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

SUMMARY REPORT

Acknowledgements

The financial, logistical and administrative support provided by the Western and Central Pacific Fisheries Commission Secretariat and all Members of the Northern Committee are gratefully acknowledged. Mr. Masanori Miyahara, who chaired the Nineteenth Regular Session of the Northern Committee, and Mr. Jacques Chaumont, who served as the rapporteur for the meeting, are acknowledged with appreciation.

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ATTACHMENTS

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

Northern Committee
Nineteenth Regular Session

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SUMMARY REPORT

AGENDA ITEM 1 — OPENING OF MEETING

1. The Nineteenth Regular Session of the Northern Committee (NC19) took place in Fukuoka, Japan, on 6 – 7 July 2023. The meeting was attended by Northern Committee (NC) members from Canada, China, Fiji, Japan, Republic of Korea (ROK), Philippines, Chinese Taipei, United States of America (USA) and Vanuatu and observers from the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC), Marine Stewardship Council (MSC), New Zealand, Organization for Regional and Inter-regional Studies (ORIS), Pacific Islands Forum Fisheries Agency (FFA), The Ocean Foundation, The Pew Charitable Trusts (Pew) and World Wide Fund for Nature (WWF). The list of meeting participants is in **Attachment A**.

1.1 Opening of meeting

2. Mr. M. Miyahara, Chair of the NC, opened the meeting.

1.2 Adoption of agenda

3. The provisional agenda was adopted without modification (**Attachment B**).

1.3 Meeting arrangements

4. The Chair outlined the schedule of the meeting.

5. Mr. Jacques Chaumont (Japan) was appointed as rapporteur for the meeting.

1.4 Report from ISC and SC

1.4.1 Report from ISC

6. Dr. S. Chang, Vice-Chair of ISC, gave a presentation on the proposed stock status and conservation information for North Pacific albacore tuna, North Pacific swordfish, and WCNPO striped marlin, noting that the presented information is subject to review and change up to the time of the ISC23 Plenary.

7. For North Pacific albacore tuna, (1) the stock is likely not overfished relative to the threshold and limit reference points adopted by the WCPFC and IATTC, and (2) the stock is likely not experiencing overfishing relative to the target reference point ($F_{45\%SPR}$).

8. For North Pacific swordfish, (1) reference points have not been established for the NPO SWO stock; (2) 2021 SSB of 35,778 mt is 220% above SSB_{MSY} (16,000 mt) and the 2019-2021 F is about 49% below F_{MSY}; and (3) relative to MSY-based reference points, overfishing is very likely not occurring (>99% probability) and the stock is very likely not overfished (>99% probability).

9. The status of WCNPO striped marlin (MLS) is evaluated relative to dynamic $20\%SSB_{F-0}$-based reference points as requested by the WCPFC18. Accordingly, 2020 SSB of 1,696 mt is 54% below $20\%SSB_{F=0}$ (3,660 mt) and the 2018-2020 fishing mortality is about 9% above $F_{20\%SSB(F=0)}$. Also, overfishing is very likely occurring (>99% probability) and the WCNPO MLS stock is likely overfished (72% probability).

10. With respect to Pacific bluefin tuna (PBF), the ISC presentation was made during the 8th Joint IATTC and WCPFC-NC Working Group Meeting on the Management of PBF (JWG08) meeting, and the summary of discussions can be found in the Chairs' Summary.

11. The NC reviewed the provisional report from the ISC.

12. The USA asked the ISC if there was new information from the ISC Billfish Working Group (BILLWG) on how catch and effort varies spatially in response to a request from NC18, and the ISC agreed to provide the information once it has been reviewed by the ISC23 Plenary.

13. The Chair noted that the 23rd Plenary Meeting of the ISC (ISC23) is to be held following the NC19, and therefore additional output from the ISC23 could be reviewed in a separate NC19 online meeting later this year if necessary.

14. Japan raised a question on North Pacific striped marlin, which showed a sharp decline in the 1990s, while fishing effort was drastically reduced due to the ban on high seas drift net fishing in 1992, and requested whether ISC could provide additional information. The ISC responded that it is considering this issue from multiple perspectives, and is investigating further in the upcoming stock assessment.

1.4.2 Report from SC

15. The 19th Regular Session of the WCPFC Scientific Committee will be held on 16 – 24 August 2023. Therefore, relevant outcomes from SC19 may be reviewed at another separate NC19 online meeting later this year if necessary.

AGENDA ITEM 2 — CONSERVATION AND MANAGEMENT MEASURES

2.1 Pacific bluefin tuna (CMM 2021-02)

16. The Co-Chair of the JWG presented the outcomes of the 8th JWG as outlined in the Chairs' Summary (**Attachment C**).

17. The USA highlighted that the report of the JWG08 includes a request to ISC on projection scenarios for the 2024 assessment and to review and provide updated information on conversion factors and requested that this be noted in the NC19 report.

18. The NC reviewed the compiled catch and effort information for PBF in NC19-WP-02.

19. **The NC recommends that the Commission adopt the Conservation and Management Measure for PBF in Attachment D.**

20. The NC reviewed and adopted JWG08 Annex E (ISC's Projection Scenarios Requested by the JWG08) which is included as **Attachment E**.

21. The NC reviewed and adopted JWG08 Annex G (Candidate Operational Management Objectives and Performance Indicators for Pacific Bluefin Tuna) which is included as **Attachment F**.

22. The NC reviewed and adopted JWG08 Annex H (Candidate Harvest Control Rules and Reference Points to Evaluate in the Management Strategy Evaluation) which is included as **Attachment G**.

23. **The NC recommends the revised Harvest Strategy for Pacific Bluefin Tuna Fisheries (Attachment H) for review and adoption by the Commission.**

2.2 North Pacific albacore (CMM 2019-03)

2.2.1 Reports from CCMs and Observers

24. The NC reviewed the compiled catch and effort information for NP albacore in working paper NC19-WP-01.

25. Vanuatu presented its alternative baseline proposal for Vanuatu NP albacore in NC19-DP-01. In its proposal, Vanuatu suggested using average figures from 2004 to 2006 as an alternative baseline of 2002 to 2004 to provide a fair and accurate representation of its fishing activities.

26. Japan and the USA raised concerns about the use of data from 2004, as the data is based upon the number of licenses, rather than the actual number of fishing vessels. Japan suggested that Vanuatu use data from 2005 to 2007, a three-year period which includes the actual number of fishing vessels.

27. The NC agreed to continue working towards the earliest solution of this matter using available actual fishing data provided by SPC, possibly at the second session of NC19 this year.

28. Vanuatu expressed its intention to control its fishing effort at and under 2004 – 2006 levels as proposed until this issue is settled at the NC and agreed to provide an updated report.

2.2.2 Interim Harvest Strategy for North Pacific Albacore Fishery (HS 2017-01)

29. Canada and the USA presented NC19-DP-02, proposed revisions to the harvest strategy for NP albacore.

30. ROK, Japan, and Chinese Taipei raised questions on the proposal.

31. The NC reviewed and revised the proposal.

32. **The NC recommends the revised Harvest Strategy for North Pacific Albacore Fishery (Attachment I) for review and possible adoption by the Commission**.

33. The USA and Canada stressed their desire to control their troll and pole-and-line fisheries by effort. The NC requested ISC in 2024 to advise how the fishing intensity should be interpreted to actual management measures under this harvest strategy.

2.2.3 Review of the CMM 2019-03

34. There were no proposals to amend CMM 2019-03.

2.3 North Pacific swordfish

35. The NC reviewed the compiled catch and effort information for NP swordfish in working paper NC19-WP-03.

2.3.1 Review of CMM for NP Swordfish (CMM 2022-02)

36. The Chair presented NC19-WP-04, a draft Conservation and Management Measure for North Pacific Swordfish.

37. The USA proposed an amendment to the Chair's proposal, so as to reflect that CCMs should report all catch and effort for NP swordfish in two tables: the area north of 20ºN in the convention area, as well as the entire North Pacific north of the equator. The NC recalled the discussion in 2022 on limiting the area of application to north of 20ºN and agreed to accept the proposal from the USA to review the effectiveness of the CMM.

38. **The NC recommends that the Commission adopt the Conservation and Management Measure for North Pacific Swordfish in Attachment J.**

2.3.2 Development of a management framework

39. No discussion was made on this agenda item.

AGENDA ITEM 3 — CLIMATE CHANGE

40. The NC discussed ways to incorporate climate change information and analyses in its work, particularly on considering impacts of climate change on northern stocks.

41. The USA expressed its commitment to engaging with other members on this topic. The USA suggested tasking the ISC to incorporate climate change analysis into their efforts to provide a scientific background to future discussions. The USA also emphasized the need for robust management systems and learning from other RFMOs. The USA supports developing a framework for how to include climate change analyses into NC processes.

42. The ROK welcomed this new standing agenda item and emphasized the need to address the impact on the northern stocks including PBF, and highlighted the importance of sharing information on climate change impacts among Members to build data, upon which the NC can work with the ISC to identify climate change impacts and develop management tools. In this regard, the ROK encourage Members to share any research or monitoring activities relevant to climate change relevant to the Northern stocks or related ecosystem under the Climate Change agenda item next year. The ROK also urged the WCPFC to engage with other organizations, raise public awareness, and foster sustainable solutions through international collaboration.

43. Canada expressed general agreement with the points raised by the USA and ROK, emphasizing the potential for cooperation with other RFMOs, especially to allow for sharing of information, best practices, and lessons learned. Canada also suggested further consideration be made on how each body within the WCPFC can contribute to addressing the issue of climate change.

