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Review of Billfish Conservation and Management Measures

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Prepared by the Secretariat

Purpose and Introduction

1. The purpose of this paper is to provide summary information to support the Commission’s review of its four current conservation and management measures (CMMs) on billfish species in the Western and Central Pacific Ocean (WCPO). Relevant recommendations to the Commission from subsidiary body meetings in 2023 are included in this paper and can also be found in the respective subsidiary body meeting reports.

Southwest Pacific (SWP) striped marlin (CMM 2006-04)

2. The Commission adopted CMM 2006-04 at its 3rd regular annual session in 2006. Paragraph 1 of the CMM is a “fishing for vessel capacity limit” which applies to most CCMs fishing for SWP striped marlin in the waters south of 15°S. Australia, Republic of Korea, Chinese Taipei, and United States have notified the Commission of their limits, in reference to the baseline of 2000 – 2004 levels. Canada, China, European Union, Indonesia, Japan, and Philippines who may have vessels fishing in the waters south of 15°S have a non-specified limit because they have reported that their vessels are not fishing for SWP striped marlin in the applicable area.¹

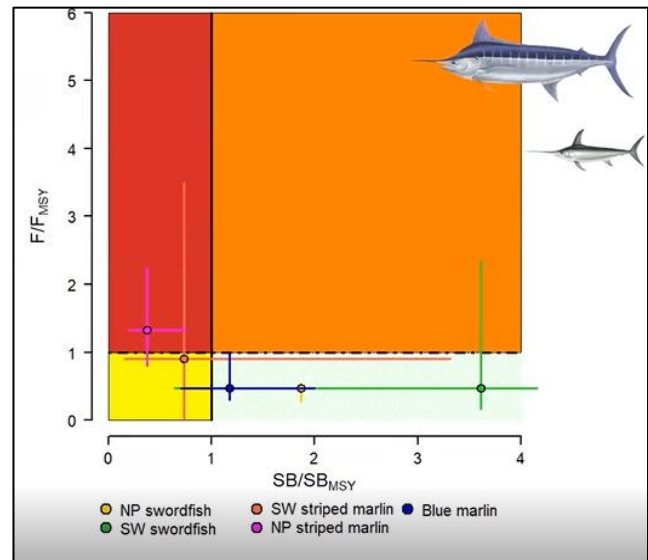


Figure 1. The Kobe plot showing most recent stock status for the WCPO stocks of two billfish species. SWP swordfish, NP swordfish and blue marlin are showing in a mostly healthy state. NP striped marlin and SWP striped marlin are showing in a less than healthy state.

¹ In early 2023, the Secretariat released an enhanced CMM page that includes Audit Points and Limits (<https://cmm.wcpfc.int/>)

3. The last stock assessment was reviewed by the Scientific Committee in 2019 at SC15. The following was the management advice from SC15, which indicates a less than healthy state.

SWP Striped Marlin (*Kajikia audax*)
(Excerpt from SC15 Summary Report)²

Management Advice and Implications

- 1) SC15 noted that there are no agreed limit reference points for the WCPO billfish. However, SC15 also noted that based on the adopted uncertainty grid, the southwest Pacific striped marlin assessment results indicate that the stock is likely overfished, and close to undergoing overfishing according to MSY-based reference points. SC15 recommends that WCPFC16 identify an appropriate limit reference point for this stock. Key management quantities can be found in Table SMLS-02. The recent spawning biomass depletion relative to the unfished condition was close to the LRP adopted for tunas ($SB_{\text{recent}}/SB_{F=0} = 0.2$).
 - 2) SC15 noted that recent catches are approximately half the MSY, and that recent fishing mortality is slightly less than the fishing mortality that would result in MSY.
 - 3) SC15 recommended SC16 use stochastic stock projections, including the expansion of the geographic scope of CMM 2006-04 by assuming average fishing effort during 2000-2004 by CCMs and zero fishing mortality in assessment region 1, to evaluate the potential long-term performance of the CMM.
 - 4) SC15 recommended that WCPFC16 consider measures to reduce the overall catch of this stock, including through the expansion of the geographical scope of CMM 2006-04, in order to cover the distribution range of the stock.
4. In 2023, TCC19 used adopted CMS audit points to assess the limit and the annual reporting requirement obligations ([paragraph 04](#)) in the SWP Striped Marlin CMM for RY 2021 and RY 2022. Noting that information provided against limit obligations is self-reported, no compliance issues were identified by TCC.
 5. There was no updated advice or recommendations related to SWP striped marlin from SC19, but the billfish research plan reviewed by SC19 recommends that a new stock assessment for SWP striped marlin is a high priority with a start year and complete year of 2024.
 6. Noting that agreement on biological reference points for SWP striped marlin is still under discussion, and that SC17 agreed a framework for selecting limit reference points (LRPs) for billfish species³, SC19 through the billfish research plan has sought general guidance from the Commission on whether in the case of non-targeted species it is acceptable to have a higher level of risk to the stock and a lower biomass LRP compared with the equivalents for target species.

