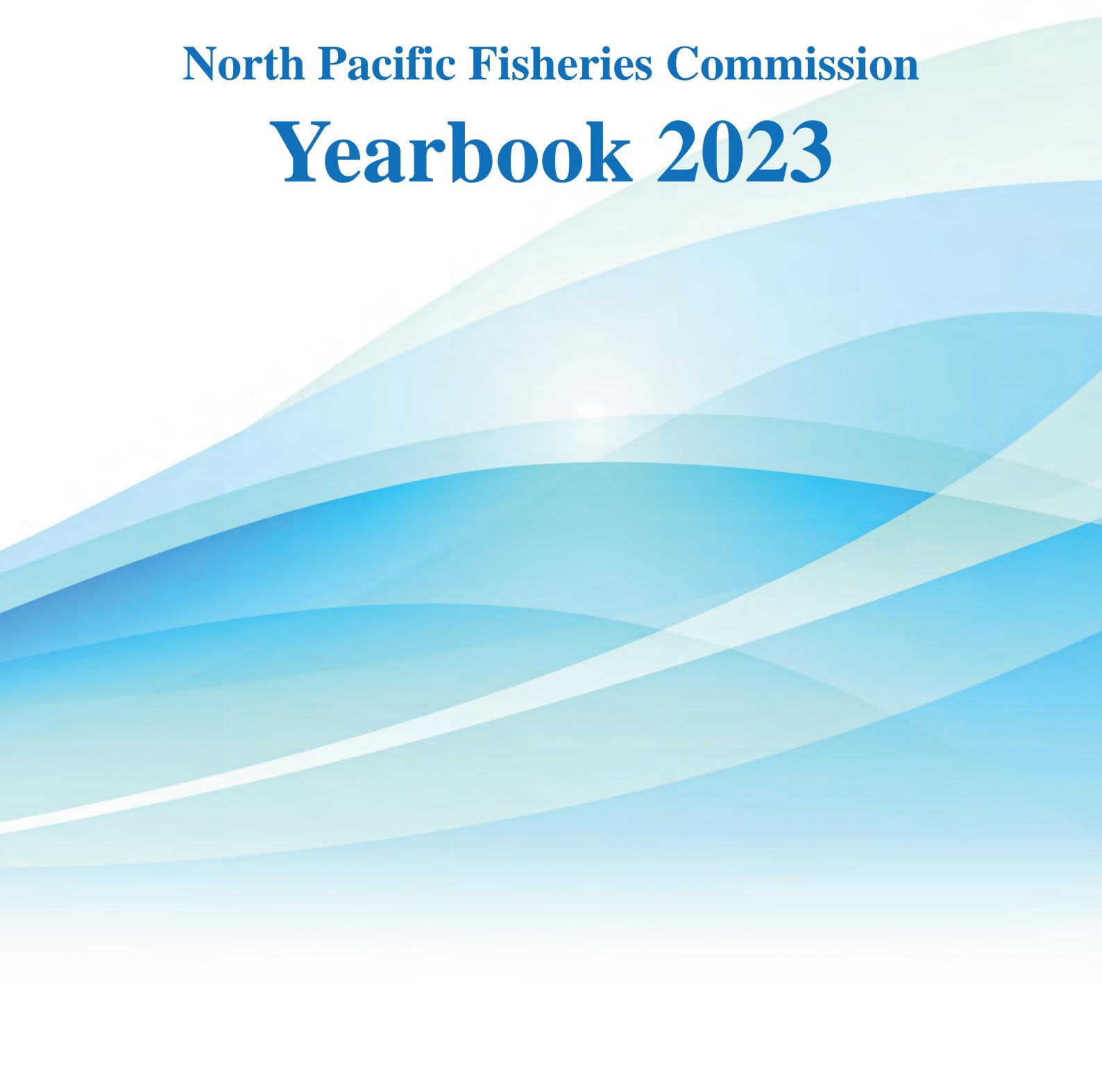




North Pacific Fisheries Commission

Yearbook

2023



North Pacific Fisheries Commission

Yearbook 2023

Edited by:

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FOREWORD

As the Chair of the North Pacific Fisheries Commission (NPFC), it is a privilege for me to deliver the 2023 Yearbook. This Yearbook contains the events and activities of the NPFC from August 2023 to April 2024 (i.e., meetings after COM07 and up to and including COM08).

In contrast to the past few years that were deeply affected by the Covid-19 pandemic, we could more smoothly have face-to-face meetings in a hybrid format in Vanuatu, Canada, and Japan. I believe that these opportunities allowed the participants to facilitate their discussions about the scientific and compliance issues more closely.

Over the course of this period, the NPFC has dealt with the science and compliance issues of fisheries resources, and has also started addressing new challenges. For instance, the NPFC adopted harvest control rules for Pacific saury, and is now trying to advance this to a management procedure, which is much more proactive management approach than traditional ones. Also, since the Resolution on Climate Change was adopted in 2023, the NPFC has been discussing not only Conservation and Management Measures for fisheries resources and enforcement activities but also the effects of Climate Change. Similar to IUU fishing, this environmental threat has a potentially negative impact on the fisheries resources and marine environment in the North Pacific Ocean, meaning that the role of the NPFC has become more important. In addition, the NPFC adopted the Resolution on Core Principles on Labor Standards in NPFC Fisheries in 2024. We need to commit to understand and incorporate these challenging issues.

Lastly, I would like to express my deepest appreciation to all Members, invited experts, and observers for their dedicated efforts and contributions to ensure the long-term conservation and sustainable use of the fisheries resources in the Convention Area while protecting the marine ecosystems of the North Pacific Ocean in which these resources occur.

Mr. Shingo OTA
Chair
North Pacific Fisheries Commission

ACKNOWLEDGEMENT

Like the Chairman, I also would like to congratulate our Members on this publication of the 2023 NPFC Yearbook which incorporates the meetings held after COM07 and up to and including COM08. This record commemorates the Commission's performance, drawing from the commitment and contribution from Members. This period saw the joyous commencement of in-person meetings that included the option to participate remotely.

There are many people who I wish to appreciate for their hard work in preparation for the meetings held predominately virtually due to the COVID-19 pandemic. They are the Chair of the Commission, and Chairs of the Scientific Committee, Technical and Compliance Committee, Finance and Administration Committee, Management Strategy Evaluation Small Working Group for Pacific Saury, Small Scientific Committees, Technical Working Group, and intersessional working groups.

My thanks also go to our Rapporteur and Secretariat staff who were enthusiastic, dedicated, and wonderful to work with during the course of Commission meetings and in assisting the Members in carrying out the Convention's objectives.

This Yearbook was edited by Mr. Shinnosuke KATO (NPFC intern) and I very much appreciate his focus on getting this delayed project finished. We welcome comments or suggestions from readers on this Yearbook to improve the quality of this publication in the future.

Dr. Robert Day
Executive Secretary
North Pacific Fisheries Commission

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INTRODUCTION

The North Pacific Fisheries Commission (NPFC) is an inter-governmental organization established by the Convention on the Conservation and Management of High Seas Fisheries Resources in the North Pacific Ocean. The objective of the Convention is to ensure the long-term conservation and sustainable use of the fisheries resources in the Convention Area while protecting the marine ecosystems of the North Pacific Ocean in which these resources occur. The Convention was adopted on 24th February 2012 and came into force 180 days after receipt of the 4th ratification on 19th July 2015.

The task of the Commission is to achieve the objective by establishing management regimes to ensure the conservation and sustainable use of the fisheries resources of the North Pacific Ocean and its sensitive marine ecosystems. At present, there are nine (9) Members of the NPFC, namely: Canada, China, the European Union (EU), Japan, the Republic of Korea, the Russian Federation, Chinese Taipei, the United States of America, and the Republic of Vanuatu. Panama is a Cooperating Non-contracting Party (CNCP). The NPFC Secretariat is located in Tokyo, Japan. Dr. Robert Day is the Executive Secretary and has been leading the Secretariat since November 2022.

Fisheries resources covered by the Convention include all the fish, mollusks, crustaceans and other marine species caught by fishing vessels within the Convention Area, excluding:

- (i) Sedentary species insofar as they are subject to the sovereign rights of coastal States and indicator species of vulnerable marine ecosystems as listed in, or adopted pursuant to the NPFC Convention, including at the moment four families of cold-water corals;
- (ii) Catadromous species;
- (iii) Marine mammals, marine reptiles and seabirds; and
- (iv) Other marine species already covered by pre-existing international fisheries management instruments within the area of competence of such instruments.

Currently the fish species targeted by the NPFC Members include bottom fish stocks and pelagic fish stocks as follows:

- **FISHERY FOR BOTTOM FISH STOCKS:**

In the Northwestern Pacific Ocean, bottom trawl fisheries, bottom gillnet fisheries and bottom longline fisheries have been conducted over the Emperor seamounts by Japan, Korea and Russia. The primary target species of the bottom trawl fisheries have been North Pacific Armorhead (*Pentaceros wheeleri*), and splendid alfonsino (*Beryx splendens*), and the primary target species of the bottom gillnet fisheries have been splendid alfonsino, oreo (*Allocyttus verrucosus*) and mirror dory (*Zenopsis nebulosa*).

In the Northeastern Pacific Ocean, the seamount long-line fishery began in the 1970's. Four seamount aggregations (Eickelberg Seamounts, Warwick Seamount, Cobb Seamounts, and Brown

Bear Seamounts) have been fished by Canada, via longline hook and longline trap gear. The primary target species of both the above fishing gears has been sablefish (*Anoplopoma fimbria*).

- **FISHERY FOR PELAGIC FISH STOCKS:**

Pacific saury (*Cololabis saira*) is one of the major target species in the Convention Area and has been harvested by China, Japan, Korea, Russia, Chinese Taipei and Vanuatu. Most fleets mainly use stick-held dip nets or lift nets (a similar fishing method which uses fishing lamps) to catch Pacific saury. While Japanese and Russian vessels operate mainly within their EEZs, Chinese, Korean, Chinese Taipei and Vanuatu vessels operate mainly in the high seas of the North Pacific. Stock assessment of this species provides the basis for establishing conservation and management measures for the sustainability of the fishery.

A Chub mackerel (*Scomber japonicus*) fishery is also active in the NPFC Convention Area in the Northwestern Pacific Ocean. Similar with the Pacific saury, stock assessment for chub mackerel also determines if current conservation and management measures are enough to continue the sustainable use of these marine resources.

Neon flying squid (*Ommastrephes bartramii*) and Japanese flying squid (*Todarodes pacificus*) are traditionally harvested by squid jigging vessels within the Convention Area.

The Japanese sardine (*Sardinops melanostictus*) fishery has been the largest fishery by volume over the last five years, with increasing catch both in the Member's waters (Japan and Russia) and in the Convention Area (China).

- **NPFC PERSONNEL:**

The personnel of the Secretariat and the Chairman are representatives of the multinational and multicultural nature of the Commission. At the time of publication, the Commission is led by the Chair, Mr. Shingo OTA. The Secretariat is headed by the Executive Secretary, Dr. Robert Day; with the Science Manager, Dr. Aleksandr Zavolokin; the Compliance Manager, Ms. Judy Dwyer; and supported by the Executive Assistant, Yuko Yoshimura-Takamiya; and the Data Coordinator, Mr. Sungkuk Kang. The Secretariat has also engaged temporary consultants for a limited period of time to assist the Commission in finance, compliance and science-related activities, and accepted a secondee to bring skills and experience to support the Secretariat and an intern to provide early-career professionals of Members opportunity to gain experience and knowledge in the operations of the Commission.

- **PERIOD OF COVERAGE:**

This publication picks up immediately after the last reported activity of the previous Yearbook (after COM07) and covers key activities and Commission meetings held from the 11th Small Scientific Committee on Pacific Saury Meeting in August 2023 up to and including the 8th Commission Meeting in April 2024.

In its efforts to achieve the objective of the Convention, the Commission:

- a. held formal scientific committee meetings on Pacific saury, bottom fish and vulnerable marine ecosystems, and stock assessments on chub mackerel as well as intersessional meetings of SC and its subsidiary bodies;
- b. held 15 small working group meetings on compliance matters;
- c. adopted a new CMM (Anadromous Fish);
- d. revised several CMMs (Pacific Saury, Chub Mackerel, Bottom Fisheries and Protection of Vulnerable Marine Ecosystems in the Northwestern Pacific Ocean and in the Northeastern Pacific Ocean, Japanese Sardine, Neon Flying Squid and Japanese Flying Squid, Vessel Monitoring System, Compliance Monitoring Scheme, IUU vessel list, Prevention, Reduction and Elimination of Marine Pollution, High Seas Boarding and Inspection Procedures, and Transshipments);
- e. adopted the Resolution on Core Principles on Labor Standards in NPFC Fisheries.

In addition, the Secretariat, as an observer, participated in a number of international fisheries meetings, including PICES annual meetings, Regional Secretariats Network Discussions, ISC annual meeting, Tokyo Sustainable Seafood Summit, a workshop on *the Market Perspective-Increasing Transparency in the Seafood Supply Chain*, the International Seabed Authority Regional Environmental Management Plan meeting, the North Pacific Coast Guard Forum, the Global Fisheries Enforcement Training Workshop, the 10th International Fisheries Observer and Monitoring Conference. The Secretariat also provided space to and opportunity to network with the Tuna Compliance Network meeting. In addition, the Secretariat met with the Japan-based Executive Secretaries/Directors of the International Tropical Timber Organization, the World Organization for Animal Health Regional Office, and the International Forum for Independent Audit Regulators.

The following pages provide the final approved reports of meetings of the North Pacific Fisheries Commission and its subsidiary bodies. They are provided in chronological order for meetings after COM07 up to and including COM08.

11th Meeting of the Small Scientific Committee on Pacific Saury

28–31 August 2023
Port Vila, Vanuatu (Hybrid)
Meeting Report



Agenda

Agenda Item 1. Opening of the Meeting

Agenda Item 2. Adoption of Agenda

Agenda Item 3. Overview of the outcomes of previous NPFC meetings

3.1 SSC PS10 and SC07

3.2 SWG MSE PS03

3.3 COM07

3.3.1 CMM 2023-08 for Pacific Saury

3.3.2 NPFC Performance Review

3.3.3 Resolution on Climate Change

Agenda Item 4. Review of the Terms of References of the SSC PS and existing protocols

4.1 Terms of References of the SSC PS

4.2 CPUE Standardization Protocol

4.3 Stock Assessment Protocol

Agenda Item 5. Member's fishery status including 2023 fishery

Agenda Item 6. Fishery-independent abundance indices

6.1 Review of results of abundance estimation including 2023 Japanese biomass survey

6.2 Review of plans of future biomass surveys

6.3 Recommendations for future work

Agenda Item 7. Fishery-dependent abundance indices

7.1 Review of Members' standardized CPUEs up to 2022

7.2 Review of joint CPUE

7.3 Recommendations for future work

Agenda Item 8. Biological information on Pacific saury

8.1 Review of any updates and progress

8.2 Distribution and migration patterns of juvenile Pacific saury

8.3 Recommendations for future work

Agenda Item 9. Stock assessment using "provisional base models" (BSSPM)

9.1 Review and update of the existing specification

9.2 Recommendations for future work

Agenda Item 10. New stock assessment models

10.1 Data available

10.2 Review of any progress on new stock assessment models

10.3 Finalization of specification for new stock assessment models

10.4 Recommendations for future work

Agenda Item 11. Progress on development and evaluation of an interim harvest control rule (HCR) as a short-term task

- 11.1 Review of conditioning of operating models (OMs)
- 11.2 Review of candidate harvest control rules (HCRs)
- 11.3 Recommendations for future work

Agenda Item 12. Other matters

- 12.1 Observer Program
- 12.2 Draft agenda, priority issues and timeline for next meeting
- 12.3 Other

Agenda Item 13. Adoption of Report

Agenda Item 14. Close of the Meeting

MEETING REPORT

Agenda Item 1. Opening of the Meeting

1. The 11th Meeting of the Small Scientific Committee on Pacific Saury (SSC PS11) was held in a hybrid format, with participants attending in-person in Port Vila, Vanuatu, or online via WebEx. The meeting was attended by Members from Canada, China, the European Union, Japan, the Republic of Korea, the Russian Federation, Chinese Taipei, the United States of America, and the Republic of Vanuatu. The Pew Charitable Trusts (Pew) attended as an observer. Dr. Larry Jacobson participated as an invited expert.
2. The meeting was opened by Dr. Toshihide Kitakado (Japan), the SSC PS Chair. He expressed his gratitude to Vanuatu for hosting the meeting and to the Vanuatu Department of Fisheries, the NPFC Secretariat, and the staff of the Warwick Le Lagon Hotel for making the arrangements for the meeting.
3. Mr. Sompert Gereva, Director of Fisheries, welcomed the participants to Port Vila on behalf of the host Member. He expressed Vanuatu's honor to host a series of important scientific meetings and noted that science forms the backbone of fisheries management. Mr. Gereva acknowledged the importance of Pacific saury to the NPFC and shared Members' concerns about the historically low level of the stock. Furthermore, he stated that Vanuatu, as a Small Island Developing State, recognizes the significance of balancing conservation and management with aspirations for fisheries development. Finally, Mr. Gereva reiterated his welcome to all participants and expressed his hope that their discussion would be productive and that their joint efforts would lead to fruitful outcomes for the conservation of NPFC fisheries resources.
4. The Science Manager, Dr. Aleksandr Zavolokin, outlined the procedures for the meeting.
5. Mr. Alex Meyer was selected as rapporteur.

Agenda Item 2. Adoption of Agenda

6. The agenda was adopted without revision (Annex A). The List of Documents and List of Participants are attached (Annexes B, C).