44. The Chair noted that tasking the ISC would not be sufficient, and more research and data collection efforts are necessary. He added that more financial and human resources should be provided to the ISC.

45. Japan agreed that it would be necessary to strengthen bonds with existing scientific bodies to work on this issue.

AGENDA ITEM 4 — REGIONAL OBSERVER PROGRAMME

46. No discussion was made on the regional observer programme.

AGENDA ITEM 5 — DATA

5.1 Review of the status of data and data gaps for northern stocks

47. No discussion was made on this agenda item.

AGENDA ITEM 6 — COOPERATION WITH OTHER ORGANIZATIONS

6.1 ISC

48. No specific issues were raised.

6.2 IATTC

49. No specific issues were raised.

AGENDA ITEM 7 — FUTURE WORK PROGRAMME

7.1 Work Programme for 2023-2025

50. The NC reviewed and revised the 2023-2025 Work Programme for the Northern Committee (**Attachment K**).

AGENDA ITEM 8 — OTHER MATTERS

8.1 Administrative arrangements for the Committee

8.1.1 Secretariat functions and costs

51. No specific issues were raised.

8.1.2 Rules of Procedure

52. No proposals were received on this matter.

8.2 Next meeting

53. **Japan offered to host the NC20 meeting in conjunction with the JWG09 meeting, with the date to be determined after consultation among members and both the IATTC and WCPFC secretariats. The arrangement of the next meeting will be notified well in advance.**

54. The USA emphasized the importance of sequencing the NC meeting following the ISC Plenary and the SC in order to have the most up-to-date scientific information for the NC. The Chair noted that the best order of the meetings is ISC, SC, JWG and NC before both WCPFC and IATTC plenary meetings.

8.3 Other business

55. No other business was discussed.

AGENDA ITEM 9 — ADOPTION OF THE SUMMARY REPORT OF THE 19TH REGULAR SESSION OF THE NORTHERN COMMITTEE

56. The NC reviewed and adopted the Summary Report.

AGENDA ITEM 10 — CLOSE OF THE MEETING

57. The meeting was brought to a close at 12:12 pm on 7 July 2023.

Attachment A

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

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Attachment B

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

AGENDA

AGENDA ITEM 1 — OPENING OF MEETING

1.1 Opening of meeting
1.2 Adoption of agenda
1.3 Meeting arrangements
1.4 Report from ISC and SC
1.4.1 Report from ISC
1.4.2 Report from SC

AGENDA ITEM 2 — CONSERVATION AND MANAGEMENT MEASURES

2.1 Pacific bluefin tuna (CMM 2021-02)
2.2 North Pacific albacore (CMM 2019-03)
2.2.1 Reports from CCMs and Observers
2.2.2 Harvest control rules and exceptional circumstances
2.2.3 Review of the CMM 2019-03
2.3 North Pacific swordfish (CMM 2022-02)
2.3.1 Review of CMM for NP Swordfish (CMM 2022-02)
2.3.2 Development of a management framework

AGENDA ITEM 3 — CLIMATE CHANGE

AGENDA ITEM 4 — REGIONAL OBSERVER PROGRAMME

AGENDA ITEM 5 — DATA

5.1 Review of the status of data and data gaps for northern stocks

AGENDA ITEM 6 — COOPERATION WITH OTHER ORGANIZATIONS

6.1 ISC
6.2 IATTC

AGENDA ITEM 7 — FUTURE WORK PROGRAMME

7.1 Work Programme for 2023-2025

AGENDA ITEM 8 — OTHER MATTERS

8.1 Administrative arrangements for the Committee
8.1.1 Secretariat functions and costs
8.1.2 Rules of Procedure
8.2 Next meeting
8.3 Other business

AGENDA ITEM 9 — ADOPTION OF THE SUMMARY REPORT OF THE 19TH REGULAR SESSION OF THE NORTHERN COMMITTEE

AGENDA ITEM 10 — CLOSE OF MEETING

Attachment C

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

CHAIRS' SUMMARY OF THE 8TH JOINT IATTC AND WCPFC-NC WORKING GROUP MEETING ON THE MANAGEMENT OF PACIFIC BLUEFIN TUNA

Agenda Item 1. OPENING OF THE MEETING

1. The 8th Session of the Joint IATTC and WCPFC-NC Working Group Meeting on the Management of Pacific Bluefin Tuna (JWG08) was held on 3-5 July 2023. The meeting was opened by co-chairs Mr. Masanori Miyahara (Japan, Northern Committee Chair) and Ms. Dorothy Lowman (USA, IATTC).

2. Japan expressed gratitude for the opportunity to host the meeting, and wished that all participants have fruitful discussions over the following days.

3. A list of participants to the JWG08 is included in **Annex A**.

Agenda Item 2. ADOPTION OF AGENDA AND MEETING PROCEDURES

4. Co-Chair Miyahara welcomed participants and outlined the meeting procedures and the agenda.

5. The provisional agenda was adopted (**Annex B**).

6. Mr. Jacques Chaumont (Japan) was appointed as rapporteur for the meeting.

Agenda Item 3. SCIENTIFIC INFORMATION ON PACIFIC BLUEFIN TUNA

3.1 Updates on the stock status of Pacific bluefin tuna

7. Dr. S. Nakatsuka, the Chair of the ISC Pacific Bluefin tuna WG (PBFWG), made a brief report on the latest stock assessment for PBF, which was conducted in March 2022 and was reported to the JWG last year. As this assessment was a data update assessment, the PBFWG developed the base case model consistent with the 2020 assessment with the most recent two years data (2019-2020 fishing year (FY)).

8. The base-case of 2022 assessment results show that: (1) spawning stock biomass (SSB) fluctuated throughout the assessment period (1952-2020); (2) the SSB steadily declined from 1996 to 2010 but has increased since 2011 resulting in the 2020 SSB being back to the 1996 level, which is higher than the initial rebuilding target of this stock (historical median SSB during 1952-2014); (3) total biomass after 2011 continued to increase with an increase in young fish, creating the 2nd highest biomass peak in the assessed

history in 2020; and (4) fishing mortality ($F_{\%SPR}$), which declined to a level producing about 1% of SPR in 2004-2009, returned to a level producing 30.7% of SPR in 2018-2020 while SSB in 2020 was 10.2% of SSB_0.

9. The projection results from all examined scenarios showed that the second rebuilding target of WCPFC and IATTC, rebuilding to 20% SSB_0 by 2029 FY (10 years after reaching the initial rebuilding target) with at least 60% probability, will be achieved, and the risk of SSB falling below the historical lowest SSB at least once in 10 years is negligible. In 2023, PBFWG reviewed the most recent information, notably spawner and recruitment indices. The spawner index indicated a continuous increasing trend while the recruitment index showed high variability from low to high, indicating no unexpected change in stock status.

10. In response to a question of a delegate of Japan, Dr. Nakatsuka stated that under simulation the conversion factor used from small fish to large fish catch limits were considered not to cause negative repercussion upon the recovery of the stock and that the more conversion is made, generally speaking, the more probability of recovery could be expected.

3.2 Reports from WCPFC-Scientific Committee (SC) and IATTC-Scientific Advisory Committee (SAC)

11. The JWG acknowledged that a report from the 19th WCPFC-SC is not available because the meeting is to be held from 16 – 24 August 2023.

12. The IATTC Secretariat briefly noted the key outcomes from the 14th IATTC-SAC meeting, adding that there were two IATTC scientific staff recommendations which were considered endorsed by the SAC. (1) No changes are needed to the provisions under resolution C-21-05, and (2) increased catches based on the scenarios analyzed are possible under the harvest strategy prepared by this group , and the choice of catch scenario should account for both the desired rebuilding rate and distribution of catch between small and large PBF.

Agenda Item 4. REPORTS ON THE IMPLEMENTATION OF PACIFIC BLUEFIN TUNA MEASURES

13. The JWG reviewed WCPFC and IATTC members' implementation reports on CMM 2021-02 and C-21-05.

14. Japan explained that the reason behind its unused catch limit was due to limitations of the system which facilitates transfers among management units. Japan has observed good migration of PBF, and has dedicated efforts to comply with catch limits, although avoiding PBF catch and releasing them sometimes disrupts fishing operations and causes burden and financial losses to fishermen. Japan prohibits sports fishermen from catching small fish and set a bag-limit for large fish of one per person per day, in addition to the seasonal catch limit. Following the unreported catches detected in 2022, which Japan takes seriously, Japan has corrected its catch reports and is strengthening measures to prevent recurrence, including monitoring and control measures over market transactions.

15. Korea asked Japan for more information on its "Other fisheries" and how it manages recreational fishing, and they agreed to discuss further details.

16. In reviewing Korea's implementation report, Japan asked Korea (i) if Japan was the only country it exported to last year, and (ii) the estimation of discard amount last year. In response to these questions, Korea confirmed the first point and explained that it was unable to estimate the amount of discard last year

but determined its unused catch limit would be sufficient to cover its discard amount.

17. In reviewing Chinese Taipei's implementation report, Korea asked Chinese Taipei (i) how any incidental catches of small PBF are handled (e.g. discard, release, etc.) and (ii) if Chinese Taipei's CDS system is applied to other countries that export PBF to Chinese Taipei, and if it will change its CDS system to be consistent with the WCPFC IATTC CDS system once it is adopted. In response to questions from Korea, Chinese Taipei explained it does not allow catch of small fish and its fishermen are required to report discards or releases of small catch to the government. In addition, Chinese Taipei noted it would amend its CDS for PBF to meet requirements based on the CDS to be developed by WCPFC and IATTC.