North Pacific Swordfish (CMM 2022-02)

7. The Commission adopted the first CMM directed to North Pacific Swordfish fisheries (CMM 2022-02) at WCPFC19 in 2022, with an effective date of 1 February 2023. [Paragraph 2](#) of CMM 2022-02 applies a “level of fishing effort limit” to most CCMs with fisheries taking North Pacific Swordfish in the Convention Area north of 20N. In regard to the limits, CCMs self-reported information of the average catches, number of fishing vessels and fishing days for 2008 – 2010 levels, was collated by the

² Source: <https://www.wcpfc.int/doc/09/southwest-pacific-striped-marlin>

³ See SC17 Summary Report, paragraph 366.

Secretariat in paper [NC19-WP03](#) for review by NC19. This information suggests that the limits could be applicable to certain fisheries operating in waters north of 20°N of Japan, Republic of Korea, Chinese Taipei, and the United States.

8. Because CMM 2022-02 was very recently adopted, the self-reported baseline limits, applicability of limits and annual reporting obligation ([CMM 2022-02 04](#)) are yet to be reviewed by TCC through the CMS. In addition, audit points are yet to be agreed by the Commission for CMM 2022-02 obligations.
9. The following stock status and conservation status from ISC was noted by SC19, which indicates a mostly healthy state:

North Pacific Swordfish (*Xiphias gladius*)
(Paragraphs 95-98, SC19 Outcomes Document)

Stock status

- 1) Female spawning stock biomass was estimated to be 35,778mt in 2021, with a relative SSB ratio of $SSB/SSB_{MSY} = 2.18$ in 2021;
- 2) Estimated F (arithmetic average of F for ages 1 – 10) averaged roughly $F=0.09 \text{ yr}^{-1}$ during 2019-2021 with a relative fishing mortality of $F/F_{MSY} = 0.49$ in 2021; and
- 3) Relative to MSY-based reference points, overfishing is very likely not occurring (>99% probability) and the NP swordfish stock is very likely not overfished (>99% probability).

Conservation Status

- 5) The NP swordfish stock has produced annual yields of around 11,500 mt per year since 2016, or about 2/3 of the MSY catch amount.
- 6) NP swordfish stock status is positive with no evidence of excess F above F_{MSY} or substantial depletion of spawning potential.
- 7) It was also noted that retrospective analyses show that the assessment model appears to underestimate spawning potential in recent years.

10. NC19 agreed to amend the existing CMM 2022-02 and has recommended that the Commission adopt the amended CMM for North Pacific Swordfish in **Attachment A**⁴. There are three amendments that are proposed:
 - a) to reflect in paragraph 4 that CCMs should report all catch and effort for NP swordfish in two tables: the area north of 20°N in the convention area, as well as the entire North Pacific north of the equator.
 - b) to delete a preambular paragraph that refers to South Pacific Swordfish, and
 - c) to adjust the scope of paragraph 2 of CMM 2022-02, by including a clarification that the limit applies to those fisheries taking more than 200mt per year of NP swordfish in the area north of 20°N.

South Pacific Swordfish ([CMM 2009-03](#))

11. The Commission adopted CMM 2009-03 at its 6th regular annual session in 2009. There are two limit obligations in this measure, a “*fishing for vessel capacity limit*” applying to most CCMs for South Pacific

⁴ Paragraphs 36-38, NC19 Summary Report

swordfish in the area south of 20S ([CMM 2009-03 01](#)) and an “*area-based catch limit*” applying to most CCMs for south-west swordfish in the area south of 20S ([CMM 2009-03 02](#)). There is also an implementation obligation intended to discourage shifts in fishing effort from south of 20°S to north of 20°S ([CMM 2009-03 03](#)). The limits for Australia, European Union, New Zealand, Republic of Korea, Chinese Taipei are listed in Annex 1 of the CMM. Japan and the United States have separately notified the Commission of their applicable limits under CMM 2009-03. China is acknowledged to have vessels fishing in waters south of 20°S and has reported that their vessels are not “fishing for” so has an unspecified limit. The limit is considered applicable to Indonesia and Philippines, and it is also unspecified, but in recent years they have not had any vessels operating in the area south of 20°S. The Commission has previously noted there were ongoing difficulties related to interpretation of the term “actively fishing for” (and similar terms such as “directed at” and “targeting”) for this CMM which continue to present challenges and makes it difficult for TCC to complete the assessments of some obligations during the CMR.

12. The last stock assessment was reviewed by the Scientific Committee in 2021 at SC17. The following was the management advice from SC15, which indicates a mostly healthy state.