Agenda Item 3. Overview of the outcomes of previous NPFC meetings

3.1 SSC PS10 and SC07

7. The Chair presented the outcomes and recommendations from the SSC PS10 meeting and the 7th meeting of the Scientific Committee (SC07).

3.2 SWG MSE PS03

8. The Chair presented the outcomes and recommendations from the 3rd meeting of the joint SC-TCC-COM Small Working Group on Management Strategy Evaluation for Pacific saury (SWG MSE PS03).

3.3 COM07

3.3.1 CMM 2023-08 for Pacific Saury

9. The Science Manager presented the outcomes from the 7th Commission meeting, including an overview of Conservation and Management Measure (CMM) 2023-08 for Pacific Saury.

3.3.2 NPFC Performance Review

10. The Science Manager presented an overview of the NPFC Performance Review and outlined some recommendations from the Performance Review report that concern Pacific saury.
11. The Chair informed the SSC PS that he would draft the proposed response to these recommendations while liaising with the SC Chair and the Secretariat by the next SSC PS meeting in December 2023.

3.3.3 Resolution on Climate Change

12. The Science Manager presented an overview of the Resolution on Climate Change.

Agenda Item 4. Review of the Terms of References of the SSC PS and existing protocols

4.1 Terms of References of the SSC PS

13. The SSC PS reviewed and recommended an update to the Terms of References (ToR) of the SSC PS, adding a new item on exploring the impact of climate change on Pacific saury stock assessment and fishery performance (Annex D).

4.2 CPUE Standardization Protocol

14. The SSC PS reviewed the catch-per-unit-effort (CPUE) Standardization Protocol and determined that no revisions are currently necessary.

4.3 Stock Assessment Protocol

15. The SSC PS reviewed and updated the Stock Assessment Protocol, adding a new item on including relevant ecosystem considerations regarding the Pacific saury stock in future assessment documents (Annex E).

Agenda Item 5. Member's fishery status including 2023 fishery

16. The Science Manager presented the compiled data on Pacific saury catches in the northwestern Pacific Ocean from 1950 to 2022 (NPFC-2023-SSC PS11-WP01 (Rev. 1)).
17. The Science Manager presented the cumulative catch of Pacific saury as of mid-August in 2020, 2021, 2022 and 2023. The cumulative catch in 2023 is approximately 36,487 MT compared to 14,342 MT in 2022, 23,701 MT in 2021, and 9,875 MT in 2020.
18. Chinese Taipei presented its fisheries status (NPFC-2023-SSC PS11-IP01). The catch recovered to around 180,000 tons in 2018 and showed a declining trend until 2021. 93 vessels conducted fishing activities in 2021, and in 2022, the number decreased to 81. Standardized effort (catch/standardized CPUE) was 59,404 hauls in 2022. In 2023, the accumulated catch as of the end of July was 13,536 tons, which was more than that of the same period in 2022 (4,198 tons). Through July, the seasonal catch in 2023 was better than the previous year. From May to July 2023, the nominal CPUE has been about 2.22 tons/haul, which is more than that of the same period in 2022. Compared to 2022, fishing grounds were observed to be further north and more broadly distributed in 2023. Regarding the size box composition (s: >29 cm; 1: 27–31 cm; 2: 26–30 cm; 3: 24–29 cm; 4: 22–28 cm; 5: 20–26 cm), the mode size box for Pacific saury caught in June was 3, and the mode for those caught in July was 5.
19. China presented its fisheries status (NPFC-2023-SSC PS11-IP02). Total catch in 2022 was 35,477 MT. As of 15 August, the total catch in 2023 is 19,456 MT and a total of 55 vessels have been operating, a decrease of 8 from 2022. Accumulated catch in 2023 has been at its highest since 2013. As of 15 August, the nominal CPUE has been 10.05 MT/vessel/day, the highest since 2020. Standardized effort was 8,367 vessel days in 2022. The fishing grounds so far in 2023 have been to the northwest of those in 2022. A yearly comparison of body length compositions has been conducted up to 2018, using a size-length key provided by Japan. Biological measurements had been delayed by the COVID-19 pandemic and calculation of the

body length compositions for subsequent years is ongoing.

20. The SSC PS encouraged China to accelerate its efforts to calculate body length compositions for 2019 onwards and present the data ahead of the SSC PS12, or, if that is not possible, to provide any other relevant information, such as subsamples of the body length composition for 2019–2022.
21. Vanuatu presented its fisheries status (NPFC-2023-SSC PS11-IP03). Total annual catch peaked at 8,231 MT in 2018. Total catch in 2022 was 929 MT, the lowest after 2018. Vanuatu's Pacific saury fishery began in 2004. In total, it has authorized 16 vessels. The number of operating vessels was 4 from 2015 to 2021 and was 3 in 2022. Only 1 vessel is currently active in 2023. Annual comparison of accumulated catch shows a trend of abundance increasing from September. Looking at relative accumulated catch, in 2022, fishing operations began later than previous years and catch increased significantly from mid-September. Annual comparison of the relative seasonal catch shows that there are usually two peaks in the fishing season. In 2022, the first peak occurred slightly later than the one in 2021, while the second peak occurred at similar timings in both years. Nominal CPUE in 2022 was 5.7 MT/day. The main fishing grounds began in the east early in the season, before shifting to the west. Fishing grounds did not cross 165°E longitude in 2021 and 2022. Looking at the monthly size box compositions in 2022 (s: >29 cm; 1: 27–31 cm; 2: 26–30 cm; 3: 24–29 cm; 4: 22–28 cm; 5: 20–26 cm), the percentage of size box 1 catches was very low.
22. Japan presented its fisheries status (NPFC-2023-SSC PS11-IP04 (Rev. 2)). In 2022, the annual catch was 18,064 MT, the lowest since 1950. Most of the Japanese fishing vessels had finished fishing for Pacific saury before the beginning of December. 112 vessels were registered, a decrease of 13 from the previous year. There were 12 small fishing vessels without any Pacific saury catch. The trend of accumulated catch in 2022 was similar to that in 2021. The catch exceeded 17,000 MT (97% of the annual catch) in the middle of November. The increment of relative cumulative catch has declined in recent years. In 2022, the catch exceeded 50% of the total in mid-October. Previously, the peak catch has been in October or September but more recently, it has been in November. In 2022, seasonal catch peaked at the beginning of November (4,632 MT), and then sharply dropped in the middle of the month. The maximum proportion of 10-day catch has increased in recent years, indicating that the duration of the fishing season is getting shorter. In 2022, nominal CPUE was 0.46, the lowest since 2000. Standardized effort was 66,903 hauls. The fishing grounds in August and September were located only in the high seas. The main fishing grounds were in the high seas by the end of November. In recent years, the fishing grounds in August have moved south. The fishing

grounds have moved eastward after 2018. About 70% of Pacific saury caught in 2022 were age-1 fish. The percentage of age-0 fish increased after October. Annual change of body length compositions for the whole fishing season and for the August to November period shows that the percent of age-1 fish has been high in the past two years. In 2023, Japanese Pacific saury fishing started in August. 109 vessels are registered. There has been no catch information so far.

23. Korea presented its fisheries status (NPFC-2023-SSC PS11-IP05). Total catch in 2022 was 3,438 MT, a new historical low following the historical low in 2021. In 2023, the catch until early August has increased by approximately 50% compared to the same period in the previous year. The number of vessels operating has gradually decreased each year from 2015 to 2022, and has decreased from 10 in 2022 to 5 in 2023 so far due to the continued low level of Pacific saury catch, but 1 or 2 of the rest of the vessels are expected to begin operations later in the season. Nominal CPUE was 2.33 MT/vessel/day in 2022, a historical low. Standardized effort was 2,122 days in 2022. So far in 2023, fishing grounds have been between 160°E and 170°E. In 2022, the overall body length range was 19–32 cm, with a mean value of 27.7 cm. The monthly mean body length was lowest in July and highest in October. By size box composition (S: 18–30 cm; M: 23–33 cm; L: 27–34 cm; 2L: 29–34 cm (fork length)), the ratio of S was the highest in May and December and the ratio of L-2L was the highest in November.

24. Russia informed the SSC PS that it has neither fished for nor caught Pacific saury since 2022. It reminded the SSC PS of the 2021 fisheries status information that it previously presented, namely that there continues to be a declining trend in catch, that the total catch in 2021 (610 MT) was the lowest since 1991, and that the CPUE in 2021 (4.2) was the lowest since 2000.

25. Canada presented its Pacific saury catch information (NPFC-2023-SSC PS11-IP06). Canada does not have a commercial fishery targeting Pacific saury, but occasionally takes Pacific saury as bycatch. No bycatch of Pacific saury has been taken by commercial fishing since 2020. It should be noted that historical survey catches focused primarily on Salmonids and at times the bycatch species (including Pacific saury) were not entered in the databases. There is an effort underway to include bycatch species, so it is likely that the historical numbers will be updated in future. The peak of observed Pacific saury lengths was ~28 cm. Pacific saury has been found to be a regular component of the diet of seabirds in British Columbia, such as Rhinoceros Auklets, and has also sometimes been found in the diet of adult salmon.

Agenda Item 6. Fishery-independent abundance indices

6.1 *Review of results of abundance estimation including 2023 Japanese biomass survey*

26. Japan presented a report of its 2023 biomass survey (NPFC-2023-SSC PS11-IP07). The Japanese biomass survey was conducted with three research vessels, all using the same type of trawl. The survey was conducted at 103 stations from 6 June to 9 July and covered the area from 143°E to 177°W. It was not possible to survey the area east of 173°W this year due to the occurrence of an emergency situation. 30,259 individuals were caught in the survey. Pacific saury occurred between 151°E and 177°W. The age-1 fish were mainly distributed between 163°E and 175°E.
27. Japan presented the Japanese survey biomass index of Pacific saury up to 2023 using the Vector Autoregressive Spatio-temporal (VAST) model (NPFC-2023-SSC PS11-WP11). Japan applied the VAST model to Japanese fishery-independent survey data to predict Pacific saury distribution and estimate biomass index from 2003 to 2023. The estimated biomass index from the selected VAST model with minimum Akaike information criterion (AIC) indicated similar year trends with the index from a design-based approach. In 2020, the estimated biomass index dropped to the lowest level historically since 2003, before recovering but remaining at a low level in 2023. Japan recommended using the estimated biomass index, like the previous year, in the BSSPM stock assessment because the CVs of biomass indices in 2023 were at a comparable level to those of other years, except for the significantly high CV in 2020.
28. The SSC PS agreed to use the Japanese survey biomass index of Pacific saury up to 2023 using the VAST model as an input for the stock assessment.
29. Japan presented an evaluation of vessel effects in the Japanese biomass survey for Pacific saury (NPFC-2023-SSC PS11-WP09). Japan evaluated research vessel effects and fishing gear effects in the application of the VAST model to Japanese fishery-independent survey data from 2003 to 2022. The incorporation of these effects in the VAST model only resulted in a small improvement in AIC, and there seems to be little advantage to doing so. Furthermore, because many of the vessels were assigned to specific periods and sea areas, the estimated catchability for each vessel and gear seemed to contain not only the effects of vessel and/or gear abilities but also the effects of period and sea area assigned for each vessel. These effects could not be separated from the effects of catchability. Therefore, Japan did not support the inclusion of the estimated vessel/gear effects in the estimation of the biomass index.
30. The SSC PS noted that the recent biomass survey and CPUE data show different trends since 2018, with the CPUE data declining steadily during 2018–2022, while the survey data dropped rapidly during one year to the time series low in 2020 and then increasing rapidly over one year to higher values in 2021–2023. The SSC PS suggested that the appearance of the recent survey

decline was driven largely by the anomalously low survey biomass estimate in 2020, which was likely due to the large area that was not surveyed that year, and agreed that the apparent changes in stock biomass implied by the survey data for 2019–2021 were too rapid to be biologically plausible. The SSC PS agreed that the 2020 survey observation is likely to have little effect on this year's BSSPM biomass estimates because the large CV will down-weight the observation in fitting the model, as in the previous assessment, so additional modifications to the assessment model are not required. Some sensitivity analysis will be carried out as well.

31. The invited expert pointed out the importance of improving the approach to extrapolation in the VAST model because such sampling problems occur periodically.

6.2 Review of plans of future biomass surveys

32. Japan stated that it would present its future biomass survey plans at the SSC PS12 meeting.

6.3 Recommendations for future work

33. The SSC PS suggested that Japan confirm the assumption that the distribution pattern of Pacific saury is similar from year to year by conducting retrospective analyses of the VAST model removing the terminal years' data.
34. The SSC PS suggested that Japan conduct simulation analyses to investigate the consequences of different reductions of the survey area on the biomass survey results because portions of the survey area are missed periodically due to unavoidable circumstances.
35. The SSC PS suggested that Japan conduct simulations to test the performance of the VAST model using different sizes of survey area. The SSC PS noted that this might also inform discussions on the conditioning of operating models for testing harvest control rules and/or management procedures to account for periodic unforeseen deviations from the survey plan and management procedures that might deal with them, as well as distribution patterns and migration of Pacific saury.
36. The SSC PS suggested that, in the event that the survey area is reduced again in future, it would be worthwhile checking the robustness of the biomass estimates by examining the residual patterns in space and time.
37. At the request of the SSC PS, Japan presented a preliminary comparison of the biomass estimates for the age-0 fish against the age-1 fish with a one-year delay. The correlation between the age-0 and age-1 fish with a one-year delay was 0.55. The SSC PS considered this

result to be encouraging because it supported the development of age-structured models, demonstrated generally consistent results from the survey, and may be used to improve future assessments.

38. The SSC PS noted that the distribution of Pacific saury appears to be shifting further offshore (eastward) and to the north. The SSC PS discussed whether or not it would be appropriate and possible to adjust the survey design in response to this shift.
39. Japan explained that it is possible to expand the survey northward if the weather allows it and extra ship time becomes available during the survey period and that Japan has tried to do so. However, expansion eastward would be very difficult logistically for reasons including the fuel limitation of research vessels, the limited period during which research vessels are available for the Pacific saury survey, and limited simultaneous availability of vessels and researchers for conducting the survey. Furthermore, keeping a consistent survey area would be important from the viewpoint of monitoring. Japan invited other Members to engage in surveys in more eastern areas.
40. The SSC PS noted that expansion of the survey farther offshore could be beneficial scientifically but would be difficult because of serious logistical problems, disruption of long-term sampling patterns, and additional costs. However, potential benefits should be considered as survey plans evolve, particularly if additional resources become available. Such resources might include sampling by other Members using additional vessels based in eastern ports.
41. Russia reminded the SSC PS that it conducts annual summer surveys for Pacific salmon and chub mackerel in areas mostly north of the Japanese biomass survey and that Pacific saury are sometimes caught in these surveys.
42. The invited expert suggested that logbook data that record locations where saury were caught are readily available and may be useful in improving the Japanese survey area. He cautioned, however, that it would be important, in such an analysis, to use logbook data collected during the survey season.
43. The SSC PS noted that the survey area had been reduced in 2020 and, to a lesser extent, in 2023 due to unforeseen circumstances. The SSC PS noted that this will probably occur again in the future, as is the case with other surveys around the world, and potentially result in reduced precision in biomass estimates and impact the effectiveness of a HCR. The SSC PS agreed that such a scenario should be carefully considered in evaluating the robustness of potential HCRs

and could constitute an “exceptional circumstance.”

Agenda Item 7. Fishery-dependent abundance indices

7.1 Review of Members’ standardized CPUEs up to 2022

44. Chinese Taipei presented a standardization of CPUE data for Pacific saury from 2001 to 2022 using a generalized additive model (GAM) on the assumption of lognormal distribution of errors (NPFC-2023-SSC PS11-WP02). Chinese Taipei recommended using the standardized CPUE derived from GAM as input for the stock assessment.
45. The SSC PS agreed to use Chinese Taipei’s standardized CPUE derived from GAM as an input for the stock assessment.
46. Russia presented a standardization of CPUE data for Pacific saury from 1994 to 2021 using a generalized linear model (GLM) (NPFC-2023-SSC PS11-WP03). Russia recommended using the standardized CPUE derived from GLM as input for the stock assessment.
47. The SSC PS agreed to use Russia’s standardized CPUE derived from GLM as an input for the stock assessment.
48. China presented a standardization of CPUE data for Pacific saury from 2013 to 2022 using GLM and GAM on the assumption of lognormal distribution of errors (NPFC-2023-SSC PS11-WP04). China recommended using the standardized CPUE derived from GAM as an input for the stock assessment.
49. The SSC PS agreed to use China’s standardized CPUE derived from GAM as an input for the stock assessment.
50. Korea presented a standardization of CPUE data for Pacific saury from 2001 to 2022 using GLM (NPFC-2023-SSC PS11-WP05 (Rev. 1)). Korea recommended using the standardized CPUE derived from GLM as input for the stock assessment.
51. The SSC PS agreed to use Korea’s standardized CPUE derived from GLM as an input for the stock assessment.
52. Japan presented a standardization of CPUE data for Pacific saury from 1994 to 2022 using GLM (NPFC-2023-SSC PS11-WP06). Japan recommended using the standardized CPUE derived from GLM as input for the stock assessment.

53. The SSC PS agreed to use Japan's standardized CPUE derived from GLM as an input for the stock assessment.
54. Japan presented a preliminary standardization of CPUE data for Pacific saury from 1994 to 2022 using the VAST model (NPFC-2023-SSC PS11-WP07). Japan explained that incorporating monthly (seasonal) effects in CPUE standardization is particularly important for species like Pacific saury that migrate over a large sea area within the same year and that it therefore conducted a preliminary analysis using two simple approaches to address monthly (seasonal) effects on Pacific saury density (Approach 1: year-season time steps; Approach 2: Density covariate). Japan confirmed that the VAST model can derive a similar year trend of standardized abundance index as the GLM, and that the estimated seasonal sea surface temperature (SST) effects and spatial distribution reflected the characteristics of the collected fishery data. However, there are concerns with these two approaches. First, although there is a seven-month gap between the November and December season and the August season, the degree of autocorrelation between each time step was assumed to be the same in Approach 1. Second, Approach 2 did not account for monthly autocorrelation. Japan expressed its intention to continue to further develop this analysis to address these concerns and derive a more reliable abundance index for Pacific saury using the VAST model.