18. Chinese Taipei gave details on the countries they imported from and exported to, in response to a question from Japan.

19. Japan asked the US to give further details on how it plans to manage its sports fisheries, as it interpreted the IATTC Resolution. Japan expressed its concerns over the increasing catches by US sports fisheries and raised a question if the US has the intention to manage catches by its sports fisheries by catch limit. The US noted it continues to manage its fleet through bag-limits, and acknowledged that it has observed an increase in the weight of fish caught by its recreational fleet, but noted that the size of fish has increased and the number of fish caught is less than in 2013. Additionally, the US expressed concern that recreational catches and discards by other countries are not well reported.

20. Japan and New Zealand agreed to exchange information about import and export of PBF.

21. The representative from FIDEMAR reported verbally on Mexico's catch information, noting that it has complied with its 6566-ton catch limit for 2021 and 2022, catching 3027 tons and 3194 tons, respectively. In recent years, most catch is made in January and the number of vessels participating in fishing is much lower than in the past, usually four to six compared to 21 in 2010. A significant portion of catch consists of larger tuna, and captured tuna is kept alive in farming pens for a certain time, before being released, caught, and sold. In 2022, Mexico primarily exported to the US, Japan, and small quantities to Canada and Korea, and some exports of 2022 have included fish that were kept in farms for almost three years. The average size of fish changes from year to year and is not stable.

22. The JWG repeated its request to Mexico for submission of a written implementation report to the meeting next year. The Co-Chairs requested IATTC to relay this request to the Mexico authorities.

23. No further discussions were held on the reports submitted by other members.

Agenda Item 5. REVIEW OF CONSERVATION AND MANAGEMENT MEASURES FOR PACIFIC BLUEFIN TUNA

24. Korea presented a proposal to amend CMM 2021-02, a modified version of its proposal last year, which was to address several incidents in which unintended Pacific Bluefin tuna catches were discarded by Korea's set net fisheries in its territorial waters last year.

25. The JWG discussed and revised the proposal from Korea.

26. Japan and the USA expressed concerns regarding the discard issue faced by Korea, and Co-Chair Miyahara requested that Japan, the USA, and Korea discuss in the margins to agree to a potential amendment to the proposal.

27. Korea revised its proposal and presented it to the meeting. The US requested the ISC perform projections on the new conversion amounts and, in the next benchmark assessment, to update their guidance with a new table, ratio calculation and any other guidance based on the most recent information and biological assumptions.

28. The JWG came to an agreement on the proposal attached in **Annex C**. Korea stated that it hopes to revisit the issue of discard in its set-net fisheries next year, although it did not seek to continue the discussion during the meeting this time due to clear lack of agreement among members and for the sake of consensus.

29. Japan gave a presentation on the urgent need to adjust the catch limits for PBF on a scale corresponding to the significantly increased stock level under the conservation requirements. The spawning stock biomass (SSB) of PBF has been increasing rapidly over the past 10 years. According to the latest ISC stock assessment in 2022, the initial rebuilding target in the Harvest Strategy for PBF Fisheries (HS 2021-01) was achieved in 2019, five years earlier than originally targeted, and the second rebuilding target of HS 2021-01 ($20\%SSB_{F=0}$) is projected to be achieved with a probability of 60% in 2023, six years earlier than targeted. With the rapid increase in PBF biomass, Japanese fishermen have been observing more frequent and bigger migrations of PBF in almost all fisheries across Japan. Although WCPFC and IATTC increased the catch limits of large PBF (30 kg or larger) by 15% since 2022, this has not kept pace with the rapid increase of the PBF stock. As a result, Japanese fishermen are increasingly forced to release PBF to comply with the catch limits. When they release PBF, they also have to release other target fish species from their nets, causing operational burdens and economic losses.

30. Korea expressed its general support for Japan's position that catch limits should be adjusted to reflect the rapid recovery of the stock. Korea suggested that current conservation measures have not properly reflected the rights of coastal states. Korea's statement was posted as a meeting document JWG08-DP-18 (**Annex D**).

31. Chinese Taipei appreciated Japan's presentation and supported that catch limits should be adjusted as the PBF stock is on the right track of recovery.

32. The US pointed out that the paper from Japan did not capture the significant increase in small fish catches in the Western Central Pacific Ocean from 1990 to 2000, which impacted the SSB. The US emphasized the importance of managing PBF across its entire range and working together across commissions to ensure success, as well as creating rules in the interim for after the next rebuilding target is achieved.

33. Dr. Maunder, IATTC staff, suggested considering alternative ways to view catch data, such as percentage reduction. Changes in fleet selectivity in the Eastern Pacific should also be considered, which would require recent information on fish sizes caught. Fishery impact is the most appropriate way to assess the influence of different fleets, but requires projecting into the future.

34. The WWF highlighted IUU fishing risks as a consideration in the discussion on increasing catch limits and suggested that further increases be made following implementation of the CDS.

35. The US proposed the scenarios to be examined in the 2024 stock assessment by ISC. The JWG reviewed it and agreed upon the revised version attached in **Annex E**.

Agenda Item 6. CATCH DOCUMENTATION SCHEME

36. Mr. Shingo Ota (Japan), the Chair of the Catch Documentation Scheme (CDS) Working Group, presented the outcomes of the 4th CDS Technical Meeting. A Chair's Summary Report of the meeting is included as **Annex F**.

Agenda Item 7. DEVELOPMENT OF LONG-TERM HARVEST STRATEGY

7.1 Progress and issues related to developing Management Strategy Evaluation

37. The JWG reviewed the progress of MSE development and associated issues to address for further MSE process.

38. Dr S. Nakatsuka, the Chair of the ISC PBFWG presented the current state of work on MSE by the PBFWG. ISC is requested by the JWG to provide technical guidance on PBF MSE. As requested, PBFWG is working under a schedule to provide the final results to JWG in 2025 for the selection of a Management Procedure (MP) for PBF. ISC presented the development of a general framework of PBF MSE and sought input from JWG on some issues to advance MSE. In terms of development, ISC decided to construct an MSE framework based on the base-case model of the upcoming 2024 assessment and has discussed and narrowed down this year what kind of uncertainties should be taken into account in the Operating Models. It is anticipated that the models to be included in Operating Models should have sufficient diagnostic performance.

39. The WG also considered an Estimation model as a part of MP. In order to test many Candidate MPs (CMPs), the WG is developing a simplified model-based MP. Upon review of preliminary performance of CMPS, the WG observed the following. First, among more than 100 CMPs currently proposed, certain CMPs exhibit similar performance. Also, the future impact in WPO/EPO would not change very much unless a rule to substantially change the ratio between WPO and EPO catch is incorporated in an MP. ISC is not capable of conducting a search for a given impact ratio between WPO and EPO, and therefore requested stakeholders to evaluate CMP performance based on output on impact ratio, or to provide a specific candidate MP to address the issue.

40. With those inputs in mind, ISC requested the JWG to (i) refine operational management objectives so that they can be evaluated in MSE, (ii) reduce candidate MPs to a realistic level (preferably less than 10), and (iii) agree to 3-year management cycle to allow time to improve scientific research for PBF.

7.2 Operational management objectives and performance indicators

41. The JWG revisited the *Candidate Operational Management Objectives and Performance Indicators for Pacific Bluefin Tuna*, and discussed the categories of safety, status, stability, and yield.

42. The JWG revised the document and agreed on the operational management objectives and performance indicators described in **Annex G**.

7.3 Review candidate reference points and harvest control rules (HCRs) adopted in 2019 and revise as appropriate

43. The US presented a proposal for refining candidate reference points and HCRs for Pacific bluefin tuna.

44. The JWG reviewed and revised the proposal from the United States and made further revisions. The JWG agreed upon the text in **Annex H**.

7.4 Development of Interim Harvest Strategy

45. The JWG reviewed and finalized the *Pacific Bluefin Tuna Interim Harvest Strategy*.

46. The JWG agreed upon the revised text in **Annex I**.

7.5 Work Plan for Development of a Long-term Harvest Strategy for PBF (including MSE)

47. The JWG reviewed and updated the *Work Plan for Development of a Long-term Harvest Strategy for PBF (including MSE).* The revised Work Plan is attached in **Annex J**.

Agenda Item 8. NEXT JWG MEETING

48. Japan offered to host the next JWG meeting in early July 2024, at a date to be determined after consultation among members and both RFMO Secretariats, and the ISC. In this regard, the JWG agreed to make a request that ISC consider holding the ISC24 plenary meeting sometime in June 2024. The arrangement of the next meeting will be notified well in advance, taking into consideration other meeting dates. The deadline for the submission of implementation reports will be revised as necessary, according to the meeting dates.