South Pacific Swordfish (*Xiphias gladius*)
(Excerpt from SC17 Summary Report)⁵

Management Advice and Implications

- 1) Annual catch estimates for Southwest Pacific swordfish peaked at 11,128 mt in 2012 (SC17-ST-IP-01). Catch by longline vessels in 2020 was 5,373 mt compared to 5,812 mt in 2019, a decline of 7.6%.
- 2) SC17 supported the new model ensemble approach for developing management advice for this stock, noting that this approach, including the process for review of priors and decisions on post-hoc filtering rules, would continue to be refined and improved in future. SC17 also noted this new approach may result in significant changes in the level of uncertainty assumed so far. This may have implications in the perception of risks, particularly when applied to species with adopted LRPs.
- 3) The outcomes of the assessment are on average more optimistic in relation to the 2017 assessment, but the estimated uncertainty has increased. Noting that a LRP for Southwest Pacific swordfish has not yet been adopted by WCPFC, SC17 noted that the median latest Southwest Pacific swordfish spawning biomass is above both SB_{MSY} and the LRP $20\%SB_{F=0}$ applied to tunas, and recent fishing mortality is below F_{MSY} . The stock is likely not experiencing overfishing (80% probability $F < F_{MSY}$ and 20% probability $F > F_{MSY}$) and is likely not in an overfished condition (13% probability that $SB_{latest}/SB_{MSY} < 1$ and a 10% probability that $SB_{latest}/SB_{F=0} < 0.2$).
- 4) SC17 noted that the levels of fishing mortality and depletion in the diagnostic case differ between the two model regions, with fishing mortality higher in Region 1 but spawning biomass depletion greater (more depleted) in Region 2. SC17 noted that over the past two decades, the majority of catch has been taken by a combination of swordfish targeting fleets (in the area south of 20°S; 42% of catches) and fleets taking swordfish as a bycatch on the high seas (in particular in the eastern stock area north of 20°S; 34% of catches).
- 5) While SC17 advocated for the adoption of the new ensemble approach, it is nevertheless important that the Commission understand the implications of the new approach and that

⁵ Source: <https://www.wcpfc.int/doc/08/south-pacific-swordfish>

additional work is required to refine this approach.

- 6) SC17 noted the significant unresolved uncertainties in the assessment relating to the reliability of CPUE indices, longitudinal movements, spatial connectivity and absolute population size. These uncertainties, combined with the need to further refine and review the new ensemble approach, suggest additional caution may be appropriate when interpreting the current assessment outcomes to guide management decisions. SC17 recommended that research priorities for this stock include directed longitudinal tagging of swordfish and a feasibility study on the utility of Close Kin Mark Recapture (CKMR).
- 7) SC17 noted the current measure (CMM 2009-03) for this stock does not contain provisions to limit total fishing mortality on the stock and emphasized the continued importance of WCPFC to develop a revised and strengthened CMM that will ensure the ongoing future sustainability of the Southwest Pacific swordfish. SC17 noted that the suite of catch projections requested by WCPFC16, which are to be undertaken by the SSP post-SC17 and prior to WCPFC18, are intended to test the future likely state of the stock under a range of potential future catch or effort scenarios. This information will inform the revision of the future measure.
- 8) SC17 recommended that a number of additional projection runs be explored alongside the WCPFC16 requested projections to be presented for consideration at WCPFC18:
 - i. No change to recent catch and effort levels.
 - ii. 10% and 20% reduction in total swordfish catch.
 - iii. SC17 noted that the current CMM does not cover catches north of 20°S.
 - iv. SC17 recommends that the Commission take note of the swordfish projections in framing any future CMM.

13. There is no updated advice or recommendations related to southwest Pacific swordfish from SC19, but the SC19 billfish research plan has recommended that a new stock assessment for southwest Pacific swordfish is a high priority with a start year and complete year of 2025. Discussions on biological reference points are still ongoing in the SC.
14. In 2023, TCC19 used audit points to assess the two limit obligations (CMM 2009-03 01 and CMM 2009-03 02), one implementation obligation (CMM 2009-03 03) and an annual report requirement ([CMM 2009-03 08](#)) in the South Pacific Swordfish CMM (CMM 2009-03) for RY 2021 and RY 2022. Noting that information provided against limit obligations is self-reported, no compliance issues were raised by TCC.

North Pacific Striped Marlin ([CMM 2010-01](#))

15. The Commission adopted CMM 2010-01 at its 7th regular annual session in 2010. [Paragraph 5](#) of the CMM is an “*area-based catch limit*” which applies to most CCMs with vessels fishing in the Convention Area north of the equator. China, Japan, Republic of Korea, Chinese Taipei, and the United States have notified the Commission of their limits in reference to the baseline of 2000-2003 levels. Indonesia and Philippines have a non-specified limit because they have reported that they do not fish for NP striped marlin.
16. The following stock status and conservation status from ISC was noted by SC19, which indicates a less than healthy state:

North Pacific Striped Marlin (*Kajikia audax*)
(Paragraphs 109-111, SC19 Outcomes Document)

Stock status

- 1) When the status of Western and Central North Pacific striped marlin is evaluated relative to dynamic 20%SSB_{F=0}-based reference points, the 2020 spawning stock biomass of 1,696 mt is 54% below 20%SSB_{F=0} (3,660 mt) and the 2018-2020 fishing mortality is about 28% above F_{20%SSB(F=0)}.
- 2) Therefore, relative to 20%SSB_{F=0}-based reference points, the WCNPO striped marlin stock is very likely to be overfished (>99% probability) and is likely to be subject to overfishing (>66% probability).