7.2 Review of joint CPUE

55. Chinese Taipei presented a joint CPUE standardization of Pacific saury in the Northwestern Pacific Ocean from 1994 to 2022 using a VAST model (NPFC-2023-SSC PS11-WP12). Step plots indicated that the spatial and spatio-temporal effects had large influences on the time series of estimated CPUE among all variables compared to the other effects in VAST. The results indicated that the annual standardized CPUE trend had a fluctuating pattern over the studied periods, and the annual standardized CPUE value in 2022 was slightly decreased compared to 2021. The correlation analysis indicated that the joint index could resolve the issue of inconsistency among individual indices.
56. The SSC PS agreed to use the standardized joint CPUE as an input for the stock assessment.
57. The SSC PS noted that the current joint CPUE would reduce the uncertainty for the Pacific saury stock assessment.
58. The SSC PS noted that catchability may be a potential issue for the standardization of the joint CPUE index, such as changes of fishing equipment or fishing vessel sizes.

59. The finalized table of abundance indices is attached to the report as Annex F. A plot of Members' standardized CPUEs is attached to the report as Annex G.

7.3 Recommendations for future work

60. The SSC PS noted that the relationship between Pacific saury distribution and SST differed by area or period between the model used for the Japanese biomass survey index and the model used for the joint CPUE standardization index. The SSC suggested that Japan and Chinese Taipei examine the residual plots for their models and try to identify any hidden mechanism to explain this difference, such as sea surface height, sea surface temperature, time of day (day/night), or other environmental factors.

61. The SSC PS considered that the sharing of finer-resolution catch and effort data among Members could enable the joint CPUE standardization index to be estimated more reliably and agreed to discuss this further at SSC PS12.

Agenda Item 8. Biological information on Pacific saury

8.1 Review of any updates and progress

62. Japan presented an index of Pacific saury fecundity based on the estimated number of eggs spawned per fish per day (NESFD) of age-0 fish by winter field sampling in 2015, 2020, 2021, and 2022 (NPFC-2023-SSC PS11-WP08). Japan compared estimated NESFD of age-0 fish to that of age-1 fish provided by previous studies to understand the difference in fecundity among ages. Estimated NESFD of age-0 fish in winter was lower than that of age-1 fish in winter estimated by the previous study. The estimated NESFD of age-1 fish for other seasons was also higher than age-0 fish in winter. Furthermore, given the age-specific body weight in winter, NESFD per body weight of age-0 fish was also lower than that of age-1 fish, suggesting non-proportional fecundity to spawning stock biomass. These results stem from the lower spawning frequency and smaller amount of batch fecundity of age-0 than age-1 fish. Assuming the general rule that larger or older fish have longer spawning seasons, Japan considered that age-1 fish spawn more eggs per fish per spawning period than age-0 fish. Based on this study, Japan recommended to not assume equal fecundity for age-0 and age-1 fish when conducting stock assessments of Pacific saury using age-structured models.

8.2 Distribution and migration patterns of juvenile Pacific saury

63. No information on distribution and migration patterns of juvenile Pacific saury was provided. The SSC PS encouraged Members to present such information at SSC PS12.

8.3 Recommendations for future work

64. At the request of the SSC PS, Japan presented a plot of batch fecundity against body weight for age-0 and age-1 Pacific saury across different years and seasons, a plot of the proportion of age-0 fish that spawned during the first spawning season (PSFS) by year, and a plot of PSFS against the mean body weight of age-1 fish.
65. The SSC PS encouraged Japan to continue to update these figures as new data become available and present them at future meetings.
66. The SSC PS noted that the estimation of spawning stock biomass is difficult due to the small contribution of age-0 fish to recruitment, as well as rapid rates of growth, maturity and mortality.
67. The SSC PS encouraged Members to continue investigating the relationship between spawning stock biomass and recruitment, recognizing its importance for developing an age-structured assessment model and for setting HCRs.

Agenda Item 9. Stock assessment using “provisional base models” (BSSPM)

68. The Chair reminded the participants of the timeline for data preparation and the procedure for initial investigations among research groups (China, Japan and Chinese Taipei), which were agreed in the intersessional meetings. On behalf of the research groups, the Chair presented the combined preliminary results of their MCMC runs across the two base cases (NPFC-2023-SSC PS11-WP13).
69. The SSC PS noted that it used an accelerated stock assessment process this year to allow time for work on MSE. This was possible because BSSPM procedures are well developed and understood. It may be advisable to use the accelerated schedule in future, if possible, to allow time for work on other important topics, such as age-structured models.

9.1 Review and update of the existing specification

70. The SSC PS reviewed the existing specification of the stock assessment BSSPM and agreed to follow it again for this year’s stock assessment.

9.2 Recommendations for future work

71. The SSC PS noted that there continues to be differences in scale among the three Members’ preliminary results and agreed to continue to explore the reasons behind it.
72. The SSC PS agreed to test the code of Members’ BSSPM models in the intersessional period

prior to SSC PS12 by running all of them with the same priors and input data and comparing the results.

73. The SSC PS agreed to produce time series of the box plots of the process errors for each base model and present them at SSC PS12, and to include the median values of the process errors in the table of biomass estimates.
74. The SSC PS agreed to use the MCMC output median value and the distribution of the MCMC output as starting points for the base case operating models.
75. As a default, the SSC PS agreed to use the estimated error in the stock assessment to produce future simulated total allowable catch (TAC) estimates in the HCR simulations.

Agenda Item 10. New stock assessment models

10.1 Data available

76. Japan presented a comparison of season-, area-, and Member-specific size composition of Pacific saury using catch-at-size (CAS) data (NPFC-2023-SSC PS11-WP10). Japan conducted the study for the purpose of facilitating discussion on how to include the CAS information into stock assessment models. The fish size distributions showed distinct patterns in inshore and offshore areas in some years, seasons, and Members, indicating differences in the fish availability between the two areas. There were only three grids in which all Member's data were available during 2014–2018 (two grids in October 2016 and one grid in September 2017). The comparison of size distribution among Members also showed that the shapes of the histograms were not similar in some cases, indicating that the size selectivity varied among Members. Japan suggested that incorporating these results into the current and future stock assessment models might improve the performance of the stock assessment and, to that end, further investigation focusing on Members' tendencies in fish availability and selectivity would likely be meaningful.
77. Japan presented its updated age-length key (ALK) with data for 2022. Japan explained that it applied the age determination method set out in NPFC-2020-SSC PS06-WP16.
78. The SSC PS agreed on an interim basis to continue to use the Japanese ALK going forward. At the same time, it recognized that there may potentially be a need to develop an ALK stratified by inshore/offshore or by area and requested Japan to consider this issue and present its recommendation at SSC PS12.

79. Chinese Taipei informed the SSC PS that it has an ALK for offshore Pacific saury and offered to share it with Japan and other Members on the Collaboration site.
80. The SSC PS encouraged other Members to develop and present their own ALKs, if possible.

10.2 Review of any progress on new stock assessment models

81. Chinese Taipei presented its ongoing work to develop a preliminary stock assessment model in Stock Synthesis 3.30 (SS3) for Pacific saury in the Northwestern Pacific Ocean. Chinese Taipei first presented this work at SSC PS09 (NPFC-2022-SSC PS09-WP10).
82. The SSC PS welcomed the work done by Chinese Taipei.
83. Japan presented its previous work to develop a state-space age-structured stock assessment model for Pacific saury. Japan first presented this work at SSC PS07 (NPFC-2021-SSC PS07-WP21).
84. The SSC PS welcomed the work done by Japan.
85. The SSC PS invited other Members to also present any new stock assessment models at future meetings.

10.3 Finalization of specification for new stock assessment models

86. The SSC PS compiled a table with the specifications of the SS3 model and the state-space age-structured model presented by Chinese Taipei and Japan (Annex H).

10.4 Recommendations for future work

87. The SSC PS agreed to establish a Technical Working Group on New Stock Assessment Models (TWG NSAM) to further develop the SS3 model and the state-space age-structured model. The SSC PS agreed that, to enhance collaboration and transparency, the code for the models should be shared among the participants of the SSC PS.
88. The SSC PS agreed that, in addition to the invited expert Dr. Larry Jacobson, the Technical Working Group should also include a technical expert. The SSC PS agreed to seek candidates from among Members to serve as the technical expert or, if that is not possible, to consider seeking funding to hire an external expert. The members of the TWG NSAM are as follows: Toshihide Kitakado (Lead, Japan), Chris Rooper (Canada), Libin Dai (China), Shinichiro Nakayama (Japan), Hyejin Song (Korea), Vladimir Kulik (Russia), Yi-Jay Chang (Chinese

Taipei), Jhen Hsu (Chinese Taipei), Erin Bohaboy (USA), Ada Sokach (Vanuatu), Larry Jacobson (invited expert).

89. The SSC PS agreed that it should eventually decide on a single new model for conducting the Pacific saury stock assessment, rather than taking an ensemble approach.

Agenda Item 11. Progress on development and evaluation of an interim harvest control rule (HCR) as a short-term task

11.1 Review of conditioning of operating models (OMs)

90. The Chair presented the outcomes of previous meetings relating to management objectives, reference points, tuning criteria, conditioning of OMs, and possible/candidate HCRs, and ongoing progress towards the development and evaluation of an interim HCR as a short-term task (NPFC-2023-SSC PS11-WP17). The information in the paper had also been presented at the intersessional SSC PS meetings.
91. The Chair presented a draft paper on the specification of simulation for testing HCRs (NPFC-2023-SSC PS11-WP18) for further refinement by the SSC PS.
92. The invited expert presented an analysis of the statistical properties of potential process errors in K (carrying capacity) and r (intrinsic rate of increase) based on the 2022 Pacific saury stock assessment (NPFC-2023-SSC PS11-WP19), with the aim informing the design of the simulations for evaluating HCRs for Pacific saury. Annual overall process errors (as used in the current assessment model), process errors in r , and process errors in K can be calculated to give the same resulting biomass and annual productivity values in the last assessment. Such process errors in r and K are highly correlated ($\rho=0.75$). The invited expert suggested that there seems to be no need to conduct HCR simulations with all three types of process errors. Rather, the overall process errors are simpler, already used in the assessment model, and perhaps the best option for use in simulations.
93. The SSC PS reviewed and refined the draft specification of simulation for testing HCRs (NPFC-2023-SSC PS11-WP18 (Rev. 1)). The SSC PS requested that the SWG MSE PS continue to discuss and finalize the specification, including the management objectives, so that simulation work can commence as scheduled.

11.2 Review of candidate harvest control rules (HCRs)

94. The SSC PS reaffirmed the value of HCR2 and HCR3 in that they allow for the adjustment of the total allowable catch based on the stock assessment result one year ago during the fishing

season, which is important in light of Pacific saury's short lifespan and interannual fluctuation in recruitment strength. At the same time, the SSC PS also recognized that, compared to HCR0 and HCR1, which are simpler and commonly used, HCR2 and HCR3 include additional components that would necessitate a heavier and more time-consuming computational workload. The SSC PS also formulated an additional HCR based on a flat catch rate (HCR000) and recommended that this should be considered alongside HCR0 and HCR1 if, for example, the MSE process initially focuses on these simpler HCRs. The SSC PS requested SWG MSE PS04 to choose from the proposed HCR options in NPFC-2023-SSC PS11-WP18 (Rev. 1) and specify which options will be evaluated. The SSC PS recommended that this be a manageable number of options for meeting the deadline set by the Commission.

95. The SSC PS noted that its decisions for the HCR analysis were made early in the process and that modifications to the specifications will be required as software is developed and analyses are carried out. Such changes must be clearly described and explained to Members so they can review, agree/disagree and make suggestions. Also, the review and comment process must be fast given time constraints. The SSC PS agreed that the Chair should inform all Members of important changes, discuss them with interested Members by correspondence as necessary, and record any changes that are agreed upon. As it is necessary to complete the draft simulation work by SSC PS12, it will be important to strike the right balance between scientific detail and the development of an interim HCR in the time available.

11.3 Recommendations for future work

96. The SSC PS agreed to continue to progress its work in line with the timeline and tasks agreed to at the SWG MSE PS03 meeting (SWG MSE PS03 Report, Annex E).

Agenda Item 12. Other matters

12.1 Observer Program

97. The Science Manager reminded the SSC PS of information he had previously presented regarding the establishment of a regional NPFC observer program, including background information, the nature of Members' respective observer programs, and work done to identify data gaps and needs that could be filled by a regional observer program.
98. The SSC PS agreed that there are specific data gaps from the Pacific saury fisheries. These include age, size, weight and fecundity information from Members' catch. The implementation of a regional observer program could enable the efficient and standardized collection of data that would improve the Pacific saury stock assessment, especially as the SSC PS moves towards the use of an age-structured model and data requirements become more demanding.

99. The SSC PS agreed that there are also specific gaps in information about fishing trips and individual hauls that hinder stock assessment work (e.g., fishing locations, time, bycatch, number of hauls, SST, gear characteristics, etc.). Such data are often recorded in logbooks or by observers.
100. The SSC PS recommended that the development and implementation of a regional observer program be guided by the data needs that the SSC PS has identified.

12.2 Draft agenda, priority issues and timeline for next meeting

101. The SSC PS drafted the provisional agenda for SSC PS12.
102. The SSC PS agreed on the following priorities for the next meeting:
 - (a) Finalize technical work for evaluating HCRs.
 - (b) Review progress on the development of age-structured stock assessment models and finalize a set of models and specification.
 - (c) Review progress on the BSSPM analyses and provide management advice.
 - (d) Discuss possible effects of retrospective patterns and scaling issues on Members' assessments.

12.3 Other

103. No other issues were discussed.

Agenda Item 13. Adoption of the Report

104. The SSC PS11 Report was adopted by consensus.

Agenda Item 14. Close of the Meeting

105. The SSC PS thanked the Chair for leading a successful meeting.
106. The Chair thanked the participants for their engagement and cooperation, the invited expert for his guidance, the Secretariat and the Rapporteur for their support, and Vanuatu for hosting the meeting.
107. The meeting closed at 12:40 on 31 August 2023, Port Vila time.

Annexes:

Annex A – Agenda

Annex B – List of Documents

Annex C – List of Participants

Annex D – Terms of Reference for the Small Scientific Committee on Pacific Saury

Annex E – Revised Stock Assessment Protocol for Pacific Saury

Annex F – Updated total catch, CPUE standardizations and biomass estimates for the stock
assessment of Pacific saury

Annex G – Time series of Members' standardized CPUE and joint standardized CPUE from 1980-
2022 and Japanese survey index from 2003-2023

Annex H – Specifications of the Stock Synthesis 3 model and the state-space age-structured model

Please refer to the NPFC website for the complete annexes.

4th Meeting of the Joint SC-TCC-COM Small Working Group on Management Strategy Evaluation for Pacific Saury

31 August – 2 September 2023
Port Vila, Vanuatu (Hybrid)
Meeting Report



Agenda

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- 2.3 COM07
 - 2.3.1 CMM 2023-08 for Pacific Saury
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- 6.1 Implementation schedule of an HCR
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- 8.1 Timeline
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MEETING REPORT

Agenda Item 1. Introductory items

1.1 Opening of the meeting

1. The 4th meeting of the joint SC-TCC-COM Small Working Group on Management Strategy Evaluation for Pacific Saury (SWG MSE PS) was held in a hybrid format, with participants attending in-person in Port Vila, Vanuatu, or online via WebEx. The meeting was attended by Members from Canada, China, the European Union, Japan, the Republic of Korea, the Russian Federation, Chinese Taipei, the United States of America, and the Republic of Vanuatu. The Pew Charitable Trusts (Pew) attended as an observer. Dr. Larry Jacobson participated as an invited expert. The meeting was chaired by Dr. Toshihide Kitakado (Japan) and Mr. Derek Mahoney (Canada), the co-Chairs of the SWG MSE PS.
2. Mr. Mahoney opened the meeting and welcomed the participants.
3. Mr. Felix Toa Ngwango, Principal Compliance Officer of the Vanuatu Fisheries Department, welcomed the participants to Vanuatu and stated that their presence was an expression of their shared commitment to the advancement of collective goals. He also noted that SSC PS11 had concluded successfully with highly fruitful discussions, and hoped that this momentum and spirit of cooperation would be maintained during the SWG MSE PS. Lastly, Mr. Ngwango expressed his hope that the collective efforts of the SWG MSE PS would contribute to the wellbeing of the Pacific saury stock.

1.2 Adoption of agenda

4. The agenda was adopted without revision (Annex A). The List of Documents and List of Participants are attached (Annexes B, C).

1.3 Meeting logistics

5. The Science Manager, Dr. Aleksandr Zavolokin, outlined the meeting arrangements.
6. Mr. Alex Meyer was selected as rapporteur.

Agenda Item 2. Overview of the outcomes of previous NPFC meetings

2.1 SWG MSE PS03

7. Dr. Kitakado (hereafter “co-Chair”) presented the outcomes and recommendations from the SWG MSE PS03 meeting.

2.2 SSC PS11

8. The co-Chair presented the outcomes and recommendations from the 11th Meeting of the Small Scientific Committee on Pacific Saury (SSC PS11).

2.3 COM07

2.3.1 CMM 2023-08 for Pacific Saury

9. The Science Manager presented the outcomes from the 7th Commission meeting, including an overview of Conservation and Management Measure (CMM) 2023-08 for Pacific Saury.