Agenda Item 9. OTHER BUSINESS

49. No other business was raised.

Agenda Item 10. ADOPTION OF REPORT

50. The IATTC-NC JWG08 adopted the report.

Agenda Item 11. CLOSE OF MEETING

51. The meeting was brought to a close at 3:18 pm on 5 July 2023.

ANNEXES

Attachment D

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 PACIFIC BLUEFIN TUNA

Conservation and Management Measure 2023-XX~~2021-02~~

The Western and Central Pacific Fisheries Commission (WCPFC):

Recognizing that WCPFC6 adopted Conservation and Management Measure for Pacific bluefin tuna (CMM 2009-07) and the measure was revised ten times since then (CMM 2010- 04, CMM 2012-06, CMM 2013-09, CMM 2014-04, CMM 2015-04, CMM 2016-04, CMM2017-08, CMM 2018-02, CMM 2019-02 and CMM 2020-02) based on the conservation advice from the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC) on this stock;

Noting the latest stock assessment provided by ISC Plenary Meeting in July 2020, indicating the following:

- (1) spawning stock biomass (SSB) fluctuated throughout the assessment period (fishing years 1952-2018), (2) the SSB steadily declined from 1996 to 2010, (3) the slow increase in the stock biomass has been continuing since 2011, (4) total biomass in 2018 exceeded the historical median with an increase in immature fish; and (5) fishing mortality (F%SPR) declined from a level producing about 1% of SPR in 2004-2009 to a level producing 14% of SPR in 2016-2018;
- A substantial decrease in estimated F has been observed in ages 0-2 in 2016-2018 relative to the previous years;
- Since the early 1990s, the WCPO purse seine fisheries, in particular those targeting small fish (age 0-1) have had an increasing impact on the spawning stock biomass, and in 2016 had a greater impact than any other fishery group;
- Harvesting small fish has a greater impact on future spawning stock biomass than harvesting large fish of the same amount;
- The projection results indicate that, under all the examined scenarios, the initial goal of rebuilding the stock to SSBMED by 2024 with at least 60% probability, is reached with 99% or 100% probability, and that the risk of SSB falling below SSBloss is negligible; and
- The projection results also indicate that, under all the examined scenarios, the estimated probability of achieving the second biomass rebuilding target (20% of SSBF=0) 10 years after the achievement of the initial rebuilding target or by 2034, whichever is earlier, is greater than 90%.

Recalling that paragraph (4) of the Article 22 of the WCPFC Convention, which requires cooperation between the Commission and the IATTC to reach agreement to harmonize CMMs for fish stocks such as Pacific bluefin tuna that occur in the convention areas of both organizations;

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

General Provision

a. This conservation and management measure has been prepared to implement the Harvest Strategy for Pacific Bluefin Tuna Fisheries (Harvest Strategy 2017-02), and the Northern Committee shall periodically review and recommend revisions to this measure as needed to implement the Harvest Strategy.

Management measures

b. CCMs shall take measures necessary to ensure that total fishing effort by their vessel fishing for Pacific bluefin tuna in the area north of the 20° N shall stay below the 2002–2004 annual average levels.

c. Japan, Korea and Chinese Taipei shall, respectively, take measures necessary to ensure that its catches of Pacific bluefin tuna less than 30 kg and Pacific bluefin tuna 30 kg or larger shall not exceed the annual catch limits in the tables below. The basis for the limits is as follows; annual catch limits for Pacific bluefin tuna less than 30 kg are 50% of the 2002-2004 average annual levels and annual catch limits for Pacific bluefin tuna 30 kg or larger are 115% of the 2002-2004 average annual levels or 30 metric tons for a CCM who does not have an initial catch limit for Pacific bluefin tuna 30 kg or larger before 2022.

Pacific Bluefin tuna less than 30kg

	2002-2004 average annual level	Annual initial catch limit
Japan	8,015 metric tons	4,007 metric tons
Korea	1,435 metric tons	718 metric tons

Pacific Bluefin tuna 30kg or larger

	2002-2004 average annual level	Annual initial catch limit
Japan	4,882 metric tons	5,614 metric tons
Korea	0 metric tons	30 metric tons
Chinese Taipei	1,709 metric tons	1,965 metric tons

d. CCMs, not described in paragraph 3, may increase their catch of Pacific bluefin tuna 30kg or larger by 15% above their 2002-2004 annual average levels. CCMs with a base line catch of 10 tons or less of Pacific bluefin tuna 30 kg or larger may increase their catch as long as it does not exceed 10 metric tons per year.

e. Any overage or underage of the catch limit shall be deducted from or may be added to the catch limit for the following year. The maximum underage that a CCM may carry over in any given year shall not exceed 5% of its annual initial catch limit[1].

f. CCMs described in paragraph 3 may use part of the catch limit for Pacific bluefin tuna smaller than 30 kg stipulated in paragraph 3 above to catch Pacific bluefin tuna 30 kg or larger in the same year. In this case, the amount of catch 30 kg or larger shall be counted against the catch limit for Pacific bluefin tuna smaller than 30 kg[2]. CCMs shall not use the catch limit for Pacific bluefin tuna 30 kg or larger to catch

[1] Notwithstanding paragraph 5, a CCM may carry over up to 17% of its initial catch limits in 2021, 2022 and 2023, which remain uncaught, to 2022, 2023 and 2024, respectively.

[2] In 2022, 2023 and 2024, a CCM may count the amount of catch 30 kg or larger adjusted with the conversion factor 0.68 (catch 30 kg or larger multiplied by 0.68) against the catch limit for Pacific bluefin tuna smaller than 30 kg up to 30~~10~~% of its initial catch limit for Pacific bluefin tuna smaller than 30 kg. Notwithstanding the first sentence of this footnote, a CCM

Pacific bluefin tuna smaller than 30 kg.

g. All CCMs except Japan shall implement the limits in paragraph 3 on a calendar-year basis. Japan shall implement the limits using a management year other than the calendar year for some of its fisheries and have its implementation assessed with respect to its management year. To facilitate the assessment, Japan shall:

i. Use the following management years:
   1. For its fisheries licensed by the Ministry of Agriculture, Forestry and Fisheries, use the calendar year as the management year.
   2. For its other fisheries, use 1 April – 31 March as the management year[3].

ii. In its annual reports for PBF, for each category described in a.1 and a.2 above, complete the required reporting template for both the management year and calendar year clearly identifying fisheries for each management year.

h. CCMs shall report to the Executive Director by 31 July each year their fishing effort and <30 kg and >=30 kg catch levels, by fishery, for the previous 3 year, accounting for all catches, including discards. CCMs shall report their annual catch limits and their annual catches of PBF, with adequate computation details, to present their implementation for paragraph 5 and 6, if the measures and arrangements in the said paragraphs and relevant footnotes applied. The Executive Director will compile this information each year into an appropriate format for the use of the Northern Committee.

i. CCMs shall intensify cooperation for effective implementation of this CMM, including juvenile catch reduction.

j. 10. CCMs, in particular those catching juvenile Pacific bluefin tuna, shall take measures to monitor and obtain prompt results of recruitment of juveniles each year.

k. Consistent with their rights and obligations under international law, and in accordance with domestic laws and regulations, CCMs shall, to the extent possible, take measures necessary to prevent commercial transaction of Pacific bluefin tuna and its products that undermine the effectiveness of this CMM, especially measures prescribed in the paragraph 3 above. CCMs shall cooperate for this purpose.

l. CCMs shall cooperate to establish a catch documentation scheme (CDS) to be applied to Pacific bluefin tuna in accordance with the **Attachment** of this CMM.

m. CCMs shall also take measures necessary to strengthen monitoring and data collecting system for Pacific bluefin tuna fisheries and farming in order to improve the data quality and timeliness of all the data reporting.

n. CCMs shall report to Executive Director by 31 July annually measures they used to implement paragraphs 2, 3, 4, 7, 8, 10, 11 13 and 16 of this CMM. CCMs shall also monitor the international trade of the products derived from Pacific bluefin tuna and report the results to Executive Director by 31 July annually. The Northern Committee shall annually review those reports CCMs submit pursuant to this paragraph and if necessary, advise a CCM to take an action for enhancing its compliance with this CMM.

o. The WCPFC Executive Director shall communicate this CMM to the IATTC Secretariat and its

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who does not have an initial catch limit for Pacific bluefin tuna 30kg or larger before 2022 may apply the conversion factor 0.68 up to 4025% instead of 3010% of its initial catch limit for Pacific bluefin tuna less than 30kg for the same period.

[3] For the category described a.2 of paragraph 7, the TCC shall assess in year 20XX its implementation during the management year that starts 1 April 20XX-1 (e.g., in the 2020 compliance review, the TCC will assess Japan's implementation for its fisheries licensed by the Ministry of Agriculture, Forestry and Fisheries during calendar-year 2019 and for its other fisheries during 1 April 2019 through 31 March 2020).

contracting parties whose fishing vessels engage in fishing for Pacific bluefin tuna in EPO and request them to take equivalent measures in conformity with this CMM.

p. To enhance effectiveness of this measure, CCMs are encouraged to communicate with and, if appropriate, work with the concerned IATTC contracting parties bilaterally.

q. The provisions of paragraphs 2 and 3 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 Pacific bluefin tuna is limited, but that have a real interest in fishing for the species, that may wish to develop their own fisheries for Pacific bluefin tuna in the future.

r. The provisions of paragraph 17 shall not provide a basis for an increase in fishing effort by fishing vessels owned or operated by interests outside such developing coastal State, particularly 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.

s. This CMM replaces CMM 2021~~0~~-02. On the basis of stock assessment conducted by ISC in 2024~~2~~, and other pertinent information, this CMM shall be reviewed and may be amended as appropriate in 2024~~2~~.

Attachment

Development of a Catch Document Scheme for Pacific Bluefin Tuna

Background

At the 1st joint working group meeting between NC and IATTC, held in Fukuoka, Japan from August 29 to September 1, 2016, participants supported to advance the work on the Catch Documentation Scheme (CDS) in the next joint working group meeting, in line with the development of overarching CDS framework by WCPFC and taking into account of the existing CDS by other RFMOs.

1. Objective of the Catch Document Scheme

The objective of CDS is to combat IUU fishing for Pacific Bluefin Tuna (PBF) by providing a means of preventing PBF and its products identified as caught by or originating from IUU fishing activities from moving through the commodity chain and ultimately entering markets.

2. Use of electronic scheme

Whether CDS will be a paper based scheme, an electronic scheme or a gradual transition from a paper based one to an electronic one should be first decided since the requirement of each scheme would be quite different.