Conservation Status

- 1) It is recommended that catch should be kept at or below the recent level (2018-2020 average catch = 2,428 t); and
- 2) The results of deterministic projection show that when catches are 2,400 t, or less, the stock is expected to recover above SSB_{MSY} and near the 20% SSB_{F=0} reference level (3,660 t) by 2040, or sooner at the lower catch levels under a low recruitment regime.

17. WCPFC19 noted that proposing a CMM on North Pacific striped marlin was deferred until 2023 and expressed concern regarding the continued delay in the rebuilding plans for the stock. Additionally, at SC19 some CCMs recommended that the catch limit be set at 2,300 mt or lower due to concern about the reliability of the model and associated increased risk. As is the case for SWP striped marlin and south Pacific swordfish, discussions on biological reference points are still ongoing.
18. TCC19 used audit points to assess the one limit obligation in the NP Striped Marlin CMM (CMM 2010-01 05) for RY 2021 and RY 2022. Noting that information provided against limit obligations is self-reported, no compliance issues were raised by TCC.

Information and Data Requirements to support management decisions

19. There are three areas related to information and data requirements that requires WCPFC20 consideration:
 - a) Priority information and data needs identified within the Scientific Committee's Billfish Research Plan;
 - b) Identified gaps for billfishes and billfish fisheries in Scientific Data to be Provided (SciData) decision;
 - c) The need to addressing the ongoing difficulties TCC has faced in completing verified assessments of CCMs compliance with quantitative limits set out in the various CMMs for billfishes.

Priority information and data needs identified within the Scientific Committee's Billfish Research Plan

20. An Informal Small Group (ISG04) met during the course of SC19 to support SC19's review SC19-SA-WP-16 (Draft billfish research plan, Project 112), and for ease of reference the ISG04 report is contained in **Attachment B**. The billfish research plan identifies that completing new stock assessments for billfish stocks is a high priority. SC19 has provided a recommendation on the order of priority for the new stock assessments, which takes into account the availability of data inputs for stock assessment, available resources, and the expected risk to stock sustainability. The order of priority starting with the highest are north Pacific striped marlin, south-west Pacific striped marlin, and then southwest Pacific swordfish.

21. Another priority task within the Scientific Committee's billfish research plan, is to address the absence of adopted limit reference points for billfish species. Limit reference points are important for ensuring that the Commission can receive stock status and management advice from the Scientific Committee that supports the Commission's management objectives. Some incremental progress has been made to date by WCPFC, and importantly in 2021 SC17 had agreed to a framework for selecting Limit Reference Points for billfish species.⁶ During SC19, the ISG04 discussed how to apply the framework for selecting Limit Reference Points for billfish species in a way that could lead to a recommendation to the Commission. However, SC19 advised that it is unable to apply the agreed framework because it first needs additional guidance from managers on acceptable levels of risk for WCPO billfish stocks. To this end the ISG04 developed the following text for SC19 to put forward to WCPFC20, which is now added into the SC19 Outcomes Document (Paragraph 124).

Noting that SC17 agreed a framework for selecting LRPs for billfish species, SC19 seeks general guidance from the Commission on whether in the case of non-targeted species it is acceptable to have a higher level of risk to the stock and a lower biomass LRP compared with the equivalents for target species.

22. The Secretariat's understanding of the above text is that SC19 is seeking general guidance from managers (at WCPFC20) as to whether, in the case of non-targeted billfish species, it is acceptable to have a higher probability of breaching the LRP (i.e., higher level of risk to the stock compared to 0-20% for target tuna species) and/or a lower biomass LRP compared with the equivalent level agreed for target tuna species (i.e., 20%SBF=0). Some of the considerations from the SC19 request include:
- a) If the risk level for billfish is over 20% (a higher level of risk), which means, for example, it is acceptable to have a higher probability of breaching the LRP. Generally, this will give a higher chance that the billfish stock could become depleted, and
 - b) If the LRP is lower than 20%SB/SBF=0, say 10%SB/SBF=0 (a lower level of risk), this means that the stock could be managed at a lower biomass than the target tuna or billfish stocks.
- That is, if the Commission chooses a higher level of acceptable risk, this means that the Commission will be taking a less conservative approach for the non-target species, in favour of pursuing management objectives that favour the target tunas.
23. An additional consideration that arises from the SC19 request to the Commission, is the extent to which the advice for the selection of a LRP is one that should be made by managers, or whether it should be guided more strongly by biological and scientific considerations.

Data gaps for billfishes and billfish fisheries in Scientific Data to be Provided decision identified within the Scientific Committee's Billfish Research Plan

24. At SC19, there were two SciData data gaps that were identified as priority matters within the Scientific Committee's billfish research plan.
25. The first data gap relates to the issue of inconsistent reporting of set start time in longline fisheries. At SC19, it was noted within the Scientific Committee's billfish research plan that there is an issue that CCMs and vessel operators record time in operational logbook catch and effort data in different ways, *"...some fleets record time as ships time, others at UTC and some as country capital time. Clarifying this at a fleet level will be needed before this analysis can be completed with any certainty."* The reason is this is important, is that often the time of set start time is an important factor affecting the catches of billfishes. This is an important data gap in the billfish research plan, that needs to be

⁶ Para 366, SC17 Report

clarified so that the analyses needed to support billfish scientific research can be completed with certainty.