2.3.2 NPFC Performance Review

10. The Science Manager presented an overview of the NPFC Performance Review and outlined some recommendations from the Performance Review report that concern Pacific saury.
11. The co-Chair informed the SWG MSE PS that, in consultation with Mr. Mahoney, he would draft the proposed response to these recommendations while liaising with the SC Chair and the Secretariat by the next SWG MSE PS meeting in January 2024.

2.3.3 Resolution on Climate Change

12. The Science Manager presented an overview of the Resolution on Climate Change.

Agenda Item 3. Overview of MSE

3.1 Roles of SWG MSE PS in the NPFC process

3.2 Basic principles of MSE

3.3 Roles of harvest control rules (HCRs) and management procedures (MPs)

13. The co-Chair presented an overview of an MSE process (NPFC-2023-SWG MSE PS04-IP01), including the role of the SWG MSE PS, the basic principles of an MSE, the roles of harvest control rules (HCR) and management procedures (MP), and the advantages of MPs under MSE over traditional approaches.

14. The SWG MSE PS noted that tuning is often a part of other regional fisheries management organizations' (RFMOs') MSE processes but that the SSC PS had agreed not to conduct tuning as there are still multiple candidate HCRs being considered and it is not possible to set the tuning criteria.
15. The SWG MSE PS noted the importance of using consistent terminology when discussing the MSE process and that sometimes, multiple terms are used to describe the same concept, for example “performance indicators,” “performance measures,” and “performance metrics,” which can cause confusion. In this particular case, the SWG MSE PS indicated its preference for the term “performance indicators.”

3.4 Examples in other RFMOs

16. Pew gave a presentation on examples of MSE processes from other RFMOs and publicly available resources for better understanding the MSE process (NPFC-2023-SWG MSE PS04-OP01).
17. The SWG MSE PS suggested that it may be worthwhile reviewing other RFMOs' MSE processes for other species that, like Pacific saury, are short-lived.

3.5 Quick demonstration of MSE

18. The co-Chair presented a quick demonstration of how an MSE works using a Shiny application.
19. The co-Chair explained that he would make the current version of the Shiny application available to Members as a demonstration tool, so that they could try testing various HCRs and parameters for better understanding the MSE process. He cautioned that the current version does not include the latest data and has not been adjusted to reflect the discussions of SSC PS11. He further explained that, to conduct the final simulations, he would use a tool that has a different user interface to the Shiny application but has the same underlying code, while using the most up-to-date data and updating the specifications to reflect the discussions of SSC PS11 and SWG MSE PS04.
20. The invited expert suggested that it would be useful to keep track of the various runs that Members conduct using the Shiny application and suggested that all output graphs should describe the following information:
 - (a) Parameters used
 - (b) Date run

- (c) Version number of the Shiny application
- (d) Name of user
- (e) Indication that this is a “draft” simulation

3.6 Discussion

21. The SWG MSE PS agreed that including economic factors, such as relative revenue, cost and profit, as performance indicators, would be useful for communicating the potential impact of different HCRs to managers and stakeholders. However, the SWG MSE PS acknowledged that it may be difficult to develop such performance indicators for the short-term HCR and perhaps they would be more appropriate for the longer-term MSE process.

Agenda Item 4. Review progress on development of an HCR as a short-term task

22. The SWG MSE PS reviewed and finalized the draft specification of simulation for testing HCRs prepared by SSC PS11 (Annex D).

4.1 Management objectives, reference points and tuning criteria

23. The SWG MSE PS reviewed and updated the three types of management objectives discussed at SWG MSE PS01, SWG MSE PS02, and SWG MSE PS03. The SWG MSE PS agreed to continue discussions around these three objectives below, putting higher priority on (a).
 - (a) Recovery of the stock (prioritized objective):
 - i. The stock status is recovered above B_{tar} within 5 years with 50% probability.
 - ii. The stock status is maintained above the B_{tar} level in each of years 6-10 with 50% probability.
 - (b) Avoiding unsustainable state of the stock (secondary objective):
 - i. The annual probability in each of years 6-10 that the stock drops below B_{lim} should not exceed 10%.
 - ii. The annual probability in each of years 6-10 that fishing mortality is above F_{lim} should not exceed 10%.
 - (c) Achieving high and stable catch (tertiary objective):
 - i. Average catch over years 6-10 is as high as possible.
 - ii. Catch in each of years 6-10 is as stable as possible.
24. The SWG MSE PS noted that numerical specifications such as probabilities and target years stated in the objectives above may require adjustment after the simulation is carried out if none of the evaluated HCRs can meet the management objectives.
25. The SWG MSE PS considered the three target reference points considered by the SSC PS and

agreed to use the target reference point based on B_{MSY} , noting that the Convention stipulates that measures shall ensure fisheries resources are maintained at or restored to levels capable of producing MSY, and that MSY-based reference points are commonly used in many other RFMOs.

4.2 Conditioning of operating models (OMs)

26. The SWG MSE PS noted the previous discussions on the conditioning of OMs by the SWG MSE PS and the SSC PS and updated the OM specifications.
27. The SWG MSE PS agreed to include additional process error assumptions as sensitivity analyses taking into account past periods of high and low productivity. The sensitivity analyses will help to evaluate the potential decadal variation of population dynamics identified in previous studies for the Pacific saury stock.
28. The SWG MSE PS noted that changes in the productivity of the system will violate assumptions of stationarity in models, thus changing MSY, B_{MSY} , F_{MSY} and the speed of stock response to environmental change and/or fishing. This should be explored in future simulations examining the process errors in the determination of stock status and management procedures when developing the future full MSE framework.
29. The SWG MSE PS agreed on a reference scenario and two sensitivity scenarios for simulating the process error as follows:

| | Model | Value | Note | Scenario |
|----|--|---------------------------------------|---|--|
| M1 | IID log-normal assumption | Process error ~ $N(0, \tau^2)$ | Tau is a median process error CV in 2023 BSSPM. | Reference scenario |
| M2 | IID log-normal assumption with a mean adjustment | Process error ~ $N(-0.15, \tau^2)$ | | (Sensitivity scenario) “Climate impacts cause negative productivity” scenario |
| M3 | IID log-normal assumption with a mean adjustment | Process error ~ $N(0.1, \tau^2)$ | | (Sensitivity scenario) “Climate impacts cause positive productivity” scenario |

30. The SWG MSE PS noted that asymmetrical assumptions of negative and positive process errors are appropriate because 0.15 is the approximate average of historical process errors during a less productive period and 0.1 is the approximate average of historical process errors during a productive period.

4.3 Candidate HCRs and constraints therein

31. The SWG MSE PS considered the candidate HCRs and the constraints therein. The SWG MSE PS indicated its preference for HCR1 as the short-term HCR. The SWG MSE PS agreed to also run simulations to test HCR0 as a contrast for evaluating HCR1. The SWG MSE PS reaffirmed the potential value of HCR2 and HCR3 in that they allow for the adjustment of the total allowable catch based on the stock assessment result one year ago during the fishing season, which is important in light of Pacific saury's short lifespan and interannual fluctuation in recruitment strength, but recognized that their development and analysis would require additional time and that they were therefore not appropriate for consideration for the short-term HCR. The required analyses will be deferred until after the development of age-structured models, which may alleviate some of the problems with lags in the management process.

32. Regarding additional elements for the specification of HCRs, the SWG MSE PS agreed to add consideration of a range of constraints, including no constraint, for the maximum allowable change (MAC) in TAC.

4.4 Performance indicators

33. The SWG MSE PS reviewed and updated the performance indicators discussed at SWG MSE PS01, SWG MSE PS02, and SWG MSE PS03 (Annex D).

4.5 Simulation platform

34. The co-Chair reiterated that he would update the simulation platform with the most up-to-date data and specifications that reflect the discussions of SSC PS11 and SWG MSE PS04.

4.6 Template for presentation of results

35. The SWG MSE PS agreed to continue to discuss how to present the results of the MSE, noting the importance of clear communication and ease of understanding.

4.7 Other matters

36. No other matters were discussed.

Agenda Item 5. Discussion toward development of management procedures (MPs) as a mid-term goal

5.1 Management objectives and some constraint conditions for the regulation of fishery

5.2 Technical matters on operating models, MPs, performance measures and simulation

37. The SWG MSE PS agreed to focus on its short-term goal until sufficient progress is made and

to defer discussions on its mid-term goal.

Agenda Item 6. Implementation schedule and safeguard for exceptional circumstances

6.1 Implementation schedule of an HCR

38. The SWG MSE PS reviewed and maintained the implementation schedule agreed to at the SWG MSE PS03 meeting (Annex D).

6.2 Mid-term plan of implementation and its review process

39. The SWG MSE PS agreed to focus on its short-term goal until sufficient progress is made and to defer discussions on its mid-term goal.

6.3 Definition of exceptional circumstances

40. The SWG MSE PS agreed not to define exceptional circumstances at this time. The SWG MSE PS noted that it would review the results of the MSE simulations at its next meeting and could consider whether or not the definition of exceptional circumstances is necessary at that time.

Agenda Item 7. Other matters

41. The SWG MSE PS noted the importance of capacity building efforts, such as multiple rounds of workshops, to facilitate deeper understanding of MSE and associated elements, such as HCRs by managers and stakeholders including the possible need for resources from NPFC.

Agenda Item 8. Timeline and future process

8.1 Timeline

42. The SWG MSE PS reviewed the timeframe agreed to at SWG MSE PS03 and updated it (Annex E).

8.2 Future process with assistance of SSC PS

43. The SWG MSE PS noted that the results of the MSE simulation would be presented at SSC PS12 for technical feedback and that the final results would be presented at SWG MSE PS05.

8.3 Workplan till SWG MSE PS05 meeting

44. The SWG MSE PS re-affirmed a workplan of intersessional activities until the 5th SWG MSE PS meeting and 8th Commission meeting (Annex E).

Agenda Item 9. Recommendations to the Commission

45. The SWG MSE PS recommends that the Commission consider capacity building efforts to facilitate deeper understanding of MSE and HCRs by managers and stakeholders, such as

holding multiple rounds of workshops.

46. The SWG MSE PS confirmed that the invited expert, Dr. Larry Jacobson, would be invited to the next SWG MSE PS meetings.
47. The SWG MSE PS reaffirmed that future meetings should include scientists, managers and stakeholders to facilitate communication and completion of this important work.

Agenda Item 10. Adoption of report

48. The SWG MSE PS04 Report was adopted by consensus.

Agenda Item 11. Close of the meeting

49. The co-Chair thanked the participants for their constructive engagement and productive discussions, the invited expert for his guidance, the Secretariat and the rapporteur for their support, and Vanuatu for its hospitality.
50. The meeting closed at 10:35 on 2 September 2023, Port Vila time.

Annexes:

Annex A – Agenda

Annex B – List of documents

Annex C – List of participants

Annex D – Specification of simulation for testing HCRs

Annex E – Timeline and tasks

Please refer to the NPFC website for the complete annexes.

7th Meeting of the Technical Working Group on Chub Mackerel Stock Assessment

4–7 September 2023
Port Vila, Vanuatu (Hybrid)
Meeting Report



Agenda

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- 7.1 Review of the table of options for the basic specifications of conducting future

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8.1 Review of the table of candidate biological reference points for chub mackerel

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10.1 Timeline and intersessional activities before TWG CMSA08

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MEETING REPORT

Agenda Item 1. Opening of the Meeting

1. The 7th Meeting of the Technical Working Group on Chub Mackerel Stock Assessment (TWG CMSA) was held in a hybrid format, with participants attending in-person in Port Vila, Vanuatu, or online via WebEx. The meeting was attended by Members from Canada, China, the European Union (EU), Japan, the Russian Federation, the United States of America, and the Republic of Vanuatu. An invited expert, Dr. Joel Rice, participated in the meeting.
2. The meeting was opened by Dr. Kazuhiro Oshima (Japan), the TWG CMSA Chair, who welcomed the participants. He expressed his appreciation to be able to hold the meeting in beautiful Vanuatu and thanked the Government of the Republic of Vanuatu for hosting the meeting.
3. Mr. Sompert Gereva, Director of Fisheries, welcomed the participants to Port Vila on behalf of the host Member. He expressed Vanuatu's pleasure to host the TWG CMSA meeting and welcomed the successful conclusion of the two Pacific saury-related meetings in the previous week. Mr. Gereva expressed his hope that the discussions would be productive and that the participants' joint efforts would foster progress and collaboration in the chub mackerel stock assessment work.
4. The Executive Secretary, Dr. Robert Day, hoped that the TWG CMSA meeting would be as successful and productive as the previous week's Pacific saury-related meetings and expressed his gratitude to Vanuatu for its continued hospitality and support.
5. The Science Manager, Dr. Aleksandr Zavolokin, outlined the procedures for the meeting.
6. Mr. Alex Meyer was selected as rapporteur.

Agenda Item 2. Adoption of Agenda

7. The agenda was adopted without revision (Annex A). The List of Documents and List of Participants are attached (Annexes B, C).

Agenda Item 3. Overview of the recommendations and outcomes of previous NPFC meetings relevant to chub mackerel

3.1 6th TWG CMSA

8. The Chair provided an overview of the outcomes and recommendations of the 6th TWG CMSA meeting and the progress made in the preceding meetings of the TWG CMSA and the Small Working Group on Operating Model for Chub Mackerel Stock Assessment.

3.2 Intersessional meetings of TWG CMSA

9. The Chair provided an overview of the 1st and 2nd intersessional meetings of the TWG CMSA held in May and June 2023 (NPFC-2023-TWG CMSA07-RP01 and RP02).

3.3 COM07

10. The Science Manager presented the outcomes from the 7th Commission meeting and highlighted the interest in the timeline for the stock assessment of chub mackerel expressed by Commission Members, who considered the work on chub mackerel to be a priority and looked forward to its timely completion.

3.3.1 NPFC Performance Review

11. The Science Manager presented an overview of the NPFC Performance Review and outlined some recommendations from the Performance Review report that concern chub mackerel.
12. The Chair will draft the proposed response to the recommendations of the Performance Review for consideration by Members at the next TWG CMSA meeting.

3.3.2 Resolution on Climate Change

13. The Science Manager presented an overview of the Resolution on Climate Change.
14. The TWG CMSA requested Members to share relevant fisheries and research information on the impact of climate change, such as the impact of climate change on the distribution of chub mackerel, at future meetings.
15. The TWG CMSA agreed to reflect its response to the Resolution on Climate Change in the Stock Assessment Protocol and the TWG CMSA Work Plan and held further discussions under

agenda items 6.4 and 9, respectively.

16. The TWG CMSA noted that the biological parameters of chub mackerel are affected by environmental factors, such as climate change, and also density-dependent factors. The TWG CMSA agreed to include consideration of the impact of density-dependent and density-independent factors on the biological parameters of chub mackerel in its agenda at future meetings.
17. The invited expert pointed out that the combination of direct and indirect effects of climate change, confounded with historical fishing effects, is producing a density-dependent effect, and that both involve complex spatio-temporal effects. He suggested that spatio-temporal effects should be considered in the standardization of catch-per-unit-effort (CPUE) indices, and recommended that Members take a collaborative approach and pool their data to explore the effects of climate change.

Agenda Item 4. Member's fisheries status and research activities

18. China presented a review of its chub mackerel fishery and research activities (NPFC-2023-TWG CMSA07-IP02). In 2022, China operated 105 purse seine vessels and 2 trawl vessels in the Convention Area. Most catch occurred between 42 and 44 degrees north latitude. The catch in 2022 was approximately 83,000 MT, a decrease from 2021 but an increase from 2020. CPUE has been decreasing in recent years, perhaps due to the effects of climate change. The average length of caught individuals was 221 mm. The trend in average fork length from 2016–2021 was a gradual increase to a stable level. The main ages at catch in 2022 were from 1+ to 3+. China collects and analyzes fishing logbooks every year, sends specialist research staff to fishing vessels or ports to collect sample data, monitors the monthly ratio of chub mackerel and blue mackerel in catch, and conducts monitoring of biological features.
19. Japan presented a review of the recent fishery and stock status of chub mackerel (NPFC-2023-TWG CMSA07-IP04). Japan first reminded the TWG CMSA that chub mackerel makes a northward migration for feeding from April to July, followed by a southward migration for wintering from August to March. Japan's catch comes from large-scale purse seine vessels, small-scale purse seine vessels, set nets, and dip nets and other gears. The majority of catch is from large-scale purse seine vessels. Catch declined substantially in fishing year (FY) 2022 (July 2022 to June 2023) to approximately 95,000 MT, which was half of the level in FY2021 and one-third of the level in FY2020. Purse seine catch in FY2022 fell to a 30-year low. Japan conducts its stock assessment by fishing year and doing so enables inclusion of a single peaked catch season within a year. The substantial catch of chub mackerel is between November and spring months. The age classes for Japanese fleets' catch-at-age data were evenly distributed

in 2021. Based on the footprint data, catch of mackerels by Russia and Japan declined from 2021 to 2022. Meanwhile, chub mackerel catch by Chinese fleets has stayed at a similar level, but CPUE has declined. Japan's 2022 summer midwater trawl survey found that the recent expansion of the chub mackerel distribution eastward has resulted in increased appearance of age 1+ fish in the survey area. The 2022 autumn midwater trawl survey showed that chub mackerel is broadly distributed in the survey area. The 2022 egg survey found that egg density was high between March to June, with a similar pattern in 2021.