3. Basic elements to be included in the draft conservation and management measure (CMM)

It is considered that at least the following elements should be considered in drafting CMM.
(1) Objective
(2) General provision
(3) Definition of terms
(4) Validation authorities and validating process of catch documents and re-export certificates
(5) Verification authorities and verifying process for import and re-import
(6) How to handle PBF caught by artisanal fisheries
(7) How to handle PBF caught by recreational or sport fisheries
(8) Use of tagging as a condition for exemption of validation
(9) Communication between exporting members and importing members
(10) Communication between members and the Secretariat
(11) Role of the Secretariat
(12) Relationship with non-members
(13) Relationship with other CDSs and similar programs
(14) Consideration to developing members
(15) Schedule for introduction
(16) Attachment
    (i) Catch document forms
    (ii) Re-export certificate forms
    (iii) Instruction sheets for how to fill out forms
    (iv) List of data to be extracted and compiled by the Secretariat

4. Work plan

The following schedule may need to be modified, depending on the progress on the WCPFC CDS for tropical tunas.

2017 The joint working group will submit this concept paper to the NC and IATTC for endorsement. NC will send the WCPFC annual meeting the recommendation to endorse the paper.

2018 The joint working group will hold a technical meeting, preferably around its meeting, to materialize the concept paper into a draft CMM. The joint working group will report the progress to the WCPFC via NC and the IATTC, respectively.

2019 The joint working group will hold a second technical meeting to improve the draft CMM. The joint working group will report the progress to the WCPFC via NC and the IATTC, respectively.

20XX The joint working group will hold a third technical meeting to finalize the draft CMM. Once it is finalized, the joint working group will submit it to the NC and the IATTC for adoption. The NC will send the WCPFC the recommendation to adopt it.

Attachment E

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

ISC'S PROJECTION SCENARIOS REQUESTED BY THE JWG08

JWG8 requests the ISC perform projections on the following scenarios in the 2024 assessment:

1. Maintaining the current CMM

2. Maintaining the current CMM assuming maximum transfers utilizing the conversion factor

3. No fishing allowed

4. Four scenarios as described below that result in the stock maintained above 20%SSB0 with a probability of 60%.
    - A scenario where increases are proportional between WCPO small/large fish catch limit and EPO catch limits
    - A scenario where increases are proportional between WCPO large fish catch limit and EPO catch limit
    - Scenarios of WCPO small fish catch limit increase by 20% and 30% respectively, while maintaining the proportion between WCPO total (small/large) catch limit and EPO catch limit

5. At least two scenarios that will result in each of 70:30 and 80:20 WCPO:EPO fishery impact by 2034 that maintain the stock above the second rebuilding target. The exact % increase can be determined by the ISC to meet the each of 70:30 and 80:20 fishery impact.
    - A scenario where increases are proportional for WCPO large and small fish
    - A scenario where increases are higher for WCPO large fish as compared to small fish.

Additionally, JWG8 has the following requests for ISC related to projections:

1. Once there is confirmation of meeting the second rebuilding target, the ISC shall recommend and provide information on the appropriate recruitment scenario(s) for use in the above projections.

Include in the projections results table a metric that calculates the probability of overfishing compared to candidate target reference points.

Attachment F

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

CANDIDATE OPERATIONAL MANAGEMENT OBJECTIVES AND PERFORMANCE INDICATORS FOR PACIFIC BLUEFIN TUNA

Category	Operational Management Objective	Performance Indicator
Safety	There should be a less than 20%[4] probability of the stock falling below the LRP	Probability that SSB< LRP in any given year of the evaluation period
Status	To maintain fishing mortality at or below FTarget with at least 50% probability	Probability that F≤FTARGET in any given year of the evaluation period Probability that SSB is below the equivalent biomass depletion levels associated with the candidates for FTARGET
Stability	To limit changes in overall catch limits between management periods to no more than 25%, unless the ISC has assessed that the stock is below the LRP[5]	Percent change upwards in catches between management periods excluding periods when SSB<LRP Percent change downwards in catches between management periods excluding periods when SSB<LRP
Yield	Maintain an equitable balance in proportional fishery impact between the WCPO and EPO	Median fishery impact (in %) on SSB in the terminal year of the evaluation period by fishery and by WCPO fisheries and EPO fisheries
	To maximize yield over the medium (5-10 years) and long (10-30 years) terms, as well as average annual yield from the fishery.	Expected annual yield over years 5-10 of the evaluation period, by fishery. Expected annual yield over years 10-30 of the evaluation period, by fishery. Expected annual yield in any given year of the evaluation period, by fishery.
	To increase average annual catch in all fisheries across WCPO and EPO	

[4] The acceptable levels of risk may vary depending on the LRP selected, but should be no greater than 20%.
[5] The percent limits to changes in overall catch limits between management periods of this table are solely for the purpose of the MSE evaluation and do not prejudice potential catch limit changes before the long-term harvest strategy is adopted or potential catch limit changes based on the overall fishing intensity established by long-term harvest strategy.

Attachment G

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

CANDIDATE HARVEST CONTROL RULES AND REFERENCE POINTS TO EVALUATE IN THE MANAGEMENT STRATEGY EVALUATION

Candidate HCRs

The candidate HCR shapes are illustrated in Figures 1 and 2 where fishing mortality is controlled depending on stock status relative to the defined reference points.

For Figure 1, the F_{target} rate applies when the stock is larger or equal to the $SSB_{threshold}$, while F_{min} rate applies when the stock is at or smaller than SSB_{limit} and there is a linear transition in F for stock sizes between SSB_{limit} and $SSB_{threshold}$. F_{min} would be defined as an F rate that is less than the F rate corresponding to the F_{target}.

For Figure 2, the F_{target} rate applies when the stock is larger or equal to the $SSB_{threshold}$. When the stock is lower than the $SSB_{threshold}$, there is a linear transition in F between $SSB_{threshold}$ and the origin.

These HCRs shall be tested with a limit that constrains changes in TAC between consecutive management periods of no more than 25%. These HCRs shall also be tested with allocations tuned to reach the WCPO:EPO fishery impact ratio of 70:30 and 80:20.

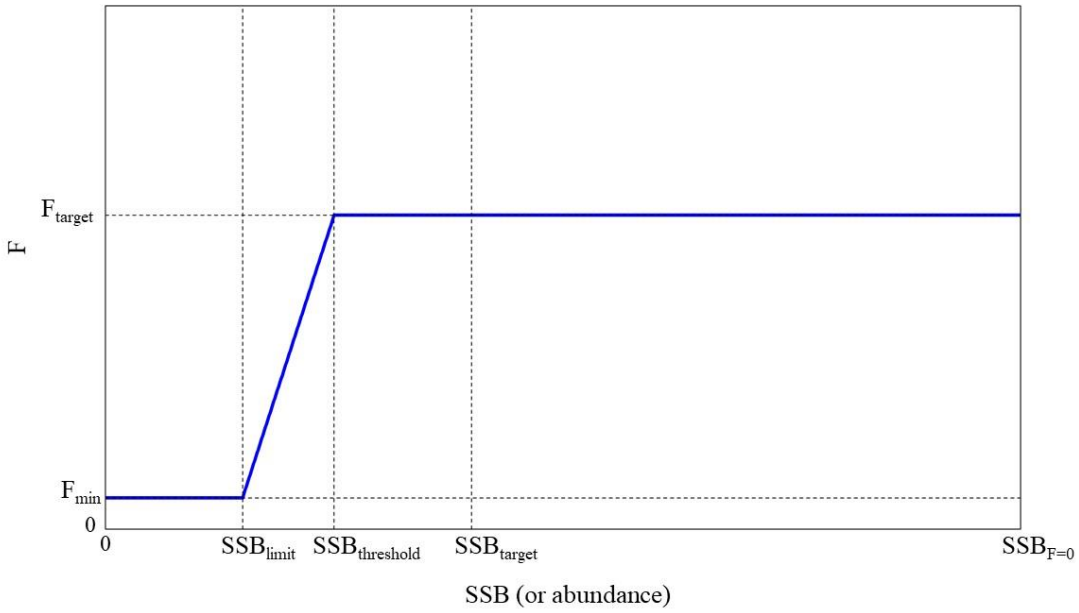

Figure 1. Candidate HCR shape 1

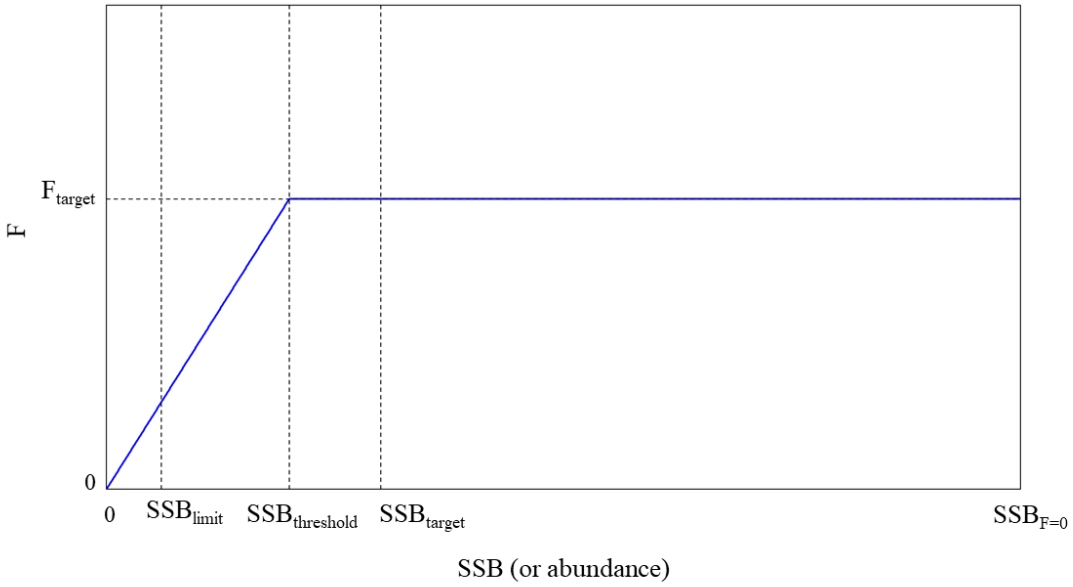

Figure 2. Candidate HCR shape 2.

