shortfin mako, including estimates of dead discards and live releases using the methods approved by the SCRS in paragraph 13. If the Compliance Committee determines that CPCs that authorize their vessels to retain on board and land North Atlantic shortfin mako pursuant to paragraph 5 fail to report their catch data, including dead discards and live releases, the CPCs concerned shall require their fishing vessels to refrain from retaining any quantity of North Atlantic shortfin mako until such data have been reported.
15. The SCRS shall evaluate the completeness of Task 1 and 2 data submissions, including estimates of total dead discards and live releases. If, after conducting this evaluation, the SCRS determines that significant gaps in data reporting exist, or, following the review in paragraph 13, that the methodology used by one or more CPCs to estimate dead discards and live releases is not scientifically sound, the SCRS shall inform the Commission that the data for those CPCs are inappropriate for inclusion in the calculation of the retention allowance. In this case, the SCRS shall estimate dead discards and live releases for those CPCs for use in the retention allowance calculation.

Biological sampling and observer coverage

16. CPCs shall endeavor to gradually increase the observer coverage, including EMS, of all longline fishing vessels in ICCAT fisheries that may have potential interaction with North Atlantic shortfin mako sharks to 10%. This increase in the coverage should be implemented in accordance with provisions of Recommendation 16-14 either by means of the deployment of human observers on board vessels or through the use of EMS, taking into account minimum standards to be agreed by ICCAT, based on advice from SCRS and PWG.
17. Collection of biological samples during commercial fishing operations shall comply with the *Recommendation by ICCAT on biological sampling of prohibited shark species by scientific observers* (Rec. 13-10). CPCs should encourage the collection of biological data and biological samples of North Atlantic shortfin mako that are dead at haulback, such as muscle, vertebrae and reproductive tissues, consistent with the terms of this Recommendation and according to the recommendations of SCRS.
18. Notwithstanding paragraph 7, in the context of this Recommendation and only for vessels less than 15 meters, where an extraordinary safety concern exists that precludes deployment of an onboard observer, a CPC may exceptionally apply an alternative approach as set out in Recommendation 16-14. This derogation from paragraph 7, shall be without prejudice to the overall commitment of all CPCs as outlined in this measure to immediately end overfishing and to reduce mortality levels. Any CPC wishing to avail itself of this alternative approach must: 1) present the details of the approach to the SCRS based on the advice of the SCRS for evaluation and 2) obtain approval from the Commission (as stipulated in Recommendation 16-14).

Scientific and research activities

19. The SCRS shall continue to prioritize research into: identifying mating, pupping and nursery grounds, and other high concentration areas of North Atlantic shortfin mako; options for spatial-temporal measures; mitigation measures (*inter alia*, gear configuration and modification, deployment options), together with the benefits and disadvantages for the objectives of the rebuilding programme, aimed at further improving stock status; and other areas the SCRS deems helpful both to improving stock assessments and reducing shortfin mako mortality. In addition, CPCs are encouraged to investigate at-vessel and post-release mortality of shortfin mako including, but not exclusively through, the incorporation of hook-timers and of satellite tagging programs.

20. Taking into account that hotspots of incidental catches may occur in areas and periods with specific oceanographic conditions, the SCRS shall launch a pilot project to explore the benefits of installing mini data loggers on the mainline and on the branchlines of longline fishing vessels which participate in the project on a voluntary basis targeting ICCAT species that have potential interactions with shortfin mako sharks. The SCRS shall provide guidance on the basic characteristics, minimum number and positions to install the mini data loggers with a view to have a better understanding of the effects of the soaking time, fishing depths and environmental characteristics underpinning higher incidental catches of shortfin mako.
21.
 - a) The SCRS shall provide to the Commission by 2023, and whenever new information becomes available, updated advice on mitigation measures aimed at further reducing shortfin mako mortality. For that purpose, by 30 April 2023, CPCs shall submit to the SCRS information by fishery on the technical and other management measures they have implemented for reducing total fishing mortality of North Atlantic shortfin mako sharks, except the CPCs that have already provided this information to the Secretariat. The SCRS shall review this information and advise the Commission on which tools and approaches have been most effective at reducing fishing mortality with a view to recommending specific measures that should be considered for adoption by the Commission.
 - b) Taking into account the information on the technical and other management measures submitted by CPCs in subparagraph a) above, the SCRS shall assess the potential benefits of both minimum and maximum size limits for live retention (applied separately or in combination), in particular sex specific sizes at maturity based on the best available science, particularly when considered in combination with other management measures, to meet required mortality reductions. The SCRS shall advise the Commission by 2024 whether size restrictions are effective tools, especially when used in combination with other measures, to meet required mortality reductions.
22. The SCRS shall review the reported landings and discards of longfin mako shark to identify any unexpected inconsistencies that could be the result of misidentification between the two mako species, for the purpose of formulating management advice.