20. The TWG CMSA requested Japan to share any available gear-specific catch and effort information at TWG CMSA08.
21. Russia presented a review of its chub mackerel fishery and research activities in 2022 (NPFC-2023-TWG CMSA07-IP01). In 2022, the main fishing grounds were in the Japanese exclusive economic zone (EEZ) from January to March, before shifting to the Russian EEZ in June, and then back to the Japanese EEZ in December. Monthly CPUE was highest in January, February, March, and December. Monthly catch was highest in January, February, and December. From 2016 to 2022, total annual catch was highest in 2018, followed by 2021 (87,388 MT), and has declined significantly in 2022. In terms of research activities, Russia conducted two multipurpose and multispecies trawling surveys in the upper epipelagic zone of the Northwestern Pacific Ocean in 2022, the first in June and the second in September.
22. The TWG CMSA requested Members to present and explain the methods they use to estimate catch-at-age data.
23. The TWG CMSA requested Members to present more detailed fleet descriptions, including gear specifications/configuration.

Agenda Item 5. Selection of stock assessment model(s) for chub mackerel

5.1 Project overview and methods development for the testing and evaluation of stock assessment models

24. Japan presented a study on simulated responses of summary performance metrics to varying model complexity (NPFC-2023-TWG CMSA07-WP06). Japan found that simple simulation testing shows that summary metrics (or performance metrics) responded to varying model complexity differently and that the median relative bias (MedRB) and the median absolute relative bias (MedARB) showed better scores when the model complexity is correct than the coefficient of variation (CV) and root mean squared error (RMSE). Considering the bias-variance tradeoff, Japan recommended that the first priority be placed on MedARB as the main summary metric.

25. The EU informed the TWG CMSA that it would provide more detailed usage examples in Europe for inclusion in the table of qualitative attributes of the candidate stock assessment models (Annex D) following the meeting.

5.2 Summary of performance and ranking of the stock assessment model candidates and their characteristics

5.2.1 Recommendations from the external expert

26. The invited expert presented a consolidation and review of performance measures, a detailed summary of model performance, and ranking of the stock assessment model candidates (NPFC-2023-TWG CMSA07-WP02) and his recommendation on a stock assessment model platform based on work completed as part of the TWG CMSA assessment modeling project (NPFC-2023-TWG CMSA07-WP03). The invited expert explained that the TWG CMSA conducted an analysis of uncertainty following the methods of Deroba et al (1995) to test the robustness of four stock assessment models to error via simulation, the results of which could help develop guidelines for the selection of a stock assessment model, and that the details of the ranking of performance measure and choice of summary metrics were developed through intersessional work conducted since the TWG CMSA06 meeting in September 2022.
27. Based on the comparison, with respect to the models investigated in this project (Age Structured Assessment Program (ASAP), cohort analysis with Kalman filter (KAFKA), state-space assessment model (SAM), virtual population analysis (VPA)), the invited expert recommended the SAM as the model for stock assessment of chub mackerel.
28. The TWG CMSA's report for the TWG CMSA assessment modeling project is attached as Annex E.

5.3 Final agreement on stock assessment model(s) and procedures in TWG CMSA

29. The TWG CMSA endorsed the report presented by the invited expert and agreed to use SAM as the model for stock assessment of chub mackerel.
30. In the model selection process, the TWG CMSA noted the following issues, which should be considered in the finalization of the stock assessment model:
 - (a) Mohn's rho calculated based on the fits to the pseudo data was not considered in the final ranking of the stock assessment models.
 - (b) Among the models considered, there are different levels of performance among the variable types (i.e. State, BRP, RFI etc.).
 - (c) There appear to be trends in the chosen Summary Metric (MedARB) for some annual

performance measures (i.e. total biomass) among some assessment models.

- i. This may be due to the nature of time series analysis (i.e. the most recent years often have less data to inform estimation).
- ii. The uncertainty in recent years may have impact on fisheries management for this stock.
- iii. Interpretation of the basis from which the stock status is estimated should take uncertainty in recent years into account as is done in other RFMOs.

- (d) It is important that the Biological Reference Points (MSY related) and Depletion as well as state variables be well estimated, because they will impact the Harvest Control Rule. For the estimation of scale, total biomass is important.
- (e) Some models failed to estimate state variable without bias even in self-test, indicating a lack of consistency, and a need for further model improvement.

31. As future work, the TWG CMSA agreed to conduct sensitivity analyses to better understand the effect of catch uncertainty, given that chub mackerel catch is taken from mixed fisheries.

32. The TWG CMSA thanked the invited expert for his great support and contributions to the stock assessment model evaluation project.

Agenda Item 6. Preparations for stock assessment of chub mackerel

6.1 Review of biological parameters

33. Japan presented its chub mackerel weight-at-age and maturity-at-age data, as well as a comparison with China's weight-at-age and maturity-at-age data (NPFC-2023-TWG CMSA07-WP13). Japan found that in some year classes, Chinese weight-at-age data from a particular cohort exhibit a similar pattern to Japanese weight-at-age data from a previous year class. As for maturity-at-age, Japanese data show maturation from around age 3 with full maturation at age 4 at a weight of around 300-400g, while Chinese data show maturation from age 1-2 and a weight-at-maturity of around 80-190g. Japan suggested that it is necessary to continue to conduct comparisons to determine how the data are prepared for the weight-at-age analysis, to understand how the age analysis of samples is performed among Members, and to clarify maturity-at-age methodologies among Members are consistent.

34. China explained that its chub mackerel samples are taken at a different time and from a different area to Japan's samples.

35. At the request of the TWG CMSA, Japan presented an updated comparison of Japan and China's quarterly weight-at-age data up to 2022. The TWG CMSA noted that for ages 0-4, there is much overlap between Chinese weight-at-age data at age t and Japanese weight-at-age

at age t-1 up to 2020, but Japanese weight-at-age data are still larger than Chinese weight-at-age data in 2021–2022. The TWG CMSA noted that for ages 4+, there is a similar pattern among Chinese and Japanese weight-at-age data for ages 4–5, but Chinese weight-at-age data for ages 5–6 is much larger than Japanese weight-at-age data for ages 7+.

36. To develop a common understanding on the difference of weight-at-age among Members, the TWG CMSA requested Members to share their available quarterly or monthly catch-at-length data, length-weight relationship parameters, and length-frequency data in proportion in the intersessional period. The TWG CMSA agreed to use the data-sharing template that Japan used for blue mackerel and Japanese sardine and requested Japan to upload the template to the [NPFC Collaboration site](#).
37. China presented a description of its available data (NPFC-2023-TWG CMSA07-IP03). China explained its methodologies for sampling, ALK development, and estimating catch-at-age from the ALK, and presented its data for length and age distribution, length-weight relationship, catch-at-age, and number-at-age.
38. China presented the monthly catch data and distribution of chub mackerel fishing grounds for its purse seine fleet (NPFC-2023-TWG CMSA07-WP09), and the monthly catch data for its purse seine and pelagic trawl fleets (NPFC-2023-TWG CMSA07-WP10).
39. The TWG CMSA noted the importance of Members using the same methodologies to measure/observe biological parameters. The TWG CMSA requested Members to share their methodologies, including for aging and determining maturity, and to identify and discuss differences among them, as a first step towards developing a protocol for common methodologies.
40. The TWG CMSA reviewed and updated the table of data potentially available for stock assessment of chub mackerel ([Data availability for CMSA](#)).

6.2 Intersessional works on fishery data (catch-at-age, weight-at-age, maturity-at-age, if possible)

6.2.1 Calendar to be applied to stock assessment on chub mackerel

41. Japan presented the results of simple simulations for determining the timing for aging and defining fishing year in the stock assessment of chub mackerel (NPFC-2023-TWG CMSA07-WP08). Japan used biological parameters and fisheries scenarios similar to those of chub mackerel in the Pacific to observe how and to what extent potential biases can occur in the abundance estimation when different fisheries use different definitions of fishing year and timing for aging in creating annual catch-at-age data. Based on the results, Japan recommended

that a consistent definition of fishing year and timing for aging be used across fisheries to avoid potential biases in abundance estimation. In addition, because average annual weight-at-age is likely to differ among fisheries due to different fishing seasons even though the weight-age relationships of the population are consistent, the single weight-at-age representing the population should be used when evaluating total abundance, while fishery-specific weight-at-age could be used in calculating total catch weight by fishery. Quarterly catch-at-age data between calendar and fishing years can be converted as long as quarterly catch-at-age data are available. Furthermore, total catches by fishing year can be converted into catches by calendar year when quarterly catch-at-age and weight-at-age data are available. Therefore, it is important to continuously collect quarterly-based catch-at-age and weight-at-age data.

42. The TWG CMSA agreed to consider and compare the application of different definitions of year as follows:
 - (a) Application of fishing year (July-June) will be used as a base case. For Chinese quarterly catch data, which are not available from 2014 to 2017, a method to convert the annual catch for this period into the fishing year basis should be developed prior to the TWG CMSA08 meeting.
 - (b) A case where each fleet applies their own calendar will be a sensitivity case as a backup of the base case.

6.3 Intersessional works on abundance indices

43. Russia presented research on new predictors for tracking the habitat of chub mackerel (NPFC-2023-TWG CMSA07-WP05 (Rev. 1)). Using data from scientific trawl tracks from February 2021 to May 2023 that record the occurrence or absence of chub mackerel, Russia estimated the variable importance and confidence intervals of a variety of environmental characteristics related to Lagrangian water properties and sea surface temperature (SST) for chub mackerel encounter probability. Russia found that SST from the 0 level from the NEMO and HYCOM models (wT00 and wT0, respectively) had lower importance than water temperature at the 1 level of the NEMO model (wT1), which is approximately at 1.5 m depth, and that Lagrangian characteristics (Lyapunov exponent (L) and the length of passive tracers' trajectories back calculated in time for 15 days (S)) had higher importance than other speed-based variables, but lower importance than variables related to productivity. Russia hoped that the further development of this work would help in the monitoring of the stability of suitable areas for fishing of chub mackerel, which should be useful during interpretation of Russian CPUE fluctuations. Russia requested other Members to compare its estimates of encounter probability with their actual catch data and share the comparison results.
44. Russia presented a standardization of CPUE data for chub mackerel caught by its trawl fishery

from 2015 to 2021 using generalized additive models (GAM) (NPFC-2023-TWG CMSA07-WP04). Russia recommended using the standardized CPUE derived from GAM as input for the stock assessment.

45. The TWG CMSA suggested some technical improvements for Russia's CPUE standardization in relation to:
 - (a) The method for selecting data to be used with consideration for targeting;
 - (b) The method for computing the index and confidence interval;
 - (c) Including the annual spatial distribution of catch and effort;
 - (d) Including a table showing estimated fixed-effect parameters and their standard deviation.
46. China presented a standardization of CPUE data for chub mackerel from 2014 to 2022 (NPFC-2023-TWG CMSA07-WP11) using a generalized linear model (GLM) and a GAM. China recommended using the standardized CPUE derived from GAM as input for the stock assessment.
47. Japan noted that the catch proportion of Japanese sardine has increased largely, even higher than chub mackerel, in recent years for Members. Therefore, Japan requested Members to consider this influence during their CPUE standardization.
48. The TWG CMSA noted that Members seemed to have difficulty reviewing each other's CPUE standardizations because not enough information was included in the working papers for understanding and assessing them. The TWG CMSA noted the need to agree on a standardized set of information that should be provided when sharing CPUE standardizations and discussed this further when reviewing and updating the CPUE Standardization Protocol. The TWG CMSA agreed that the sharing of CPUE standardization code would also be useful.

6.3.1 Review and update of the CPUE Standardization Protocol

49. The TWG CMSA reviewed and updated the CPUE Standardization Protocol (Annex F). The TWG CMSA began work to develop a template for presenting Members' CPUE standardizations (NPFC-2023-TWG CMSA07-WP15) and agreed to finalize it during the intersessional period. The template will be attached to the CPUE Standardization Protocol.

6.4 Review of the Stock Assessment Protocol for Chub Mackerel

50. The TWG CMSA reviewed and updated the Stock Assessment Protocol for Chub Mackerel (Annex G).

6.5 Possible settings and specification of stock assessment model

51. Japan presented a detailed description of SAM and an R package of SAM (“frasam”) developed for the stock assessment of chub mackerel, and provided a demonstration of SAM’s flexibility (NPFC-2023-TWG CMSA07-WP07). Japan explained that SAM can mimic the structures and assumptions of the other candidate models (ASAP, KAFKA, and VPA) and can incorporate the uncertainty of fixed parameters using different scenarios of natural mortality as an example.
52. Japan presented a draft table of possible settings and specification of SAM (NPFC-2023-TWG CMSA07-WP14).
53. The TWG CMSA reviewed and revised the draft table of possible settings and specification of SAM (Annex H). The TWG CMSA agreed to continue to discuss the settings and specification, conduct a preliminary run prior to TWG CMSA08 and present the results at TWG CMSA08, and finalize the settings and specification of SAM at TWG CMSA09.

6.6 Recommendations on preparations for stock assessment

54. The TWG CMSA agreed to:
 - (a) submit input data such as quarterly catch-at-age, weight-at-age, and maturity-at-age (or annual data if quarterly data are not available) to be analyzed and aggregated through collaborative work among Members in a transparent manner with a written report, including methodology, with participants from China, Japan, and Russia as authors.
 - (b) share available quarterly or monthly catch-at-length data, length-weight relationship parameters, and length-frequency data in proportion in the intersessional period using the template on the NPFC Collaboration site to develop a common understanding on the difference of weight-at-age among Members.
 - (c) consider and compare the application of different definitions of year as follows:
 - i. Application of fishing year (July-June) will be used as a base case. For Chinese quarterly catch data which are not available from 2014 to 2017, a method to convert the annual catch for this period into the fishing year basis should be developed prior to the TWG CMSA08 meeting.
 - ii. A case where each fleet applies their own calendar will be a sensitivity case as a backup of the base case.
 - (d) finalize the template for presenting CPUE standardizations during the intersessional period.
 - (e) present updated CPUE standardizations at TWG CMSA08 using the CPUE standardization template and following the updated CPUE Standardization Protocol.
 - (f) follow the updated Stock Assessment Protocol.
 - (g) continue to discuss the settings and specification of SAM, conduct a preliminary run prior to TWG CMSA08 and present the results at TWG CMSA08, and finalize the settings and

specification of SAM at TWG CMSA09.

Agenda Item 7. Future projection of chub mackerel

7.1 Review of the table of options for the basic specifications of conducting future projections for chub mackerel

55. The TWG CMSA reviewed and updated the table of possible options for the basic specifications for conducting future projections for chub mackerel (Annex I). The TWG CMSA agreed to continue to discuss and develop the table and determine provisional specification and setting towards TWG CMSA09.

Agenda Item 8. Biological reference points

8.1 Review of the table of candidate biological reference points for chub mackerel

56. The TWG CMSA reviewed the table of candidate biological reference points for chub mackerel drafted by the invited expert and TWG CMSA06. The TWG CMSA agreed to base its future discussions on the following candidate biological reference points:

- (a) F-based reference points
 - i. F_{MSY}
 - ii. $F\%SPR$
 - iii. $F_{0.1}, F_{max}$
- (b) Biomass-based reference points (including SSB, summary biomass, etc.)
 - i. B_{MSY}
 - ii. $\%B_0$
 - iii. Certain historical level of B

Agenda Item 9. Review of the Work Plan of the TWG CMSA

57. The TWG CMSA reviewed and updated the Work Plan of the TWG CMSA (NPFC-2023-TWG CMSA07-WP01 (Rev. 1)). The TWG CMSA confirmed its intention to complete the first chub mackerel assessment in 2024.

Agenda Item 10. Other matters

10.1 Timeline and intersessional activities before TWG CMSA08

58. The TWG CMSA drafted a timeline and activities from the conclusion of TWG CMSA07 to February 2024 (Annex J).

59. The TWG CMSA agreed to create input data such as catch-at-age, weight-at-age and maturity-at-age data in a collaborative manner towards the TWG CMSA08 meeting. Counterparts from Members will develop the input data through email communication/online meeting.

60. The TWG CMSA discussed the schedule of its meetings in 2024 financial year. The TWG CMSA confirmed that it will hold a meeting in autumn 2024 and may hold one more meeting in 2024, if it will be needed to finalize the stock assessment for chub mackerel.
61. The TWG CMSA discussed developing an online private git repository to develop and share code. The TWG CMSA agreed to use and update the git repository and the NPFC Collaboration site in parallel to ensure that all Members have access to the latest code. Members agreed to develop a working paper for developing general protocols and guidelines for using git repositories for joint data analysis projects and present it at SC08.
62. The EU offered to create a manual that would provide simple directions as to how Members could use git.

10.2 Observer Program

63. The Science Manager reminded the TWG CMSA of information he had previously presented regarding the establishment of a regional NPFC observer program and summarized the relevant discussions from the TWG CMSA05 and TWG CMSA06 meetings.
64. The TWG CMSA noted that after it conducts its first chub mackerel stock assessment, it would have a better understanding of potential data gaps and which of these gaps could be filled by a regional NPFC observer program.

10.2.1 Review data or data description on fisheries bycatch in the chub mackerel fisheries

65. China presented a data description of the fisheries bycatch in its chub mackerel fisheries (NPFC-2023-TWG CMSA07-WP12). China explained that it catches chub mackerel and Japanese sardine as part of mixed-species fisheries. Most of its chub mackerel and sardine catches were harvested by the lighting purse seine fishery. The Japanese sardine catch increased from a very low level in 2014 to a peak (266,615 MT) in 2022. Squid and saury are bycatch or inevitable catch in the mackerel fisheries, and the annual output and proportion were very low, whether in the purse seine or trawl fisheries. The catch of other pelagic fish species was also very low.
66. Japan informed the TWG CMSA that it would provide information on bycatch from its chub mackerel fisheries at TWG CMSA08. Japan explained that it would be able to provide more accurate information for its purse seine fleet operating in northern waters, which is its main fleet, and that it would be difficult to provide accurate information about its other fisheries, such as its set net and dip net fisheries, which are very small in scale.