Candidate HCRs and Reference Points to Evaluate in the MSE

HCR Number	HCR Shape	Fmin	LRP	ThRP	TRP
1	1	$F10\%F_{Target}$	$15\%SSB_{F=0}$	$20\%SSB_{F=0}$	FSPR30%
2	1	$F10\%F_{Target}$	$15\%SSB_{F=0}$	$25\%SSB_{F=0}$	FSPR30%
3	1	$F10\%F_{Target}$	$15\%SSB_{F=0}$	$20\%SSB_{F=0}$	FSPR40%
4	1	$F10\%F_{Target}$	$15\%SSB_{F=0}$	$25\%SSB_{F=0}$	FSPR40%
5	1	$F10\%F_{Target}$	$20\%SSB_{F=0}$	$25\%SSB_{F=0}$	FSPR40%
6	1	FSPR70%	$10\%SSB_{F=0}$	$20\%SSB_{F=0}$	FSPR30%
7	1	FSPR50%	$10\%SSB_{F=0}$	$20\%SSB_{F=0}$	FSPR25%
8	1*	N/A*	Median SSB 1952-2014	$20\%SSB_{F=0}$	FSPR30%
9	2	N/A	Median SSB 1952-2014	$20\%SSB_{F=0}$	FSPR20%
10	2	N/A	Median SSB 1952-2014	$15\%SSB_{F=0}$	FSPR25%
11	1	$F5\%F_{Target}$	$7.7\%SSB_{F=0}$	$15\%SSB_{F=0}$	FSPR30%
12	1	$F5\%F_{Target}$	$7.7\%SSB_{F=0}$	$20\%SSB_{F=0}$	FSPR30%

* In this HCR, when %SSB F=0 is lower than ThRP (20%SSBF=0), fishing intensity will be controlled by the management measures that were taken for and succeeded in the recovery of the stock (i.e., WCPFC CMM2020-02 and IATTC Resolution C-18-01).

These new candidate HCRs and reference points replace those from the 2019 recommendation.

Attachment H

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

HARVEST STRATEGY FOR PACIFIC BLUEFIN TUNA FISHERIES

Harvest Strategy 2023-XX~~2021-01~~

Introduction and scope

This harvest strategy has been prepared in accordance with the Commission's Conservation and Management Measure on Establishing a Harvest Strategy for Key Fisheries and Stocks in the Western and Central Pacific Ocean.

Although the provisions of this harvest strategy are expressed in terms of a single stock, they may be applied to multiple stocks as appropriate and as determined by the Northern Committee.

1. Management objectives

The management objectives are, first, to support thriving Pacific bluefin tuna fisheries across the Pacific Ocean while recognizing that the management objectives of the WCPFC are to maintain or restore the stock at levels capable of producing maximum sustainable yield, second, to maintain an equitable balance of fishing privileges among CCMs and, third, to seek cooperation with IATTC to find an equitable balance between the fisheries in the western and central Pacific Ocean (WCPO) and those in the eastern Pacific Ocean (EPO).

2. Reference points

Because steepness in the stock-recruitment relationship is not well known but the key biological and fishery variables are reasonably well estimated[1], the stock of PBF is to be treated as a Level 2 stock under the Commission's hierarchical approach for setting biological limit reference points.

2.1 Rebuilding targets

Initial rebuilding target:

The initial rebuilding target for the PBF stock size is the median SSB estimated for the period 1952 through 2014, to be reached by 2024 with at least 60% probability.

Recruitment scenario during initial rebuilding period:

[1] See the information provided by the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (WCPFC-NC9-2013/IP-03) in response to a request made by the Northern Committee at its Eighth Regular Session (Attachment F of the report of NC8).

The low recruitment scenario (resampling from the relatively low recruitment period (1980-1989)) or the recent recruitment scenario (resampling from the last 10 years), whichever is lower, will be used for the ISC's SSB projections until 2024 or until the SSB reaches the initial rebuilding target, whichever is earlier. The ISC is requested to periodically evaluate whether the recruitment scenario used during the initial rebuilding period is reasonable given current conditions, and to make recommendations on whether a different scenario should be used. If ISC recommends a different scenario, this will be considered by the NC.

Second rebuilding target:

The second rebuilding target for the PBF stock size is 20%$SSB_{F=0}$[2], to be reached by 2034, or 10 years after reaching the initial rebuilding target, whichever is earlier, with at least 60% probability.

However, if: (1) the SSB reaches the initial rebuilding target earlier than 2024; (2) ISC recommends a recruitment scenario lower than the average recruitment scenario; and (3) the SSB projections indicate that the second rebuilding target will not be achieved on this schedule, the deadline for rebuilding may be extended to 2034 at the latest.

Also, if there is a recommendation from the Northern Committee that 20%SSBF=0 is not appropriate as the second rebuilding target, taking into account consideration from IATTC, scientific advice from ISC, IATTC or WCPFC SC, and socioeconomic factors, another objective may be established.

Recruitment scenario during second rebuilding period:

After the initial rebuilding target is reached and until the second rebuilding target is reached, the recruitment scenario to be used for the SSB projections will tentatively be the average recruitment scenario (resampling from the entire recruitment period).

The ISC is requested to periodically evaluate whether the recruitment scenario used during the second rebuilding period is reasonable given current conditions, and to make recommendations on whether a different scenario should be used. If ISC recommends a different scenario, this will be considered by the NC.

2.2 Development of reference points

The Northern Committee will develop more refined management objectives as well as limit reference point(s) and target reference point(s) through MSE process specified in Section 6.

3. Acceptable levels of risk

Until the stock is rebuilt, the Northern Committee will recommend conservation and management measures as needed to ensure rebuilding in accordance with the probabilities specified in sections 2.1 and 5 for each of the two rebuilding targets.

Once the stock is rebuilt, in accordance with Article 6.1(a) of the Convention, the Northern Committee will recommend conservation and management measures as needed to ensure that any target reference point(s) (once adopted) are achieved on average in the long term, and ensure that the risk of the stock size declining

[2] SSBF=0 is the expected spawning stock biomass under average recruitment conditions without fishing.

below the B-limit (once adopted) is very low.[3]

4. Monitoring strategy

The ISC will periodically evaluate the stock size and exploitation rate with respect to the established reference points and the report will be presented to the Scientific Committee. Until 2024, while the MSE is being developed (see section 6), the ISC is requested to conduct stock assessments in 2018, 2020 and 2022.

In order to cope with the adverse effects on the rebuilding of the stock due to drastic drops of recruitment: (1) all the available data and information will be reviewed annually, including recruitment data provided by the ISC and in National Reports; and (2) the ISC is requested to conduct in 2019, and periodically thereafter as resources permit and if drops in recruitment are detected, projections to see if any additional measure is necessary to achieve the initial rebuilding target by 2024 with at least 60% probability.

5. Decision rules

Harvest control rules during initial rebuilding period:

The interim harvest control rules below will be applied based on the results of stock assessments and SSB projections to be conducted by ISC.

(a) If the SSB projection indicates that the probability of achieving the initial rebuilding target by 2024 is less than 60%, management measures will be modified to increase it to at least 60%. Modification of management measures may be (1) a reduction (in %) in the catch limit for fish smaller than 30 kg (hereinafter called "small fish") or (2) a transfer of part of the catch limit for small fish to the catch limit for fish 30 kg or larger (hereinafter called "large fish"). For this purpose, ISC will be requested, if necessary, to provide different combinations of these two measures so as to achieve 60% probability.

(b) If the SSB projection indicates that the probability of achieving the initial rebuilding target by 2024 is at 75% or larger, the WCPFC may increase their catch limits as long as the probability is maintained at 70% or larger, and the probability of reaching the second rebuilding target by the agreed deadline remains at least 60%. For this purpose, ISC will be requested, if necessary, to provide relevant information on potential catch limit increases.

Harvest control rules during second rebuilding period:

The harvest control rules during the second rebuilding period below will be applied based on the results of stock assessments and SSB projections to be conducted by ISC.

(a) If the SSB projection indicates that the probability of achieving the second rebuilding target by 2034 or 10 years after reaching the initial rebuilding target, whichever is earlier, is less than 60%, management measures shall be modified to increase it to at least 60%. For this purpose, the ISC will be requested, if necessary, to provide information on possible management measures to achieve 60% probability.

(b) If the SSB projection indicates that the probability of achieving the second rebuilding target by

[3] WCPFC13 agreed that any risk level greater than 20 percent to be inconsistent with the limit reference point related principles in UNFSA (as references in Article 6 of the Convention) including that the risk of breaching limit reference points be very low.

2034, or 10 years after reaching the initial rebuilding target, whichever is earlier, is at 75% or larger, fishery controls may be changed, including adjustment of catch limits, as long as the probability is maintained at 70% or larger. For this purpose, ISC will be requested, if necessary, to provide relevant information on potential fishery controls.