26. Currently the SciData indicates that *"the date of start of set and time of start of set: The date and start of set time should be GMT/UTC"*. However, the reporting of date/time in the GMT/UTC standard is not a binding SciData requirement, so SC19 recommended that:

The WCPFC CCMs, with assistance from the WCPFC SSP where required, indicate:

- (a) the date/time standard used in their historical operational data submissions to the Commission, and*
- (b) the date/time standard in their operational data, when they are submitted each year in the future.*

Information to ensure the date/time standard is linked back to GMT/UTC shall also be provided.

27. In practice, the intended effect of this reporting requirement is to assist in clarifying how time is recorded in operational catch and effort data, through adoption of a new field that signals where a time other than UTC was being reported, just to make it possible for conversions to UTC to be made.
28. The second data gap, highlighted in the Billfish Research Plan is that short bill spearfish and sailfish are not currently listed as species in the [Scientific Data to be Provided decision](#). At SC19 this data gap was recognized, with SC19 noting the need for data on short-billed spearfish and sailfish catches, as highlighted in the Billfish Research Plan, and recommended that TCC19 determine how to best accommodate the inclusion of these two species into the [Scientific Data to be Provided to the Commission](#).
29. At SC19's request, TCC19 briefly reviewed these issues in general, and no additional data or advice was provided.

The need to address the ongoing difficulties TCC has faced in completing verified assessments of CCMs compliance with quantitative limits set out in the various CMMs for billfishes.

30. The Commission has previously noted the ongoing difficulties related to interpretation of the term "actively fishing for" (and similar terms such as "directed at" and "targeting"). This continues to present challenges and makes it difficult for TCC to complete the assessments of some obligations during the CMR. At WCPFC18 (December 2021) the Commission also noted that the disparities in available operational-level data for determined baseline periods raised difficulties in undertaking compliance assessments as this results in some limits being based on analysis of operational-level data and other limits being based on self-reporting.⁷
31. In [WCPFC20 paper 13](#), which considers similar issues for the limit obligation in CMM for South Pacific albacore (CMM 2015-02), the Secretariat has presented some recommendations that are intended to help TCC to complete future CMS evaluations of "vessels fishing for-type CMM limits" such as CMM 2006-04 01 and CMM 2009-03 01, and which would also clarify the information about the basis of baselines for these limits.
32. Noting that billfish measures apply to fisheries that are currently subject to a minimum requirement of 5% ROP coverage, there is limited independent verification of the reporting by CCMs of their

⁷ WCPFC18 Summary Report, Final CMR Executive Summary

compliance with these limits. The evaluations by TCC through the CMS of limits in billfish measures will continue to be based on self-reported information, until the levels of independent monitoring are improved significantly, through increased observer coverage and implementation of E-monitoring. In this vein, TCC supported the intent, and in paragraph 20 of the TCC19 outcomes document reaffirmed the importance of increasing monitoring and observer coverage in the longline fishery, including through the implementation of electronic monitoring.

Recommendations

a. Recommended priority for billfish new stock assessments

33. The Commission is invited to **note** that new stock assessments for billfish stocks are a high priority, and the SC19 recommended order of priority were:

- **North Pacific striped marlin: 2023** start year and complete year
- **SWP striped marlin: 2024** start year and complete year
- **Southwest Pacific swordfish: 2025** start year and complete year

b. Supporting further progress being made towards establishing limit reference points for billfish species

34. The Commission is invited to **discuss** and **provide guidance** as to whether in the case of non-targeted species it is acceptable to have a higher level of risk to the stock and a lower biomass Limit Reference Point compared with the equivalents for target species. This guidance is needed to assist the Scientific Committee in applying the SC17 agreed a framework for selecting Limit Reference Points for billfish species.

c. North Pacific Swordfish (CMM 2022-02)

35. The Commission is invited to **review** and **adopt** the amended Conservation and Management Measure for North Pacific Swordfish as recommended by the NC19 in [Attachment A](#).

36. The Commission is also invited to **agree** that all applicable CCMs should notify the Secretariat by no later than 31 March 2024, of their baselines and limits for their fisheries to which they consider paragraph 2 of CMM 2022-02 applies.