10.3 Species summary

67. The Chair explained that, due to unforeseen circumstances, he had not been able to draft a species summary for chub mackerel. The TWG CMSA agreed to develop the species summary intersessionally for submission to SC08.

10.4 Other issues

68. The EU explained the importance of sharing qualitative information on Members' biological data collection programs (NPFC-2023-TWG CMSA07-IP05) and presented a draft template for describing details of sampling design and estimation of chub mackerel catch (NPFC-2023-TWG CMSA07-IP06).

69. The TWG CMSA thank the EU for initiating this work and invited Members to work collaboratively with the EU to develop the template further.

Agenda Item 11. Recommendations to the Scientific Committee

70. The TWG CMSA agreed to:

- (a) share relevant fisheries and research information on the impact of climate change, such as the impact of climate change on the distribution of chub mackerel, at future meetings.
- (b) include consideration of the impact of density-dependent and density-independent factors on the biological parameters of chub mackerel in its agenda at future meetings.
- (c) present and explain the methods used by Members to estimate catch-at-age data.
- (d) present more detailed fleet descriptions, including gear specifications/configuration.
- (e) share Members' methodologies for measuring/observing biological parameters, including for aging and determining maturity, and to identify and discuss differences among them, as a first step towards developing a protocol for common methodologies.
- (f) use SAM as the model for stock assessment of chub mackerel.
- (g) conduct sensitivity analyses to better understand the effect of catch uncertainty, given that chub mackerel catch is taken from mixed fisheries.
- (h) continue to make preparations for the chub mackerel stock assessment as described in paragraph 54.
- (i) continue to work intersessionally in accordance with the agreed timeline (Annex J).
- (j) complete the first chub mackerel stock assessment in 2024.
- (k) task the Secretariat, working with Members and the SC Chair, to set up an online private git repository to develop and share the TWG CMSA's code.

71. The TWG CMSA recommended that the SC:

- (a) adopt the Work Plan of the TWG CMSA (NPFC-2023-TWG CMSA07-WP01 (Rev. 1)).
- (b) endorse the TWG CMSA meeting schedule for 2023-2024 financial years: TWG

CMSA08 on 22-25 January 2024 and TWG CMSA09 in autumn 2024.

- (c) hire an invited expert to support the TWG CMSA in the future stock assessment project.
- (d) develop general protocols and guidelines for using git repositories for joint data analysis projects.

Agenda Item 12. Adoption of Report

72. The report was adopted by consensus.

Agenda Item 13. Close of the Meeting

- 73. The Chair thanked the participants for their cooperation and the good progress they had made, Vanuatu for hosting the meeting, the Secretariat and the rapporteur for their support, and the invited expert for his hard work and guidance.
- 74. The TWG CMSA thanked the Chair and the Vice-Chair for facilitating a smooth and productive meeting.
- 75. The meeting closed at 11:25 on 7 September 2023, Port Vila time.

Annexes:

Annex A – Agenda

Annex B – List of Documents

Annex C – List of Participants

Annex D – Table of qualitative attributes of the candidate stock assessment models

Annex E – Consolidation and review of performance measures, detailed summary of model performance and ranking of the stock assessment model candidates

Annex F – Revised CPUE Standardization Protocol for Chub Mackerel

Annex G – Revised Stock Assessment Protocol for Chub Mackerel

Annex H – Possible settings and specification of SAM

Annex I – Possible options for the basic specifications for conducting future projections for chub mackerel

Annex J – Timeline and activities for intersessional work from the conclusion of TWG CMSA07 to February 2024.

Please refer to the NPFC website for the complete annexes.

4th Meeting of the Small Scientific Committee on Bottom Fish and Marine Ecosystems

7–9 December 2023
Nanaimo, British Columbia, Canada (Hybrid)
Meeting Report



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8.1.2 Other possible approaches to stock assessment, especially for NPA (IBM and depletion)

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Agenda Item 9. Assessment and scientific advice on the management of Vulnerable Marine Ecosystems (VME)

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9.2 Review of intersessional activities of the SWG VME

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9.2.4 Proposals for revisions to VME indicator species list or nomenclature

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- 10.1 Review of the adequacy of the current observer program for the BFME
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vulnerable marine ecosystems and CMM 2019-10 for sablefish

Agenda Item 13. Other matters

- 13.1 Inter-sessional work and priority issues for next meeting
- 13.2 Update on PICES WG47 Seamount Ecology
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MEETING REPORT

Agenda Item 1. Opening of the Meeting

1. The 4th Meeting of the Small Scientific Committee on Bottom Fish and Marine Ecosystems (SSC BF-ME04) was held in a hybrid format, with participants attending in-person in Nanaimo, British Columbia, Canada, or online via WebEx, on 7–9 December 2023. The meeting was attended by Members from Canada, China, Japan, the Republic of Korea, the Russian Federation, and the United States of America (USA). The Deep Sea Conservation Coalition (DSCC) and the Pew Charitable Trusts (Pew) attended as observers. Dr. Keith Reid participated as a consultant.
2. The meeting was opened by the SSC BF-ME Chair, Dr. Chris Rooper (Canada), who welcomed the participants and introduced the history and characteristics of Nanaimo.
3. The Science Manager, Dr. Aleksandr Zavolokin, outlined the procedures for the meeting.
4. Mr. Alex Meyer was selected as rapporteur.

Agenda Item 2. Adoption of Agenda

5. The agenda was adopted without revision (Annex A). The List of Documents and List of Participants are attached (Annexes B, C).

Agenda Item 3. Overview of the outcomes of previous NPPC meetings

3.1 SSC BFME03

6. The Chair summarized the discussions and outcomes of the SSC BF-ME03 meeting.

3.2 COM07

3.2.1 CMMs 2023-05 and 2023-06

7. The Science Manager presented the outcomes from the 7th Commission meeting. In particular, he outlined Conservation and Management Measure (CMM) 2023-05 for Bottom Fisheries and Protection of Vulnerable Marine Ecosystems (VMEs) in the Northwestern (NW) Pacific Ocean and CMM 2023-06 for Bottom Fisheries and Protection of VMEs in the Northeastern (NE) Pacific Ocean. He also explained a related task from the Commission to the Scientific Committee (SC) to report on the appropriateness of the 500 kg encounter threshold for sponges and that the Commission had not made any clarifications in response to the recommendations from the SSC BF-ME and SC about the referenced effort limits of February 2007 in Paragraph 4A of CMM 2023-05.

3.2.2 NPFC Performance Review

8. The Science Manager presented an overview of the NPFC Performance Review and outlined some general findings related to the SC. Recommendations from the Performance Review report that concern bottom fish and marine ecosystems were reviewed under agenda item 11.6.

3.2.3 Resolution on Climate Change

9. The Science Manager presented an overview of the Resolution on Climate Change.

Agenda Item 4. Stock assessment and scientific advice on the management of North Pacific armorhead (NPA)

4.1 Review of Members fishing statistics for NPA in 2023

10. The Science Manager presented the fishing catch and effort statistics for NPA including the latest available data for 2022. Total catch in 2022 was around 34.1 MT. 1 Japanese trawl and 1 Japanese gillnet vessel were in operation catching NPA and splendid alfonsino (SA) in the Convention Area.
11. The Lead of the Small Working Group on North Pacific Armorhead and Splendid Alfonsino (SWG NPA-SA), Dr. Kota Sawada (Japan), explained that Japanese vessels have voluntarily avoided targeting NPA since 2019 when the encouraged catch limits were put in place. Therefore, the catch level may not directly reflect stock levels. In light of this, the SWG NPA-SA intends to conduct analysis of directed NPA effort and present the results at a future SSC BF-ME meeting (paragraph 109).

4.2 NPA monitoring survey and Adaptive Management Procedure (AMP)

4.2.1 Review of the results from 2023 monitoring survey

12. The Science Manager presented the results of the monitoring survey for NPA in the Emperor Seamounts in 2023 (NPFC-2023-SSC BFME04-IP03). The fishing vessel Kaiyo Maru No. 51

conducted four trawl hauls for at least one hour each in the Koko and Kammu Seamounts from March to June 2023. The criteria for high recruitment were not met.

13. The SSC BF-ME noted that, although NPA catch was slightly higher in 2022 than 2021, the catch remains at low levels relative to historical values. There are some indications that Japanese fishers have been avoiding catching NPA since the voluntary catch limit was introduced in 2019. There has been no indication of high recruitment of NPA detected in the monitoring survey.
14. The SSC BF-ME noted that there is still no current or accepted assessment for NPA in the Convention Area.

4.3 Review of Members' research and joint research activities on NPA

4.3.1 NPA species summary document update and review

15. The SWG NPA-SA Lead presented an updated species summary of NPA in the Emperor Seamounts (NPFC-2023-SSC BFME04-WP07).
16. The SSC BF-ME reviewed and further updated the species summary.
17. The SSC BF-ME recommended that the SC adopt the updated species summary (Annex D).

4.3.2 Other research activities on NPA

18. No other research activities were presented.

4.3.3 Future and planned research activities by Members on NPA in 2024

19. No future and planned research activities by Members on NPA in 2024 were presented.

Agenda Item 5. Stock assessment and scientific advice on the management of splendid alfonsino (SA)

5.1 Review of Members fishing statistics for SA in 2023

20. The Science Manager presented the fishing catch and effort statistics for SA including the latest available data for 2022. Total catch in 2022 was around 1096.8 MT. 1 Japanese trawl and 1 Japanese gillnet vessel were in operation catching NPA and SA in the Convention Area.

5.2 Review of Members' research and joint research activities on SA

5.2.1 SA species summary document update and review

21. The SWG NPA-SA Lead presented the updated species summary of SA in the Emperor

Seamounts (NPFC-2023-SSC BFME04-WP08).

22. The SSC BF-ME reviewed and further updated the species summary.
23. The SSC BF-ME recommended that the SC adopt the updated species summary (Annex E).
24. The SSC BF-ME noted that SA catch has been about 1/2 of the mean for the last 10 years, but nominal CPUE is only slightly lower than the 10 year average.

5.2.2 Other research activities on SA

25. Japan presented an analysis of SA data collected by NPFC Members for the purpose of determining spawning season, maturity stages, and size at maturity for stock fish around the Emperor seamounts (NPFC-2023-SSC BFME04-WP10). To mitigate sampling bias and maturity stage inconsistencies in the existing data set, Japan calculated maturity using the gonadosomatic index (GSI) of female alfonsino using the gonometric method described in Flores et al (2019). Japan found a $GSI_{cut-off}$ score of 0.51 and k coefficient of 0.67 for Japanese data. Japan had intended to explore the gonometric method as a method that could be applied to all Members' data. However, Korean and Russian data were not applicable for this analysis due to lack of gonad weight data for mature fish. Based on the gonometric results, FL_{50} was 282 mm among fish sampled by fishery trawl and 266 mm for fish sampled by fishery gillnet. Further analyses on size and maturity revealed that the difference between gears is likely to be a result of different gear selectivity, and that different seamounts host alfonsino with different size and size at maturity. Japan believed that the gonometric method could potentially function as an accurate yet inexpensive way to determine stock maturity, but did not yet recommend it for use in stock management as it is currently in the preliminary phase of testing.

5.2.3 Future and planned research activities by Members on SA in 2024

26. No future and planned research activities by Members on SA in 2024 were presented.

Agenda Item 6. Stock assessment and scientific advice on the management of sablefish

6.1 Review of Members fishing statistics for sablefish in 2023

27. Canada informed the SSC BF-ME that no Canadian vessels have fished for sablefish in the Convention Area since 2020.

6.2 Review of Members' research and joint research activities on sablefish

6.2.1 Updated stock status for sablefish (Canada and USA)

28. Canada explained that, although genetic and other evidence indicates there is a single stock of

sablefish in the eastern North Pacific Ocean, including the NPFC Convention Area, three stock assessments are carried out in the three domestic jurisdictions (Alaska (USA), British Columbia (Canada) and the U.S. West Coast (USA)) where sablefish are harvested. No stock assessment is conducted for the portion of the sablefish population found in the NPFC Convention Area. The most recent stock assessments from the USA and Canada indicate the spawning stock biomass has been increasing since about 2018, supported by a large coastwide recruitment in around 2016.

6.2.2 Sablefish species summary document update and review

29. The Chair presented the updated species summary of sablefish (NPFC-2023-SSC BFME04-WP02).
30. The SSC BF-ME recommended that the SC adopt the updated species summary (Annex F).
31. The Chair presented the updated species summary of blackspotted and rougheye rockfishes (NPFC-2023-SSC BFME04-WP03).
32. The SSC BF-ME recommended that the SC adopt the updated species summary (Annex G).

6.2.3 Other research activities on sablefish

33. Canada shared some of its other research activities on sablefish including updates to its stock assessment results, a coastwide management strategy evaluation (MSE) process for sablefish, a VME MSE process using Bowie SGaan Kinglas data, development of sablefish assessment good practices, recruitment forecasting, and ongoing work to develop an electronic tagging database.

6.2.4 Future and planned research activities by Members on sablefish in 2024

34. Canada explained that it plans to work with the USA and any other interested Members to design a harvest control rule specific to NPFC sablefish.

Agenda Item 7. Skilfish in the NPFC Convention Area

7.1 Summary of skilfish distribution, biology and life history

35. Russia presented a summary of skilfish distribution, biology and life history (NPFC-2023-SSC BFME04-IP04). Skilfish is distributed in the North Pacific Ocean, from the Hawaiian Ridge in the south to the Aleutian Islands in the north. Most commonly, it inhabits deep rocky bottoms. It is believed that early juveniles are found in the surface water layer among floating algae, and are distributed in the open ocean, where they live 4–6 years, reaching a length of about 50 cm,

after which they switch to a bottom lifestyle. It is a predator of large numbers of bony fish, cephalopod mollusks, and small crabs. It may also feed on jellyfish. Russian surveys found skilfish on all seamounts in the southern Emperor Seamount Chain (south of 42° N). Most catches were obtained on seamounts T365+A and Koko, where most of the Russian longline deployments were made. The bathymetric range was between 340 and 1300 meters. Across the study period, the size composition of skilfish ranged from 55 to 201 cm, with an average of 103.5 cm. The body weight ranged from 4 to 102 kg, with an average of 20.8 kg. Sexual maturity of most of the analyzed fish were at stages II and II-III of gonad development. Most had empty stomachs, but considering the depth of habitat, stomachs could have been emptied during the stasis period and during sampling.

7.2 Summary of skilfish longline fishery characteristics in the NPFC Convention Area

36. Russia presented a summary of the Russian skilfish longline fishery characteristics in the NPFC Convention Area (NPFC-2023-SSC BFME04-IP04), including descriptions of the Russian longline vessels, description of fishing operations, sites where skilfish have been observed by its longline vessels, the accumulated local effect of year/depth/latitude, and catches between 2014 and 2021.
37. The SSC BF-ME requested Russia, in cooperation with Japan and any other interested Members, to create a species summary document for skilfish and present it at SSC BF-ME05.

Agenda Item 8. Progress on data-limited approaches to assessment of NPA and SA

8.1 Update from SWG NPA-SA

38. The SWG NPA-SA Lead presented a summary of the intersessional progress made by the SWG NPA-SA on the tasks it was assigned by SSC BF-ME03 (NPFC-2023-SSC BFME04-WP09). Further details are described in Agenda Items 8.1.1–8.1.4 below.

8.1.1 Review of joint work on life history based approach to stock assessment

39. The SWG NPA-SA Lead explained that the SWG NPA-SA has:
 - (a) conducted analysis (NPFC-2023-SSC BFME04-WP09, Appendix 1) on the growth curve for SA and concluded that the growth curve estimate was improved by incorporating seamount locations as a random factor.
 - (b) agreed to use growth parameters as estimates of SA growth.
 - (c) conducted analysis to improve statistical modeling of maturity, particularly by the use of the gonometric method (Flores et al. 2019).
40. The SSC BF-ME recommended that the SC adopt the Terms of Reference for Data Sharing of

Catch and Effort Data for Depletion Analysis of North Pacific Armorhead (Annex H) and template for data sharing (Annex I).

8.1.2 Other possible approaches to stock assessment, especially for NPA

41. The SWG NPA-SA Lead explained that the SWG NPA-SA has:

- (a) agreed to conduct individual-based bioenergetic modeling (Gibson et al. 2019) to estimate recruitment success, and depletion analysis (Kiyota et al. 2014) to estimate past recruitment, harvest rate and spawning stock biomass, as possible approaches for NPA.
- (b) reviewed data requirements for bioenergetic modeling on NPA and agreed to begin with a literature survey.
- (c) agreed to share catch and effort data on NPA for depletion analysis, and endorsed the Terms of Reference (NPFC-2023-SSC BFME04-WP09, Appendix 2) and template (NPFC-2023-SSC BFME04-WP09, Appendix 3) for data sharing.

8.1.3 Review of the effectiveness of current CMMs for NPA and SA

42. The SWG NPA-SA Lead explained that the SWG NPA-SA has:

- (a) reviewed the current CMMs for NPA and SA and agreed to evaluate the effectiveness of encouraged catch for NPA (CMM 2023-05 Paragraphs 4M and 4N) and of mesh size regulation of the trawl nets for SA (CMM 2023-05 Paragraph 4Q).
- (b) agreed to evaluate encouraged catch by testing the hypothesis that the setting of encouraged catch reduced directed fishing effort and fishing pressure on NPA, even though recent annual catch is smaller than the encouraged level, and noted that depletion analysis, which is planned to be conducted under task 2, will also contribute to this evaluation by estimating harvest rate.
- (c) agreed to monitor the trend of directed effort through observer data on intended target species and catch species composition (Sawada et al. 2017), noting that it would be useful to know the socio-economic background of recent effort reduction.
- (d) agreed to evaluate mesh size regulation by the comparison of catch size composition of SA before and after the implementation of regulation, while also noting that the conclusion from a previous analysis by Japan (Sawada and Ichii 2020) was ambiguous and further analysis is required, and that a previous analysis by Korea (Park et al. 2021) found an increase of size for NPA, but SA was not analyzed.