(c) Any adjustments to management measures shall be considered in cooperation between the two RFMOs taking into account historical and future projected proportional fishery impacts on SSB between fisheries in the EPO and fisheries in the WCPO. For this purpose, ISC will be requested, if necessary, to provide relevant information, including projected proportional fishery impact of potential management measures changes.

(d) This harvest control rule will be reviewed and modified, as necessary, if depletion estimates across the time-series have been adjusted due to changes in assumptions and/or settings of the stock assessment model.

Harvest control rules post second rebuilding period:

The following harvest control rules shall be applied based on the results of stock assessments and SSB projections to be conducted by the ISC during the period from the year in which the stock is projected to achieve the second rebuilding target of 20%SSB0 to the year a long-term harvest strategy based on an MSE process is implemented.

a. If the SSB projection indicates that SSB will be below 20%SSB0 with a probability of 60%, management measures shall be modified to increase the SSB to at least 20%SSB0 with 60% probability. For this purpose, the ISC is requested to provide information on possible management measures to achieve 60% that the stock is above 20%SSB0 after 10 years of the latest stock assessment.

b. If the SSB projection indicates that SSB will be greater than 20%SSB0 with a probability of 60%, management measures should be adjusted so long as any changes maintain SSB greater than 20%SSB0 with a probability of 60%. For this purpose, the ISC is requested to provide information on possible management under which the stock is maintained above 20%SSB0 with a probability of 60%.

c. Any adjustments to management measures shall be considered in cooperation between the two RFMOs taking into account historical and future projected proportional fishery impacts on SSB between fisheries in the EPO and fisheries in the WCPO. For this purpose, ISC is requested, to provide relevant information, including projected proportional fishery impact of potential management measures changes.

d. This harvest control rule will be reviewed and modified, as necessary, if depletion estimates across the time-series have been adjusted due to changes in assumptions and/or settings of the stock assessment model.

The Northern Committee will, through MSE development process, develop decision rules related to the limit reference points once adopted including for the case of their being breached.

6. Performance evaluation

Until the stock is rebuilt, the Northern Committee will work with the ISC and the Scientific Committee and consult with the IATTC to identify and evaluate the performance of candidate rebuilding strategies with

respect to the rebuilding targets, schedules, and probabilities.

The ISC is requested to start the work to develop a management strategy evaluation (MSE) for Pacific bluefin tuna fisheries in 2019 and have a goal of completing it by 2024.

To support development of the MSE, ISC is encouraged to identify at least two experts and NC members are encouraged to provide additional funds for the ISC's work on the MSE.

The Joint WG will start to discuss in 2018, and aim to finalize no later than 2019, guidelines for the MSE, including at least one candidate long-term target reference point (TRP), two candidate limit reference points (LRPs) and candidate harvest control rules (HCRs), which will be provided to the ISC. Those candidate TRPs, LRPs and HCRs will be tested and changed if appropriate during the MSE development process.

In preparation for the Joint WG meeting in 2019, the ISC is requested to organize workshops in early 2018 and 2019 to support the identification of specific management objectives, including level of risks and timelines. The workshops will include managers, scientists and stakeholders, taking into account any recommendations of the Joint WG, and the number of representatives should be relatively small, as it was for the MSE workshop for North Pacific albacore.

In evaluating the performance of candidate target reference points, limit reference points, and harvest control rules, the Northern Committee, in consultation with the ISC and the Scientific Committee, should consider the following criteria:

1) Probability of achieving each of the rebuilding targets within each of the rebuilding periods (if applicable).
2) Time expected to achieve each of the rebuilding targets (if applicable).
3) Expected annual yield, by fishery.
4) Expected annual fishing effort, by PBF-directed fishery.
5) Inter-annual variability in yield and fishing effort, by fishery.
6) Probabilities of SSB falling below the B-limit and the historical lowest level.
7) Probability of fishing mortality exceeding F_{MSY} or an appropriate proxy, and other relevant benchmarks.
8) Expected proportional fishery impact on SSB, by fishery and by WCPO fisheries and EPO fisheries.

Recognizing that developing the operating model and other aspects of the MSE will take time and additional resources, and might require further dialogue between the Northern Committee, the ISC, and the IATTC, while the MSE is in development the ISC is requested to perform this work using the best means at its disposal.

Attachment I

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

HARVEST STRATEGY FOR NORTH PACIFIC ALBACORE FISHERY

Harvest Strategy 2023-XX~~2022-01~~

Introduction and scope

This Harvest Strategy, applicable to all fisheries that harvest North Pacific albacore, was developed based on the results of the Management Strategy Evaluation (MSE) completed by the International Scientific Committee for Tuna and Tuna-Like Species in the North Pacific Ocean (ISC) in 2021.

1. Management objectives

Considering the overarching objective of ensuring the sustainability of North Pacific albacore tuna and current fisheries supported by the stock in the Western and Central Pacific Ocean, the following management objectives are established:

(a) Maintain Spawning Stock Biomass (SSB) above the Limit Reference Point (LRP), with a probability of at least 80% over the next 10 years.

(b) Maintain depletion of total biomass around historical (2006-2015) average depletion over the next 10 years.

(c) Maintain fishing intensity (F) at or below the target reference point with a probability of at least 50% over the next 10 years.

(d) To the extent practicable, management changes (e.g., catch and/or effort) should be relatively gradual between years.

2. Reference points

For the purpose of the North Pacific albacore tuna harvest strategy, the following reference points are established.:

(a) Target reference point (TRP) = $F45_{\%}$, which is the fishing intensity (F) level that results in the stock producing 45% of spawning potential ratio (SPR)

(b) Threshold reference point ($SSB_{threshold}$) = $30\%SSB_{current,F=0,}$ which is 30% of the dynamic unfished spawning stock biomass

(c) Limit reference point (LRP) = $14\%SSB_{current,F=0,}$ which is 14% of the dynamic unfished spawning stock biomass.

3. Acceptable levels of risk

The risk of breaching the Limit Reference Point based on the most current estimate of SSB shall be no greater than 20%.

4. Monitoring strategy

The ISC will conduct a stock assessment every three years, at which time the status relative to the reference points established under paragraph 2 will be evaluated.

When performing a stock assessment, the ISC will consider the criteria for identification of exceptional circumstances developed by the ISC, and notify the Northern Committee if these exceptional circumstances have occurred.

5. Harvest Control Rules (HCR)

The harvest control rules apply to all fisheries harvesting albacore in the EEZ and high seas in the Convention Area north of the equator.

The harvest control rule parameters produce a relationship between stock status and fishing intensity as shown in Figure 1 and are as follows with the minimum allowed fishing intensity (F_{min}) equal to $F87_{\%}$, which is the fishing intensity (F) level that results in the stock producing 87% of spawning potential ratio (SPR). $SSB_{current}$ refers to spawning stock biomass in the terminal year of the assessment and $SSB_{current, F=0}$ to the terminal year dynamic unfished spawning stock biomass.

- If $SSB_{current}/SSB_{current, F=0}$ is above or equal to $SSB_{threshold}$ with a probability of at least 50%, fishing intensity shall be maintained at or below the TRP on average over 10 years.

- If $SSB_{current}/SSB_{current, F=0}$ is below $SSB_{threshold}$ with a probability greater than 50%, and is above the LRP with a probability of at least 50%, fishing intensity shall be reduced[6] to a level in accordance with following formula:
  $F = \frac{TRP-Fmin}{SSBthreshold-LRP} * (SSB_{current}/SSB_{current,F=0} - LRP) + F_{min}$

- If $SSB_{current}/SSB_{current, F=0}$ is at or below the LRP with a probability greater than 50%, the WCPFC shall, in collaboration with the IATTC, consult with the ISC and adopt rebuilding measures that will rebuild SSB to levels of at least the $SSB_{threshold}$ with a probability of at least 65 % within 10 years of $SSB_{current}/SSB_{current, F=0}$ having been identified to be at or below the LRP with a probability greater than 50%. In the absence of such rebuilding measures, fishing intensity shall be set at F_{min}[7].

If $SSB_{current}/SSB_{current, F=0}$ is above the LRP and below $SSB_{threshold}$ the maximum increase or decrease in catch or effort between the three-year management periods shall be 20% relative to the catch and effort levels specified for the previous year.

In the year following the relevant ISC stock assessment, the Northern Committee will recommend adjustment to the existing CMM for North Pacific Albacore to ensure fishing intensity is at or below the level set forth by this HCR using the latest ISC stock assessment. Changes to fishing intensity in accordance with the harvest control parameters shall apply between assessments starting the year after the stock assessment was completed, until the year following the next stock assessment that provides an estimate of unfished SSB.

Other Provisions

[6] When adopting proposed revisions to the conservation and management measures proposed, which may include *inter alia* reductions in fishing effort, CCMs will take into account historical fishing activity and the source of increased fishing mortality in reference to the average effort referenced in CMM 2019-03.

[7] Ibid.

The Commission shall promote compatibility between the harvest strategy adopted herein and the harvest strategy adopted by the Inter-American Tropical Tuna Commission with respect to North Pacific albacore tuna.

This Harvest Strategy replaces the "Harvest Strategy for North Pacific Albacore Fishery" adopted as Harvest Strategy 2022-01.

A review of the performance of the Harvest Strategy by the Northern Committee and the ISC shall be completed by 2030 and 2033. The aim of the review is to ensure the Harvest Strategy is performing as expected and to determine whether there are conditions that justify its continuation, or that warrant: reconditioning the MSE operating models; retuning the existing Harvest Strategy; including new indices into a new Harvest Strategy; and/or considering alternate candidate management procedures or development of a new MSE framework. Based on those reviews and subsequent ISC advice, the Northern Committee in 2030 and 2033 shall decide on the future of the Harvest Strategy.