Next stock assessments and review of measures effectiveness

23. The SCRS shall conduct a benchmark stock assessment, including producing a Kobe II strategy matrix that reflects the time frame for rebuilding up to 2070, of North Atlantic shortfin mako by 2024. Further assessments shall be carried out by 2029 and 2034, with a view to evaluate the stock status and trajectory as well as the effectiveness of actions taken pursuant to this Recommendation and subsequent amendments to achieve the objectives of the rebuilding programme.

Implementation

24. Notwithstanding the provisions of Article VIII, paragraph 2 of the Convention, CPCs are strongly encouraged to implement, in accordance with their regulatory procedures, this Recommendation as soon as possible and before the date of its entry into force.
25. In 2023, an intersessional meeting of Panel 4 shall take place to promote the sharing among CPCs of best practices, to reduce encounters with, and catches and fishing mortality of shortfin mako sharks. Panel 4 shall seek input from fishing operators, other relevant stakeholders, and scientists and shall encourage their participation in this meeting. Any recommendations from this meeting for effective technical measures that have the potential to reduce fishing mortality for shortfin mako sharks shall be referred to the SCRS for its review and consideration. Based on that review, in 2024 the SCRS shall advise the Commission on the most effective technical measures that should be implemented to reduce fishing mortality for shortfin mako while also providing information and advice on the trade-off for the catches of the target species by fishery.

Review and repeal

26. This Recommendation replaces and repeals the *Recommendation by ICCAT on the Conservation of North Atlantic Stock of Shortfin Mako Caught in Association with ICCAT Fisheries* (Rec. 19-06).
27. At its 2024 annual meeting, the Commission shall review this measure against the objectives of the rebuilding programme, taking into account advice received from the SCRS, including advice relating to paragraphs 21 (a) and (b), as well as discussions at Panel 4.
28. The Commission shall review this measure no later than the annual meeting 2024 to consider additional measures to reduce total fishing mortality.

Process to determine possible retention

1. In order to determine whether any retention is permissible, the following rules shall apply when making management decisions in year Y:
 - a) All sources of fishing mortality for the previous year (Y-1) shall be estimated by the SCRS based on the data submitted by CPCs as well as updated scientific evidence. In the event that not all CPCs report all required data and full data sets for Y-1 (i.e., dead discards, live releases and where allowed, retentions) or if the SCRS determines that the data provided by a CPC are not scientifically sound, the SCRS shall provide estimates as appropriate to fill any known data gaps.
 - b) The total fishing mortality from all sources for year Y-1 as calculated in **Annex 1**, paragraph 1a) is subtracted from the figure established by paragraph 4. The resulting amount shall be referred to as the dead bycatch retention allowance (hereinafter 'retention allowance') for the following year Y+1.
 - c) If the retention allowance established by **Annex 1**, paragraph 1b) is equal to or less than zero, CPCs shall prohibit retaining onboard, transshipping and landing, whole or in part, North Atlantic shortfin mako caught in association with ICCAT fisheries in year Y+1.
 - d) If the retention allowance established by **Annex 1**, paragraph 1b) is greater than zero, CPCs may be eligible to retain up to the amount resulting from **Annex 1**, paragraph 2 below.

CPC retention allowance

2. If, pursuant to **Annex 1**, paragraph 1d), retention is permissible, the retention allowance for each CPC will be calculated using the following formula:

$$\text{Individual CPC retention allowance (t)} = \frac{(\text{CPC average annual catches from 2013-2016}) \times (\text{Retention Allowance})}{\text{Average total ICCAT catches from 2013-2016}}$$

Where: "CPC average annual catches from 2013-2016" is the average annual catches (reported landings + dead discards, as verified by the SCRS pursuant to the data submitted and analysis undertaken pursuant to paragraphs 13 and 15) for an individual CPC for the four years covering 2013-2016; "Retention Allowance" is defined in **Annex 1**, paragraph 1; and, "Average total ICCAT catches from 2013-2016" is the average annual catches (reported landings + dead discards, as verified by the SCRS pursuant to the data submitted and analysis undertaken pursuant to paragraphs 13 and 15) across all CPCs 2013-2016.

3. CPCs must meet all the requirements within this measure in order to access any possible retention allowance.
4. Once the total amount retained by a CPC in a given year reaches that CPC's retention allowance, that CPC must immediately prohibit retention, transshipment, and landing for the remainder of that fishing year, and the CPC shall notify immediately the Secretariat that it has reached its retention allowance and has implemented the required prohibitions.