37. To support CCMs implementation and reporting obligations of CMM 2022-02 as well as future TCC assessments of the relevant limit and the annual reporting requirement obligation, the Commission is invited to **task** the CMS-IWG Audit Points Lead to recommend draft audit points to the Commission on the relevant limit and annual reporting requirement obligations at the earliest practical opportunity. Draft Audit Points based on the template language of existing agreed audit points, and includes in square brackets the proposed revisions to CMM 2022-02 as recommended by NC19, have been prepared by the Secretariat to assist the Commission’s consideration:

| Obligation and brief description | Draft Audit Point definition |
|--|---|
| <p style="text-align: center;">CMM 2022-02 02</p> <p>CCMs take measures [for fisheries taking more than 200 Mt] to ensure level of fishing effort by vessels fishing for NP SWO N20N is not increased</p> | <p>The CCM reported in AR Pt2 its level of fishing effort of its fisheries taking North Pacific swordfish in the Convention Area north of 20N and the Secretariat can verify the CCM’s reported information and confirm that the allowable limit has not been exceeded.</p> |

| | |
|--|--|
| <p style="text-align: center;"><u>CMM 2022-02 04</u></p> <p>Annual report of catches of North Pacific swordfish and fishing effort, [in two tables the area north of 20°N in the convention area, as well as the entire North Pacific north of the equator,] using the template and by gear type, for those fisheries subject to the limits in paragraph 2 of the CMM</p> | <p>The Secretariat confirms that CCM submitted a report of information on all catches and effort by CCM flagged vessels subject to the limits in paragraph 2, by gear type and days fished (effort) and by weight (catch), [in two tables: the area north of 20°N in the convention area, as well as the entire North Pacific north of the equator, and] using the template at Annex 1 of CMM 2022-04.</p> |
|--|--|

d. North Pacific Striped Marlin (CMM 2010-01)

38. Noting the less than healthy state of North Pacific Striped Marlin and in accordance with SC19s management advice and the precautionary approach, the Commission is invited to **adopt** necessary amendments to reduce applicable catch limits for CCMs under CMM 2010-01. These catch limit reductions should apply until a new stock assessment for NP striped marlin has been completed, and updated management advice is provided by the Scientific Committee.

e. Addressing data gaps for billfish and billfish fisheries in the Scientific Data to be Provided to the Commission decision

- 39. The Commission is invited to **adopt** the SC19 recommendations to address data gaps for billfish and billfish fisheries needed to support the Billfish Research Plan.
- 40. The Commission is invited to **agree** that CCMs submit information to the Secretariat and SSP as soon as possible, to indicate the date/time standard that was used in their historical operational longline data submissions to the Commission, and also to provide information about the date/time standard so that it can be linked back to GMT/UTC in their operational data.
- 41. The Commission is invited to **agree** that CCMs are expected and required to submit information about the date/time standard that can be linked back to GMT/UTC in their operational data, for future data submissions.
- 42. The Commission is invited to **note** the offer of assistance from the SSP to assist Flag CCMs with understanding and submitting information in accord with this reporting requirement, and urged relevant Flag CCMs to contact the SSP as soon as practicable should assistance be needed.
- 43. Recognising the importance of catch and effort data related to short-billed spearfish and sailfish species, and the Commission is invited to **task** the Secretariat, with the assistance of the SSP, to make the necessary amendment to the Scientific Data to be Provided to the Commission.

f. TCC assessments of billfish CMM limits are currently based on self-reported information

44. The Commission is invited to **note** the general limitation of TCC's assessments of compliance by CCMs with all billfish CMM limits, because they are based on self-reported information, and to **further note** that there will continue to be limited data available to the Secretariat to independently verify the reporting by CCMs of compliance with these limits, until the levels of independent monitoring are improved significantly, through increased observer coverage and implementation of E-monitoring.

**Commission for the Conservation and Management of
Highly Migratory Fish Stocks in the Western and Central Pacific Ocean**

**NORTHERN COMMITTEE
NINETEENTH REGULAR SESSION**

Fukuoka, Japan
6 – 7 July 2023

**CONSERVATION AND MANAGEMENT MEASURE FOR
NORTH PACIFIC SWORDFISH**

Conservation and Management Measure ~~2022-xx~~2022-02

The Western and Central Pacific Fisheries Commission (WCPFC),

Noting that Harvest Strategy for North Pacific Swordfish Fisheries was adopted at WCPFC16, which established the Limit Reference Point for the exploitation rate (F-limit) of F_{MSY} ;

Observing that the best scientific evidence on Western and Central North Pacific Swordfish from the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC) indicates that the species is not likely overfished and is not likely experiencing overfishing relative to MSY-based or 20% of unfished spawning biomass-based reference points;

Also observing that the best scientific evidence on Eastern Pacific Swordfish from the ISC indicates that the species is not likely overfished but is likely experiencing overfishing some of the recent years relative to MSY-based reference points, and there is an uncertainty in stock boundary between Western Central North Pacific stock and Eastern Pacific stock that are being reviewed by the ISC toward the stock assessment scheduled in 2023; [and](#)

~~*Noting that* draft Conservation and Management Measures for South Pacific Swordfish to strengthen the existing measure has been under consideration at the Commission, given that its fishing mortality has been at high levels in the last decades; and~~

Recalling Article 5(c) of the WCPFC Convention that requires application of the precautionary approach for the conservation and management of highly migratory fish stocks in the WCPF Convention Area;

Adopts, in accordance with the Article 10 of the WCPFC Convention that:

1. This measure shall apply in the high seas and EEZs within the Convention Area north of 20° N (hereinafter referred to as “the Area”).
2. The Members, Cooperating Non-Members and participating territories (hereinafter referred to as CCMs) shall take necessary measures to ensure that the level of fishing effort of their fisheries taking [more than 200 metric tons per year of](#) North Pacific swordfish in the Area is not increased beyond 2008-2010

average annual levels⁸⁹;

3. Paragraphs 2 and 4 shall not be applied to those fisheries taking less than 200 metric tons of North Pacific swordfish in the Area per year. However, if the catches of such fisheries exceed 200 metric tons in any given year, the Commission shall adopt appropriate management measure for such fisheries.