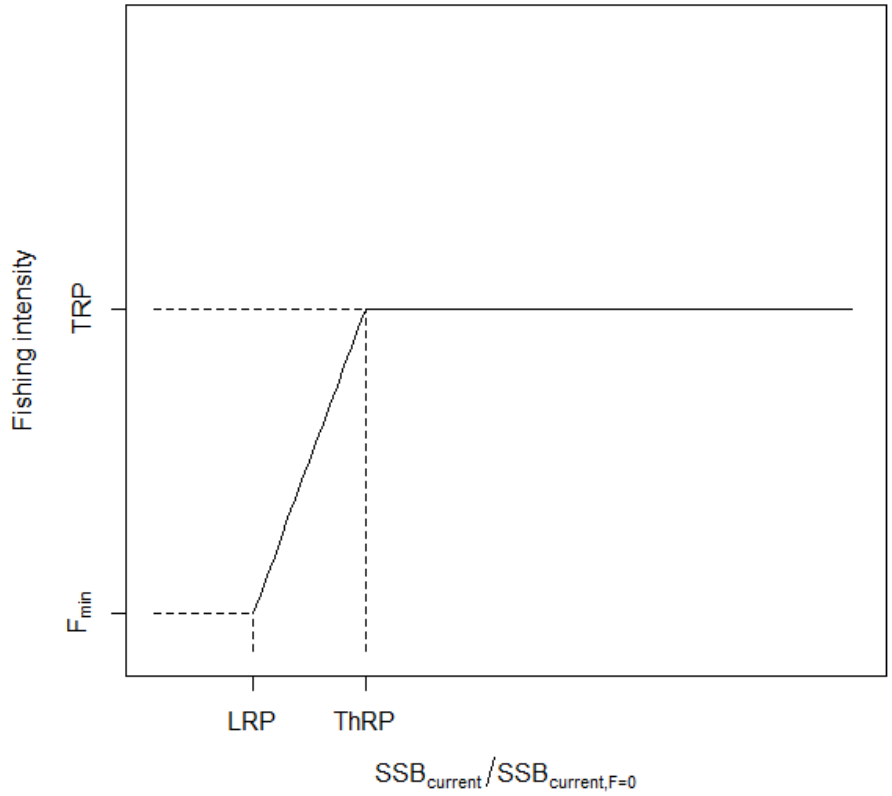

Figure 1. Illustration of the harvest control rules with target reference point (TRP), threshold reference point (ThRP), limit reference point (LRP), and the minimum allowed fishing intensity (Fmin). The harvest control rules include the triggering of a rebuilding measure if the $SSB_{current}/SSB_{current,F=0}$ falls below the LRP.

Attachment J

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 2023-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 levels[89];

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

[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.

Attachment K

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

WORK PROGRAMME FOR THE NORTHERN COMMITTEE

Work areas	Objectives	annual tasks		
	2024–2026	2024	2025	2026
1. Northern stocks				
a. Monitor status; consider management action	Review status and take action as needed for: **<u>North Pacific albacore</u>** Tasks (A) Review members' reports on their implementation of CMM 2019-03. (B) Implement the Harvest Strategy, including: (1) monitor if LRP is breached; (2) continue to work on other elements of harvest strategies, if appropriate based on MSE; (3) recommend any changes to CMM.	Review the compiled members' reports and identify and rectify shortcomings. Further development of harvest strategy including review of exceptional circumstances and information from ISC on translating fishing intensity into management controls as appropriate to complete Task (B)(2).	Review the compiled members' reports and identify and rectify shortcomings. Continue to further development of harvest strategy to complete Task (B)(2).	Review the compiled members' reports and identify and rectify shortcomings. Continue to further development of harvest strategy to complete Task (B)(2). Obtain the new assessment results from ISC and recommend any necessary changes to CMM. (Task (B) (3))

	<u>Pacific bluefin tuna</u> Tasks (A) Review members' reports on their implementation of CMM on Pacific bluefin tuna. (B) Implement the Harvest Strategy including: (1) monitor probability of second rebuilding target being achieved on schedule; (2) continue to work to establish LRP, TRP and other elements of harvest strategy; (3) recommend any changes to CMM; (4) support MSE development, including stakeholder workshops, considering recommendations of the NC-IATTC Joint Working Group on the Management of Pacific Bluefin Tuna (JWG).	Review the compiled members' reports and identify and rectify shortcomings. Review the 2024 stock assessment results and recommend any necessary changes to CMM. (Task (B) (3)). Work in the JWG to further develop harvest strategy. Review an update on progress of MSE from ISC. If additional information is requested by the ISC from the JWG relevant to the MSE, JWG to solicit input from its stakeholders and task itself to address this at JWG10 in 2025, as appropriate.	Review the compiled members' reports and identify and rectify shortcomings. Work in the JWG to complete the harvest strategy for MSE. If additional information is requested by the ISC from the JWG relevant to the MSE, JWG to solicit input from its stakeholders and task itself to address this at JWG11 in 2026, as appropriate.	Review the compiled members' reports and identify and rectify shortcomings. Obtain results from the MSE from ISC at JWG11 in 2026. Work in the JWG to review progress of MSE.

	(C) Develop CDS	Develop CDS based on the inputs from members and recommendations of the JWG, and further develop a draft CMM if needed.	Complete development of CDS.	
	<u>Swordfish</u> Further develop the harvest strategy consistent with CMM 2014-06, including consideration of a target reference point and associated harvest control rule.	Consider appropriate amendment to the CMM. Consider responses from the ISC to NC requests. Consider and recommend appropriate TRP and associated HCR.		
b. Data	Achieve timely submission of complete data needed for assessments, formulation of measures, and review of Commission decisions. Consider systems to validate catch data	CCMs participating in the NC submit complete data on fisheries for northern stocks to the Commission. Encourage submission to Commission of Pacific bluefin tuna, North Pacific albacore, North Pacific striped marlin and swordfish data from all CCMs and make available to ISC.	CCMs participating in the NC submit complete data on fisheries for northern stocks to the Commission. Encourage submission to Commission of Pacific bluefin tuna, North Pacific albacore, North Pacific striped marlin and swordfish data from all CCMs and make available to ISC.	CCMs participating in the NC submit complete data on fisheries for northern stocks to the Commission. Encourage submission to Commission of Pacific bluefin tuna, North Pacific albacore, North Pacific striped marlin and swordfish data from all CCMs and make available to ISC.
c. Scientific support	Provide support for scientific studies.			
2. Non-northern stocks				
	<u>Striped marlin</u>	Review information from ISC	Review information from	Review information from

		that may inform management advice for the rebuilding plan	ISC that may inform management advice for the rebuilding plan	ISC that may inform management advice for the rebuilding plan
	<u>Blue shark</u>	Review information from ISC that may inform management advice	Review information from ISC that may inform management advice	Review information from ISC that may inform management advice
3. Non-target, associated, dependent species				
a. Seabirds	Evaluate effectiveness of current measures to minimize catch and mortality, and improve them as needed.	Review implementation of CMM 2018-03 in the northern area.	Review implementation of CMM 2018-03 in the northern area.	Review implementation of CMM 2018-03 in the northern area.
b. Sea turtles	Consider appropriate implementation of methods to minimize catch and mortality.	Review mitigation research results and consider management action.	Review mitigation research results and consider management action.	Review mitigation research results and consider management action.
c. Sharks	Consider appropriate implementation for CMM 2019-04 in the northern area.	Review scientific advice from ISC, if any, and consider management options as necessary. Encourage submission of all shark data to ISC.	Review scientific advice from ISC, if any, and consider management options as necessary. Encourage submission of all shark data to ISC.	Review scientific advice from ISC, if any, and consider management options as necessary. Encourage submission of all shark data to ISC.
4. Review effectiveness of decisions	Annually review effectiveness of conservation and management measures and resolutions applicable to fisheries for northern stocks.	Review effectiveness of North Pacific albacore measure (CMM 2019-03), including members' reports on their interpretation and implementation of fishing effort control. Review effectiveness of Pacific bluefin tuna measure.	Review effectiveness of North Pacific albacore measure (CMM 2019-03), including members' reports on their interpretation and implementation of fishing effort control. Review effectiveness of Pacific bluefin tuna measure.	Review effectiveness of North Pacific albacore measure (CMM 2019-03), including members' reports on their interpretation and implementation of fishing effort control. Review effectiveness of Pacific bluefin tuna measure.

5. ROP (Paragraph 9, Attachment C of CMM 2018-05)		Review implementation of ROP for fishing vessels operating in north of 20°N.	Review implementation of ROP for fishing vessels operating in north of 20°N.	Review implementation of ROP for fishing vessels operating in north of 20°N.
6. Cooperation with other organizations				
a. ISC		Consider action to support ISC.	Consider action to support ISC.	Consider action to support ISC.
b. IATTC	Following Article 22.4, consult to facilitate consistent management measures throughout the respective ranges of the northern stocks.	Have consultation to maintain consistent measures for North Pacific albacore and Pacific bluefin tuna. Hold a joint working group meeting on Pacific bluefin tuna management.	Have consultation to maintain consistent measures for North Pacific albacore and Pacific bluefin tuna. Hold a joint working group meeting on Pacific bluefin tuna management.	Have consultation to maintain consistent measures for North Pacific albacore and Pacific bluefin tuna. Hold a joint working group meeting on Pacific bluefin tuna management.
7. Climate Change	Develop a framework for how to include climate change analyses into NC processes.			