Minimum standards for safe handling and live release procedures

The following provides minimum standards for safe handling practices of North Atlantic shortfin mako sharks (nSMA) and provides specific recommendations for both longline and purse seine fisheries.

These minimum standards are appropriate for live shortfin mako sharks when released whether under no-retention policies, or when released voluntarily. These basic guidelines do not replace any stricter safety rules that may have been established by the National Authorities of individual CPCs.

Safety First: These minimum standards should be considered in light of safety and practicability for crew. Crew safety should always come first. At a minimum, crew should wear suitable gloves and avoid working around the mouths of sharks.

Training: The Secretariat and SCRS should develop materials to support the training of fishing operators to implement this safe handling protocol. These materials should be made available to CPCs in the three ICCAT official languages.

To the greatest extent practicable, all sharks being released should remain in the water at all times unless it is necessary to lift sharks for species identification. This includes cutting the line to free the shark while it is still in the water, using bolt cutters or dehooking devices to remove the hook if possible, or cutting the line as close to the hook as possible (and so leaving as little trailing line as possible).

Be prepared: Tools should be prepared in advance (e.g., canvas or net slings, stretchers for carrying or lifting, large mesh net or grid to cover hatches/hoppers in purse seine fisheries, long handled cutters and de-hookers in longline fisheries, etc., listed at the end of this document).

General recommendations for all fisheries:

- If operationally safe to do so, stop the vessel or substantially reduce its speed.
- When entangled (in netting, fishing line, etc.), if safe to do so, carefully cut the net/line free from the animal and release to the sea as quickly as possible with no entanglements attached.
- Where feasible, and while keeping the shark in the water, try to measure the length of the shark.
- To prevent bites, place an object, such as a fish or big stick/wooden pole, in the jaw.
- If, for whatever reason, a shark must be brought on the deck then minimise the time it takes to return it to the water to increase survival and reduce risks to the crew.

Longline fisheries specific safe-handling practices:

- Bring the shark as close to the vessel as possible without putting too much tension on the branchline to avoid that a released hook or branchline break could shoot hook, weights and other parts toward the vessels and crew at high speed.
- Secure the far side of the longline mainline to the boat to avoid that any remaining gear in the water pulls on the line and the animal.
- If hooked, and the hook is visible in the body or mouth, use a dehooking device or long-handled bolt cutter to remove the hook barb, and then remove the hook.
- If it is not possible to remove the hook or the hook cannot be seen, cut the line of the trace (or snood, leader) as close to the hook as possible (ideally leaving as little line and/or leader material as possible and no weights attached to the animal).

Purse seine fisheries specific safe-handling practices:

- If in purse seine net: Scan the net as far ahead as possible to spot the sharks early to react quickly. Avoid lifting them up in the net towards the power block. Reduce vessel speed to slacken the tension of the net and allow the entangled animal to be removed from the net. If necessary, use clippers to cut the net.
- If in brail or on deck: Use a purpose-built large-mesh cargo net or canvas sling or similar device. If the vessel layout allows, these sharks could also be released by emptying the brail directly on a hopper and release ramp held up at an angle that connects to an opening on the top deck railing, without need to be lifted or handled by the crew.

DO NOT (all fisheries):

- To the greatest extent practicable, do not lift sharks from the water using the branchline, especially if hooked unless it is necessary to lift sharks for species identification.
- Lift sharks using thin wires or cables, or by the tail alone.
- Strike a shark against any surface to remove the animal from the line.
- Attempt to dislodge a hook that is deeply ingested and not visible.
- Try to remove a hook by pulling sharply on the branchline.
- Cut the tail or any other body part.
- Cut or punch holes through the shark.
- Gaff or kick a shark, or insert hands into the gill slits.
- Expose the shark to the sun for extended periods.
- Wrap your fingers, hands or arms in the line when bringing a shark or ray to the boat (may result in serious injury).

Useful tools for safe handling and release:

- Gloves (shark skin is rough; ensures safe handling of shark and protects crew's hands from bites)
- Towel or cloth (a towel or cloth soaked in seawater can be placed on the eyes of the shark; used to calm sharks down)
- Dehooking devices (e.g., pig tail dehooker, bolt or plier cutters)
- Shark harness or stretcher (if needed)
- Tail rope (to secure a hooked shark if it needs to be removed from the water)
- Saltwater hose (If anticipated that it may require more than 5 minutes to release a shark, then place a hose into its mouth so seawater is moderately flowing into it. Make sure deck pump has been running several minutes before placing it in a shark's mouth)
- Measuring device (e.g., mark a pole, leader and float, or a measuring tape)
- Data sheet for recording all catch
- Tagging gear (if applicable)