4. All CCMs shall report annually to the WCPFC Commission all catches of North Pacific swordfish in the Area and all fishing effort in those fisheries [as well as catch and effort across the North Pacific](#) subject to the measures in paragraph 2, by gear type using the template provided in Annex 1.

5. The provisions of paragraph 2 shall not prejudice the legitimate rights and obligations under international law of those small island developing State Members and participating territories in the Convention Area whose current fishing activity for North Pacific swordfish is limited, but that have a real interest in, and history of, fishing for the species, that may wish to develop their own fisheries for North Pacific swordfish in the future.

6. The provisions of paragraph 5 shall not provide a basis for an increase in fishing effort by fishing vessels owned or operated by interests outside such small island developing State Members or participating territories, unless such fishing is conducted in support of efforts by such Members and territories to develop their own domestic fisheries.

⁸ For the US swordfish longline fishery, the level of fishing effort shall not be increased beyond the maximum number of limited entry permits available during 2008-2010.

⁹ For the Chinese Taipei's coastal artisanal longline fishery, the level of fishing effort shall not be increased beyond the number of vessels licensed during 2008-2010.

Annex 1. Average annual fishing effort for 2008-2010 and annual fishing effort for subsequent years for fisheries taking North Pacific swordfish

| CCM | Area ¹⁰ | Fishery (gear type) | 2008-2010 Average | | | Year | | | Year | | | Year | | |
|-----|--------------------|---------------------|-------------------|----------------|----------------------------|-----------|----------------|--------------|-----------|----------------|--------------|-----------|----------------|--------------|
| | | | Catch (t) | No. of vessels | Fishing days ¹¹ | Catch (t) | No. of vessels | Fishing days | Catch (t) | No. of vessels | Fishing days | Catch (t) | No. of vessels | Fishing days |
| | | | | | | | | | | | | | | |
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¹⁰ If collective effort limits across the North Pacific Ocean, report the Area and North Pacific Ocean separately

¹¹ Fishing days shall be the total days of fishing (both targeting and bycatch). CCMs can consider the plural effort metrics in Annex 1 to this CMM in their entirety and in the case of fisheries that take NPS as bycatch, the metric of “fishing days” may not be appropriate for assessing the compliance with the effort control provision.

**The Commission for the Conservation and Management of
Highly Migratory Fish Stocks in the Western and Central Pacific Ocean
Scientific Committee
Nineteenth Regular Session
Koror, Palau
16-24 August 2023**

Report from ISG-04 (ISG-Billfish)

There was a request from SC19-SA-WP-16 (“Billfish research plan 2023 - 2027”) for ISG-Billfish to review the following recommendations:

1. Extend the BRP to 2030.
2. Evaluate, streamline, schedule and prioritize the projects listed in SC19-SA-WP-16 Table 7 and to develop ToRs for any projects given high priority for 2024.
3. Take into account metrics listed SC19-SA-WP-16 Tables 4 & 5 when reporting assessment results.
4. It is recommended that standardised CPUE analyses and fishery characterisations be undertaken for black marlin, sailfish and shortbill spearfish and that the SC19 ISG-billfish consider prioritisation and timing for this work.
5. It is recommended that a stratified sampling program be designed to make biological sampling most efficient and useful.
6. It is also recommended that the SC discuss how to incorporate the SC17 recommendations on Limit Reference Points into the BRP and develop a process to make recommendations to the Commission on agreed LRPs for use within assessments.
7. It is also recommended that on all longline logsheets vessels record time as UTC and not ships time so that local time can be estimated.

1. Extension of the BRP to 2030

This was supported by ISG-04 on the basis that it is sensible for long term planning, and suggested that an annual ISG Billfish (held at SC) be convened to inform ongoing and future projects planning.

2. Evaluate, streamline, schedule and prioritize the projects

The majority of ISG-04 time was spent discussing projects listed in SC19-SA-WP-16 Table 7 in order to evaluate, streamline, schedule and prioritize projects since there were a number of projects with similar scope and overlapping themes. The ISG-04 discussed the need for improved biological data for all billfish species (swordfish, striped marlin, blue marlin, black marlin, sailfish, and short-billed spearfish) within the WCPFC convention area, since this was a feature of many of the project proposals. The ISG-04 noted that the ISC has developed and implemented a structured sampling plan for three billfish species in the north Pacific Ocean (SC19-SA-IP-11), and identified that prior to collecting biological data it would be important to develop a structured sampling plan in collaboration with the ISC similar to the one proposed in SC19-SA-IP-11. The ISG-04 also noted that once a sampling plan is developed there will likely have to be subsequent prioritization and scheduling needed to define which data is collected. The ISG-04 acknowledged that TORs for the collection of the biological data according to the sampling plan may have to be developed in subsequent years.