8.1.4 Update on CPUE standardization work

43. The SWG NPA-SA Lead explained that the SWG NPA-SA has:

- (a) made no progress on this task and agreed to keep it in lower priority.
- (b) encouraged Members to continue discussion on methodology and framework for CPUE

standardization.

8.1.4 Final review and approval of Fish ID guide

44. The SWG NPA-SA Lead explained that the SWG NPA-SA has:
 - (a) agreed on specifications for the design and content of the Field Guide for Identifications of Fishes of the Emperor Seamount Chain Captured by Bottom Fisheries (fish ID guide).
 - (b) assisted the Secretariat to edit the fish ID guide.
45. The Science Manager presented the final version of the fish ID guide (NPFC-2023-SSC BFME04-WP14).
46. The SSC BF-ME provisionally approved the fish ID guide, while noting that it may be appropriate to update it further with information provided by Russia on skilfish and that it is necessary to consult the author of the fish ID Guide regarding such potential changes. The SSC BF-ME was unable to receive a reply from the author of the fish ID guide during the meeting and requested the SC to revisit this issue at SC08 and revise the fish ID guide if necessary based on the author's reply. The guide will be made available on the [NPFC website](#) in pdf format. Hard copies of the fish ID guide will be distributed to Members.

Agenda Item 9. Assessment and scientific advice on the management of Vulnerable Marine Ecosystems (VME)

9.1 Review of Members' research and joint research activities on VME

9.1.1 Review of progress towards developing a definition of VMEs

47. Japan presented a recommendation that the Japanese method of identifying VMEs in the Emperor Seamount region be adopted as an NPFC standard (NPFC-SSC BFME04-WP11). Japan explained that it has applied its proposed approach for identifying VMEs and assessing the potential impacts of bottom fisheries on VMEs using data from Japanese surveys and fisheries in the Emperor Seamounts region, as reported in NPFC-2017-SSC VME02-WP03 (Rev. 1) and NPFC-2019-SSC VME04-WP02. This approach provided a scientific basis for the prohibition of bottom contact by trawl nets in two potential VME sites stipulated in CMM 2023-05 for Bottom Fisheries and Protection of Vulnerable Marine Ecosystems in the NW Pacific Ocean. Japan recommended that the SSC BFME and the SC endorse the process described in NPFC-2019-SSC VME04-WP02 as one of the NPFC's processes for identifying VMEs.
48. The SSC BF-ME recommended that the SC endorse the method as one framework for identifying VMEs, noting that the density thresholds should be further explored.

49. The SSC BF-ME encouraged Japan and Canada to collaborate and compare methods for estimating density thresholds.
50. The DSCC welcomed the Japanese methodology, while emphasizing that it should be one in a broader set of methodologies to ensure consistency with United Nations General Assembly Resolutions and the United Nations Food and Agriculture Organization (FAO) criteria for the identification of VME.
51. Canada presented the results of a study to identify VMEs on Cobb Seamount using visual data (NPFC-2023-SSC BFME04-WP13). Canada applied a quantitative approach to assessing the FAO International Guidelines for the Management of Deep-sea Fisheries in the High Seas' criterion of structural complexity for identifying VMEs (FAO 2009) developed by Rowden et al. (2020). Canada identified VMEs using visual data, as outlined in the NPFC framework for identifying data to identify VMEs (CMM 2023-05 for Bottom Fisheries and Protection of Vulnerable Marine Ecosystems in the NW Pacific Ocean, CMM 2023-06 For Bottom Fisheries and Protection of VMEs in the NE Pacific Ocean, and NPFC-2022-SSC BFME03-WP03). Using Rowden et al.'s (2020) approach, Canada calculated a VME density threshold of 0.6 VME indicator taxa colonies m^{-2} . Applying this threshold to visual data from autonomous underwater vehicle (AUV) transects on Cobb Seamount, Canada identified five areas as VMEs ranging in size from 50 – 200 m^2 . Using the NPFC's move-on distance of 1 nautical mile following a VME encounter, Canada proposed a fisheries closure area of 1 nautical mile around the identified VMEs to protect them from potential significant adverse impacts (SAIs). Canada proposed two areas as VME protection sites on Cobb Seamount: one in the northwest corner and one in the northeast corner with areas of 24.7 km^2 and 13.7 km^2 , respectively. The closure of these areas is estimated to affect less than 4% of the historical sablefish fishing grounds in the Cobb-Eickelberg Seamounts.
52. The SSC BF-ME endorsed the proposed closures and considered potential amendments to CMM 2023-06 to reflect this under Agenda Item 12.
53. The SWG VME Lead, Dr. Janelle Curtis (Canada), provided an overview of a paper on a community consensus on designating VMEs from imagery which is a collaborative work of VME experts from 15 countries (NPFC-2023-SSC BFME04-IP01). The SWG VME Lead explained that the SWG VME had reviewed the paper, and had agreed to scrutinize it further and discuss the inclusion of the methodology as one means of identifying VMEs in the NPFC Convention Area. The SWG VME considered the criteria listed in the FAO Deep Sea Fisheries

Guidelines for the identification of a VME and agreed that meeting one or more criterion can indicate a VME, but a comprehensive analysis is needed to understand the spatial extent of the potential VME and analyze other criteria. The SWG VME also agreed that a site does not need to meet all criteria to be a VME.

54. The SSC BF-ME considered the methodology and tasked the SWG VME to discuss methods for defining VMEs using other FAO criteria (in addition to density-based criteria). These approaches could include the method described in NPFC-2023-SSC BFME04-IP01, so this will be discussed further in considering how to adapt it for use for the identification of VMEs in the NPFC Convention Area.

9.1.2 Modeling VME distribution in the NE Convention Area

55. Canada presented the results of a study to identify potential VMEs on the Cobb-Eickelberg seamount chain using predictive modeling (NPFC-2023-SSC BFME04-WP12). Canada applied the regional VME indicator taxa density threshold of 0.6 VME indicator taxa colonies m^{-2} (see NPFC-2023-SSC BFME04-WP13) to model predictions of VME indicator taxa densities. Based on the results, Canada predicted that potential VMEs are present on all seamounts in the Cobb-Eickelberg seamount chain. Canada said it intends to further refine the method based on feedback and use it to identify where VMEs are likely to occur in the eastern part of the Convention Area.
56. The SSC BF-ME welcomed the research presented by Canada and encouraged Canada to proceed with its intended plan.

9.1.3 Update on progress on standardizing an approach to defining SAI

57. The SWG VME Lead explained that the SWG VME had drafted a five-step flow chart for assessing and managing the risk of SAI in the eastern and western parts of the NPFC Convention Area and presented it to the SSC BF-ME. The five steps are as follows: 1. Characterize benthic communities and identify VME areas and potential VME areas, 2. Analyze the geographical overlap of the distributions of bottom fishing activities and VMEs and potential VMEs, 3. If data are available, determine if one or more SAI have occurred, 4. Calculate the relative risk of SAIs on VMEs and potential VMEs, 5. Use information on the distribution of (1) VMEs and potential VMEs, (2) fishing activities, and (3) relative risk of SAIs to formulate advice on protection of VME areas from SAIs.
58. The SSC BF-ME agreed to task the SWG VME to continue to work to develop a synchronized approach for assessing and managing the risk of SAI.

9.1.4 Other research activities on VMEs

59. Japan presented the results of its 2023 visual survey to collect information on the distribution of cold-water corals in the Emperor Seamounts (NPFC-2023-SSC BFME04-IP06). Japan observed a number of communities and explained that it plans to conduct surveys in 2024 to confirm the extent of these observed communities and determine whether or not they are VMEs using the VME identification method proposed by Japan.
60. Canada presented updated information (NPFC-2023-SSC BFME04-IP02) from the Joint Canada-USA International Seamount Survey (JCUISS), which it introduced at SSC BF-ME03 (NPFC-2022-SSC BFME03-WP12). The objectives of the survey were to survey five seamounts in the NE Pacific Ocean; estimate abundance/size structure of deep-sea coral and seamount species; produce models of presence, density, and size; identify fish and habitat associations; and assess risk of fishery impacts to corals and sponges. Coral and sponge occurrence was found to be widespread. Given the amount of hard substrates, the VME densities were fairly low. The observed sizes were large. There was a relatively high risk of fishing impact, particularly on Cobb Seamount, where a high proportion of transects had discarded gear and there was extensive overlap between fishing activity and predicted coral and sponge presence. Canada informed the SSC BF-ME that additional surveys would be conducted in 2024 if vessel time is available.

9.1.5 Future and planned research activities by Members on VMEs in 2024

61. No additional future and planned research activities by Members on VMEs in 2024 were presented.

9.2 Review of intersessional activities of the SWG VME

9.2.1 Review of the development and implementation of gear specific and taxon specific encounter thresholds in other RFMOs

62. The consultant, Dr. Keith Reid, presented a summary of VME encounter thresholds from other RFMOs (Northwest Atlantic Fisheries Organization (NAFO), North East Atlantic Fisheries Commission (NEAFC), South East Atlantic Fisheries Organisation (SEAFO), Southern Indian Ocean Fisheries Agreement (SIOFA), South Pacific Regional Fisheries Management Organisation (SPRFMO)) and Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) and how they were determined by taxa and gear-type (NPFC-2023-SSC BFME04-WP06). There is a need to determine objectives for management actions when setting encounter thresholds. They may be set (i) to determine when a VME might have been encountered in order to implement a temporary closure until the existence of a VME can be

established, or (ii) to indicate a level of catch of VMEs that is greater than expected based on the spatial modelling of VME distribution and may cause SAI at the overall scale of the distribution of VMEs. The data requirements and the management actions arising from (i) and (ii) are very different. Encounter thresholds are part of an overall management approach to VMEs, including closed areas and gear restrictions, so it is essential that the context and objectives of individual thresholds are clearly articulated and that the thresholds are considered as part of the overall management framework. Furthermore, data availability leads to different approaches. There are two approaches taken by other RFMOs: survey led (data rich, NAFO) and modelling led (data limited, SPRFMO). Thresholds for bottom trawl, agreed in NAFO, and for demersal longline, agreed by CCAMLR, have been widely incorporated by other regional fisheries management organizations and arrangements (RFMO/As). When considering threshold values adopted by other RFMO/As, it may be more appropriate to leverage the science on determining the distribution and abundance of VMEs rather than inherit the negotiated outcomes that are reflected in the prevailing regulations.

9.2.2 Recommendations on gear and taxon specific encounter thresholds for VME indicator taxa in the NPFC Convention Area

63. Canada presented the results of a collaborative study by Canada and the USA aimed at using available data to develop a method for determining quantitative gear-specific and taxon-specific thresholds for bycatch of VME indicator taxa (NPFC-2023-SSC BFME04-WP04). Three cumulative catch distribution methods and a percentile regression method with catch and observations were explored. The percentile regression thresholding method indicated that within a region the density of VME indicator taxa was linearly related to bycatch in that same region. Threshold VME bycatch values developed using this method could be easily converted to densities of VME indicator species. In contrast, encounter thresholds based on cumulative catch from bycatch data only were able to distinguish break points, but with no biological basis for these breakpoints being meaningful. In light of this, Canada presented recommendations for gear-specific and taxon-specific thresholds, based on mean percentile regression, for bottom trawl, longline, and pot for Antipatharians, Gorgonians, and Porifera. Canada noted that the thresholds it had recommended were based on data from areas outside the Convention Area and suggested that these thresholds could be further refined using observed bycatch data and visual surveys from inside the Convention Area.
64. The SSC BF-ME recommended adopting the encounter thresholds in NPFC-2023-SSC BFME04-WP04 for pot gear in the NE Pacific Ocean and discussed relevant amendments to CMM 2023-06 under Agenda Item 12.

65. The SSC BF-ME considered the task from the Commission to report on the appropriateness of the 500 kg encounter threshold for sponges, and recommended that a new interim threshold of 350 kg be set based on the study in NPFC-2023-SSC BFME04-WP04 and that this threshold be reviewed based on further analyses, such as the application of the method in the abovementioned study on data from the NPFC Convention Area.
66. The SSC BF-ME recommended that the encounter thresholds be periodically reviewed as new data and scientific analyses become available.
67. The SSC BF-ME noted that the studies presented by Canada (NPFC-2023-SSC BFME04-WP04, WP12, WP13) are based on a theoretical relationship between the amount of structurally complex habitat and associated species richness in Rowden et al. (2020). The SSC BF-ME and Observers discussed the applicability of the theoretical relationship. The SSC BF-ME suggested that alternative thresholds be considered and the relationship be reviewed on a periodic basis as new data become available.

9.2.3 Objectives for data analysis of shared VME indicator data and directions on future joint data analyses

68. The SWG VME Lead presented summaries of the 1st and 2nd intersessional meetings of the SWG VME (NPFC-2023-SSC BFME04-WP15 & WP16) in the 2023 operational year as well as subsequent email correspondence. Further details are described in Agenda Items 9.2.3- 9.2.6 below.
69. The SWG VME Lead explained that the SWG VME reviewed the available VME data from visual surveys and uploaded the visual data on the NPFC Collaboration website. The SWG VME agreed to establish a correspondence group that agreed on objectives for analyzing the observation data (Chris Rooper (Canada), Mai Miyamoto, Moto-omi Yamaguchi and Satoi Arai (Japan), Hyejin Song (Korea), Vladimir Kulik (Russia) and Amy Baco-Taylor (observer)). Members of the SWG VME will work intersessionally toward completing the objectives and report back to the SWG VME at its next meeting.

9.2.4 Proposals for revisions to VME indicator species list or nomenclature

70. The SWG VME Lead explained that the SWG VME reviewed VME indicator taxa from corals relative to taxonomy for Octocorallia and that it recommended keeping Antipatharia (black corals) and Scleractinia (stony corals) as two orders in the list of VME indicator taxa, while changing Alcyonacea to soft corals and Gorgonacea to gorgonians.

71. The SSC BF-ME endorsed the recommended changes and considered related revisions to CMMs 2023-05 and 2023-06 under Agenda Item 12.
72. The SWG VME Lead explained that the SWG VME reviewed the appropriateness of adding pennatulaceans to the list of VME indicator taxa. However, it did not come to a consensus on recommending the inclusion of pennatulaceans as VME indicator taxa and agreed to re-visit this issue at the SSC BF-ME meeting.
73. The SSC BF-ME held further discussions and recommended that pennatulaceans be included as VME indicator taxa in light of its functional role in ecosystems and biological characteristics and that the encounter threshold of 50 kg for corals also include pennatulaceans. The SSC BF-ME considered related revisions to CMMs 2023-05 and 2023-06 under Agenda Item 12.

9.2.5 Review of potential refinements to quantitative definitions of VME

74. The SSC BF-ME considered potential refinements to quantitative definitions of VME and the related discussions of the SWG VME in Agenda Item 9.1.1 above.

9.2.6 Framework for future monitoring for recovering VMEs

75. The SWG VME Lead explained that the SWG VME discussed the development of management objectives for recovering VME sites and that the SSC BF-ME Chair volunteered to draft a proposed framework and present it at SSC BF-ME04 for further discussion.
76. The Chair presented a proposed framework for monitoring VME recovery in the Convention Area (NPFC-2023-SSC BFME04-WP05) consisting of the following: 1. Comparison of impacted VME to un-impacted VME (control sites) in similar depths, on similar substrates and with comparable environmental conditions to gauge the total impact and signs of recovery; 2. Examination and comparison of the functional characteristics of impacted VME to unimpacted VME; 3. Monitoring of ongoing sources of impact, such as continuing fishing effort inside a recovering VME, and monitoring and reporting of the bycatch of VME indicator taxa; 4. Monitoring of potential recruitment and natural mortality throughout recovery; 5. Monitoring of impacted and control sites should ideally be conducted annually, but, given the potentially long timeframe for VME recovery, a 3-5 year revisiting of sites for monitoring would also be acceptable. Canada did not identify a specific standard for moving from “impacted” to “recovered” but suggested that achievement of recovered status could be indicated by sufficient progress towards an un-impacted state across multiple metrics used for comparing impacted and unimpacted VME communities.

77. The SSC BF-ME provided feedback on the Chair's proposal and the Chair agreed to refine it further and present a revised version at SSC BF-ME05.

9.2.7 Other topics on measuring cumulative impacts and SAI

78. No other topics on measuring cumulative impacts and SAI were discussed.

Agenda Item 10. Data collection and reporting

10.1 Review of the adequacy of the current observer program for the BFME

79. The SSC BF-ME considered the current observer program to be adequate.

10.2 Review of the template for collection of scientific observer data

80. The SSC BF-ME reviewed the template for collection of scientific observer data and determined that no revisions are currently required.

Agenda Item 11. 5-Year (2023-2027) Rolling Work Plan and NPFC Performance Review recommendations

11.1 North Pacific armorhead

11.2 Splendid alfonsino

11.3 Sablefish

11.4 Vulnerable marine ecosystems

11.5 Other ecosystem components

11.6 NPFC Performance Review recommendations

81. The SSC BF-ME reviewed, revised and endorsed the 2023-2027 SSC BF-ME 5-Year Rolling Work Plan (NPFC-2023-SSC BFME04-WP01 (Rev. 1)).
82. The SSC BF-ME recommended hiring an external expert to support the work of the SWG NPA-SA and requested the Chair to draft Terms of Reference and present them at SC08.
83. The SSC BF-ME noted that fisheries-independent data and better understanding of the life-history of NPA and SA could contribute greatly to conducting stock assessments of these species and agreed to discuss opportunities for filling these important data gaps, such as new data collection programs or technologies.
84. The SSC BF-ME reviewed the NPFC Performance Review recommendations that concern bottom fishing and marine ecosystems and compiled a table with its comments on each (NPFC-2023-SSC BFME04-WP19).