The ISG-04 also discussed the need for conducting a feasibility study for the application of close-kin mark-recapture (CKMR) to SWPO swordfish. The ISG-04 noted that there are existing efforts underway in the region to develop scoping studies for applying CKMR to SWPO swordfish as a part of WCPFC Project 100c.

Following these discussions, the working group identified three projects as high priority: development of a structured biological sampling plan for billfish, application of CKMR for SWPO swordfish, and a directed longitudinal tagging project for SWPO swordfish. The ISG-04 proposed scheduling the development of the biological sampling plan for 2024, and a TOR was subsequently developed. The ISG-04 deferred developing a TOR for exploring the feasibility of applying CKMR to SWPO swordfish pending the results of WCPFC Project 100c. The ISG-04 proposed scheduling the tagging study for 2025/2026 and deferred developing a TOR until SC20.

3. Take into account metrics listed in SC19-SA-WP-16 Tables 4 & 5 when reporting assessment results

The ISG-04 was generally supportive of reporting the metrics listed SC19-SA-WP-16 Tables 4 & 5 when reporting assessment results on a voluntary basis. However, the ISG-04 also noted that for some of the metrics listed, specific percentage reference level values are undefined.

4. Standardised CPUE analyses and fishery characterisations for black marlin, sailfish and shortbill spearfish

The ISG-04 assigned assessment of black marlin, sailfish, and short-billed spearfish as a medium priority item. However, prior to beginning any assessment or analysis of these species the ISG-04 suggested developing conceptual models for these species to identify the most appropriate modelling approach. The ISG-04 proposed that this characterization/conceptual modelling work could take place in 2025, and development of TOR was deferred until SC20. Related to these species, ISG-04 made the request to ISG-01 that short-billed spearfish and sailfish be added into the SciData, and this will be considered at TCC19.

5. Development of a stratified sampling program for biological data

The ISG-04 discussed this issue and identified it as a high priority item. A TOR was developed with a proposed start date of 2024.

6. Discuss how to incorporate the SC17 recommendations on Limit Reference Points into the BRP and develop a process to make recommendations to the Commission on agreed LRPs for use within assessments

The ISG-04 developed the following text for SC19 to put forward to WCPFC20:

Noting that SC17 agreed a framework for selecting LRPs for billfish species, SC19 seeks general guidance from the Commission on whether in the case of non-targeted species it is acceptable to have a higher level of risk to the stock and a lower biomass LRP compared with the equivalents for target species.

7. Logsheet reporting in UTC time

The ISG-04 made the request to ISG-01 that longline vessels record time as UTC and not ships time so that local time can be determined. Following discussion within ISC-01, SC19 recommended that the date of start of set and time of start of set should be, where required, reported in a way that can be linked back to GMT/UTC.

Appendix I: Updated Table 6 for inclusion in revised SC19-SA-WP-16

| Stock assessment | | | | |
|--|----------|------------|----------|---|
| Title | Priority | Start year | End year | Comments |
| Assessment 1) North Pacific striped marlin stock assessment | High | 2023 | 2023 | Previous assessment successfully conducted by the ISC |
| Assessment 2) Southwest Pacific striped marlin stock assessment | High | 2024 | 2024 | Previous assessment successfully conducted by the SPC |
| Assessment 3) North Pacific swordfish stock assessment | High | 2023 | 2023 | Previous assessment successfully conducted by the ISC |
| Assessment 4) Southwest Pacific swordfish stock assessment | High | 2025 | 2025 | Previous assessment successfully conducted by the SPC |
| Assessment 5) Pacific blue marlin assessment | High | 2026 | 2026 | Previous assessment successfully conducted by the ISC |
| Assessment 6) Modelling approaches for WCPO black marlin, sailfish and shortbill spearfish | Medium | (2025) | (2025) | Develop conceptual models for each species to identify appropriate modelling approaches for low catch low information assessments |

Appendix II: Updated Table 7 for inclusion in revised SC19-SA-WP-16

| Biology | | | | |
|--|----------|------------|----------|--|
| Title | Priority | Start year | End year | Comments |
| Biology 1) Development of a statistically robust sampling plan for the collection of fisheries dependent biological samples (by sex), including but not limited to age, size frequency data, and genetic samples for WCPO swordfish (north and south). | High | 2024 | 2025 | |
| Biology 2) Biology of south Pacific striped marlin, blue marlin, black marlin, shortbill spearfish and sailfish in the WCPO from longline fisheries. | High | 2025 | 2028 | Collect samples (fin spines and otoliths) and then undertake age growth and reproductive analyses to get growth and maturity parameters to inform productivity rates of this species. Length-weight and length-length conversion factor data collection for SP striped marlin. |
| Biology 3) Undertake directed longitudinal tagging of southwest Pacific swordfish to reduce the uncertainty in movement rate. | High | 2025 | 2027 | |