Agenda Item 12. Review of CMMs 2023-05 and 2023-06 for bottom fisheries and protection of vulnerable marine ecosystems and CMM 2019-10 for sablefish

85. The USA presented draft amendments to CMM 2023-05 to temporarily close the Emperor Seamounts and parts of the Northwestern Hawaiian Ridge to bottom fishing until the NPFC completes a VME impact study and a stock assessment for NPA (NPFC-2023-SSC BFME04-IP07). The USA invited the SSC BF-ME to consider and provide scientific advice on the proposed amendments.
86. Some Members expressed concern regarding the late submission, particularly the scope of the proposed additions to the CMM. They also pointed out that additional information is needed to understand the scientific basis of the proposal and requested the USA provide further explanation, including how the studies/papers it referred to justify the proposal.
87. The USA explained that this was the third iteration of its proposal, that it builds on previous proposals, and that it was based on existing literature. Furthermore, the USA reiterated that it is not seeking endorsement for the proposal. Rather, it is seeking input from the SSC BF-ME on the proposal from a scientific perspective.
88. Responding to the request of the SSC BF-ME, the USA compiled a list of papers it consulted for the scientific basis of its proposal (NPFC-2023-SSC BFME04-IP08). These include papers that document the occurrence of VMEs, papers that indicate VMEs are likely to be widespread, habitat suitability modeling papers that indicate VMEs are likely to be widespread, papers that document the occurrence of SAIs, and papers that indicate recovery is possible. Furthermore, in response to the concerns expressed by Members, the USA gave a more detailed explanation of the scientific basis of some of the changes it is proposing.
89. Members thanked the USA for presenting its proposal as soon as possible at the start of the meeting, for promptly compiling a list of supporting literature when requested to do so, and for providing further explanation of the scientific basis. Several Members stated that, nevertheless, because the USA had not submitted its documents by the submission deadline and because it had not provided the explanations of the scientific basis of each of the proposed changes as a working paper, they had not had time to adequately review the information and were not in a position to provide comprehensive scientific advice on the proposal.
90. While noting the concerns expressed by several Members regarding the late submission of documents and information, the SSC BF-ME agreed to conduct an initial discussion of the USA's proposal.

91. The SSC BF-ME considered the proposal and shared some initial feedback with the USA.
92. Korea expressed the concern that the NPA stock may already be overfished and recognized the potential value of the proposed temporary closures for the next few years for rebuilding this stock.
93. Canada echoed Korea in recognizing the potential value of the proposed temporary closures for rebuilding the NPA stock, as well as the SA stock. Canada further stated that it did not oppose the spirit of the USA's proposal, which is aligned with the precautionary approach in terms of protecting VMEs and preventing SAIs.
94. The DSCC emphasized the importance of ensuring compatibility between the NPFC's CMMs and Members' domestic measures, and ensuring consistency with Articles 5 and 6 of the United Nations Fish Stocks Agreement, particularly in terms of preventing overfishing and protecting biodiversity.
95. The USA thanked Members for their initial comments. The USA expressed its intention to submit a revised proposal to the 8th Commission meeting and requested Members to provide further comments on the current proposal by the end of February 2024. The USA also expressed its intention to prepare a new working paper linking its proposed changes to the supporting scientific evidence and thanked Members for their advice in this regard.
96. Canada presented draft amendments, based on the discussions of the SWG VME and the SSC BF-ME, to CMM 2023-05 (NPFC-2023-SSC BFME04-WP17) and CMM 2023-06 (NPFC-2023-SSC BFME04-WP18) related to VME indicator species list and nomenclature, the interim encounter threshold for sponges, the introduction of encounter thresholds for pot gear in the NE Pacific, and closure of two new areas in the NE Pacific (paragraphs 51–52).
97. The SSC BF-ME considered and further refined the draft amendments presented by Canada.
98. The SSC BF-ME proposed revisions to CMM 2023-05 as described in Annex J.
99. The SSC BF-ME proposed revisions to CMM 2023-06 as described in Annex K.
100. When reviewing CMM 2023-05 and CMM 2023-06, some Members expressed reservations about how the VME indicator taxa are listed (Paragraphs 4F and 4G of CMM 2023-05 and

Paragraphs 3g and 3j of CMM 2023-06). They noted that the nomenclature and wording may be adequate from a management perspective but not coherent from a scientific perspective. The SSC BF-ME agreed to task the SWG VME to hold further discussions and address the discrepancy between common names and scientific names of VME indicator taxa in these CMMs, while recognizing the potential difficulty of doing so in light of ongoing rapid developments in coral taxonomy.

101. The SSC BF-ME reviewed CMM 2019-10 and determined that no changes are currently necessary.

Agenda Item 13. Other matters

13.1 Inter-sessional work and priority issues for next meeting

102. The SSC BF-ME discussed intersessional work and agreed priority issues for the next meeting as described under Agenda Item 14.

13.2 Update on PICES WG47 Seamount Ecology

103. The SC Chair, Dr. Janelle Curtis, provided an update on the activities of PICES Working Group 47 (WG-47) on Ecology of Seamounts (NPFC-2023-SSC BFME04-IP05). WG-47 has common interests in spatial ecology of seamount fishes and invertebrates, environmental variables that influence seamount biodiversity, developing models to predict the distribution of seamount taxa, genetics of seamount taxa, and identification of VMEs. In 2023, WG-47 held its annual business meetings in the form of a virtual meeting on 14 September and an in-person meeting in Seattle, USA, on 25 October, during which it reviewed members' expertise and research interests and reviewed its Terms of Reference (TOR) and anticipated contributions. It also held a 1-day topic session at PICES-2023 in Seattle, USA on "Seamount biodiversity: vulnerable marine ecosystems (VMEs) and species associated with seamounts in the North Pacific Ocean," which was co-sponsored by the NPFC. In 2024, WG-47 plans to complete work on its TOR and to convene a business meeting during PICES 2024. In 2025, it plans to write its final report and publish members' primary papers and to submit its final report by PICES 2025.

13.3 Selection of Chair and vice-Chair for SSC BFME

104. The SSC BF-ME re-elected Dr. Chris Rooper (Canada) to serve as its Chair.
105. The SSC BF-ME noted that the term of the SSC BF-ME vice-Chair, Dr. Felipe Carvalho (USA), had come to an end and that he would be unable to continue for another term.

106. No nominations for the SSC BF-ME vice-Chair position were received.

13.4 Other issues

107. The Executive Secretary, Dr. Robert Day, informed the SSC BF-ME that the International Seabed Authority will hold a Workshop on the Development of a Regional Environmental Management Plan for the Area of the Northwest Pacific on 19–23 February 2024 in Tokyo, and that a member of the Secretariat will attend the Workshop as a representative of the NPFC.

108. The SSC BF-ME noted that its TOR does not specifically mention the review and proposal of amendments to CMMs and requested that the SC consider amending the SSC BF-ME's TOR to specify this as one of the SSC BF-ME's tasks.

Agenda Item 14. Recommendations to the Scientific Committee

109. The SSC BF-ME agreed to:

- (a) Task the SWG NPA-SA to:
 - i. Deliver science advice on the status of SA to SC09 using the life history based approach:
 - 1) Maturity estimation and SPR approach
 - 2) YPR approach
 - 3) Include assumptions of the approach
 - ii. Analyze the impact of mesh size change on SA catch size composition
 - iii. Work towards completing approaches using depletion or IBM for NPA
 - iv. Evaluate trend in directed effort relative to NPA catch
 - v. Update species summaries (SA and NPA)
 - vi. Standardize CPUE (lower priority)
- (b) Task the SWG VME to:
 - i. Continue to work to develop a synchronized approach for assessing and managing the risk of SAI and determine data requirements and spatial/temporal resolution for SAI assessment
 - ii. Address the discrepancy between common names and scientific names of VME indicator taxa in the CMMs (e.g., provide a table that translates between common and scientific names that can be updated as taxonomic changes are implemented) (higher priority)
 - iii. Work toward completing objectives of VME data sharing (higher priority)
 - iv. Use data-based methods applied to Japan and Korea's indicator taxa bycatch to further refine encounter thresholds that are taxon and gear specific (higher priority)
 - v. Revisit other methods for identifying VME using additional criteria

- vi. Consider adding Hydrocorals to the VME indicator taxa list and, if necessary, develop science-based encounter thresholds
- (c) To request Canada, Japan and Korea to present summaries of historical discarded bycatch for discussion at SSC BF-ME05.
- (d) To request Russia to create a species summary document for skilfish, in cooperation with Japan and any other interested Members, and present it at SSC BF-ME05.

110. The SSC BF-ME recommended the following to the SC:

- (a) Adopt the updated species summaries of North Pacific armorhead (Annex D), splendid alfonsino (Annex E), sablefish (Annex F), and blackspotted and rougheye rockfishes (Annex G).
- (b) Adopt the Terms of Reference for Data Sharing of Catch and Effort Data for Depletion Analysis of North Pacific Armorhead (Annex H) and template for data sharing (Annex I).
- (c) Communicate to the Commission that:
 - i. although NPA catch was slightly higher in 2022 than 2021, the catch remains at low levels relative to historical values.
 - ii. there are some indications that Japanese fishers have been avoiding catching NPA since the voluntary catch limit was introduced in 2019.
 - iii. there has been no indication of high recruitment of NPA detected in the monitoring survey.
 - iv. SA catch has been about 1/2 of the mean for the last 10 years, but nominal CPUE is only slightly lower than the 10 year average.
- (d) Endorse the method proposed by Japan (NPFC-2019-SSC VME04-WP02) as one framework for identifying VMEs, noting that the density thresholds should be further explored.
- (e) Endorse the updated 2023-2027 SSC BF-ME 5-Year Rolling Work Plan (NPFC-2023-SSC BFME04-WP01 (Rev. 1)).
- (f) Consider the SSC BF-ME's comments on the NPFC Performance Review recommendations that concern bottom fishing and marine ecosystems (NPFC-2023-SSC BFME04-WP19).
- (g) Hire an external expert to support the work of the SWG NPA-SA.
- (h) Recommend that the Commission close two new areas as VME protection sites on Cobb Seamount as described in NPFC-2023-SSC BFME04-WP13.
- (i) Endorse a new interim encounter threshold for sponges of 350 kg.
- (j) Endorse encounter thresholds for pot gear of 2 kg for corals and 5 kg for Hexactinellida and Demospongiae in the NE Pacific.
- (k) Endorse pennatulaceans as a VME indicator taxa and include pennatulaceans in the

encounter threshold of 50 kg for corals.

- (l) Endorse the revised CMM 2023-05 (Annex J).
- (m) Endorse the revised CMM 2023-06 (Annex K).
- (n) Consider, in cooperation with TCC and the Commission, amending CMM 2023-05 to address the ambiguity around the referenced effort limits agreed in February 2007 in Paragraph 4A and amending CMM 2023-06 to determine the level of a historical average in Paragraph 3i.
- (o) Look for opportunities for collaboration with other organizations such as the FAO ABNJ Deep-sea Fisheries Project, PICES or NPAFC to collect new data (such as biomass estimates from fishery-independent surveys or biological data collections) that would help with stock assessments for bottom fisheries and outstanding issues on VME such as VME recovery.

Agenda Item 15. Next meeting

111. The SSC BF-ME recommended holding a 3-day meeting of the SSC BF-ME in 2024 and requested the guidance of the SC and Commission for determining the date, format and location of the meeting.

112. The SSC BF-ME agreed to hold intersessional meetings of the SWG NPA-SA and SWG VME.

Agenda Item 16. Adoption of the Report

113. The report was adopted by consensus.

Agenda Item 17. Close of the Meeting

114. The Chair thanked the SSC BF-ME for its cooperation and constructive discussions.

115. The SSC BF-ME thanked the Chair for his great contributions to the meeting and for agreeing to another term.

116. The SSC BF-ME thanked Canada for hosting the meeting and the Secretariat for supporting Canada in making the meeting arrangements.

117. The meeting closed at 16:00 on 9 December 2023, Nanaimo time.

Annexes:

Annex A – Agenda

Annex B – List of documents

Annex C – List of participants

Annex D – Species summary for North Pacific armorhead

Annex E – Species summary for splendid alfonsino

Annex F – Species summary for sablefish

Annex G – Species summary for blackspotted and rougheye rockfishes

Annex H – Terms of Reference for Data Sharing of Catch and Effort Data for Depletion Analysis
of North Pacific Armorhead

Annex I – Template for data sharing of catch and effort data for depletion analysis of North
Pacific armorhead

Annex J – Revised CMM 2023-05 - Conservation and Management Measure for Bottom
Fisheries and Protection of Vulnerable Marine Ecosystems in the Northwestern
Pacific Ocean

Annex K – Revised CMM 2023-06 - Conservation and Management Measure for Bottom
Fisheries and Protection of Vulnerable Marine Ecosystems in the Northeastern Pacific
Ocean

Please refer to the NPFC website for the completing annexes.

12th Meeting of the Small Scientific Committee on Pacific Saury

11–14 December 2023
Nanaimo, British Columbia, Canada (Hybrid)
Meeting Report



Agenda

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Agenda Item 7. Fishery-dependent abundance indices

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 - 10.2.1 New information on parameters for stock assessment models
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 - 10.2.3 State-space age-structured model
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- 10.4 Recommendations for future work

Agenda Item 11. Progress on development and evaluation of an interim harvest control rule (HCR) as a short-term task

- 11.1 Review of conditioning of operating models (OMs)
- 11.2 Review of candidate harvest control rules (HCRs)
- 11.3 Recommendations to the SWG MSE PS05

Agenda Item 12. Development of recommendations to improve conservation and management of

Pacific saury stock

Agenda Item 13. Review of the Work Plan of the SSC PS

- 13.1 Work Plan of the SSC PS
- 13.2 NPFC Performance Review recommendations

Agenda Item 14. Other matters

- 14.1 Observer Program
- 14.2 Draft agenda, priority issues and timeline for next meeting
- 14.3 Invited expert
- 14.4 Selection of Chair and vice-Chair for SSC PS
- 14.5 Other

Agenda Item 15. Consolidated recommendations to the Scientific Committee

Agenda Item 16. Adoption of Report

Agenda Item 17. Close of the Meeting

MEETING REPORT

Agenda Item 1. Opening of the Meeting

1. The 12th Meeting of the Small Scientific Committee on Pacific Saury (SSC PS12) was held in a hybrid format, with participants attending in-person in Nanaimo, British Columbia, Canada, or online via WebEx, on 11–14 December. The meeting was attended by Members from Canada, China, Japan, the Republic of Korea, the Russian Federation, Chinese Taipei, the United States of America, and the Republic of Vanuatu. The Pew Charitable Trusts (Pew) attended as an observer. Dr. Larry Jacobson participated as an invited expert.
2. The meeting was opened by Dr. Toshihide Kitakado (Japan), the SSC PS Chair. He expressed his gratitude to Canada for hosting the meeting and everyone who helped to arrange the meeting. The Chair highlighted the importance of Pacific saury as part of the marine ecosystem in the North Pacific and its value as a food resource, and looked forward to productive discussions on this important species.
3. Canada welcomed the participants and thanked them for coming to Nanaimo. Canada also introduced the history and characteristics of Nanaimo.
4. The Science Manager, Dr. Aleksandr Zavolokin, outlined the procedures for the meeting.
5. Mr. Alex Meyer was selected as rapporteur.

Agenda Item 2. Adoption of Agenda

6. The SSC PS agreed to add an item on new information on parameters as agenda item 10.2.1. As a result of the addition, the agenda items that were previously 10.2.1–10.2.3 on the provisional agenda were renumbered as agenda items 10.2.2–10.2.4 on the revised agenda.
7. The revised agenda was adopted (Annex A). The List of Documents and List of Participants

are attached (Annexes B, C).

Agenda Item 3. Overview of the outcomes of previous NPFC meetings

3.1 SSC PS11

8. The Chair presented the outcomes and recommendations from the 11th SSC PS meeting.

3.2 SWG MSE PS04

9. The Chair presented the outcomes and recommendations from the 4th meeting of the joint SC-TCC-COM Small Working Group on Management Strategy Evaluation for Pacific saury (SWG MSE PS04).

3.3 COM07

10. The Science Manager reminded the SSC PS that the 7th Commission meeting adopted Conservation and Management Measure (CMM) 2023-08 for Pacific Saury, adopted a Resolution on Climate Change, and tasked the Secretariat with developing a matrix for the recommendations of the Performance Review Panel that include each recommendation and responses from the responsible subsidiary body.
11. Recommendations from the Performance Review report that concern Pacific saury were reviewed under agenda item 13.2.

Agenda Item 4. Review of the Terms of References of the SSC PS and existing protocols

4.1 Terms of References of the SSC PS

12. The SSC PS reviewed and recommended revising the Terms of References (ToR) of the SSC PS to add “stock assessment data inputs with respect to shifting species and fisheries distribution” as an item for which the impacts of climate change should be explored (Annex D).

4.2 CPUE Standardization Protocol

13. The SSC PS reviewed the catch-per-unit-effort (CPUE) Standardization Protocol and determined that no revisions are currently necessary.

4.3 Stock Assessment Protocol

14. The SSC PS reviewed and recommended revising the Stock Assessment Protocol to include non-stationary population and fisheries processes as a relevant ecosystem consideration regarding the stock in future assessment documents (Annex E).

Agenda Item 5. Member's fishery status including 2023 fishery

15. Chinese Taipei presented its fisheries status (NPFC-2023-SSC PS12-IP01). The catch returned to around 180,000 tons in 2018 after a 3-years consecutive decline, but a further decline since then has been observed. In 2023, fishing vessels began operations in fishing grounds later than the previous years, and the catch distribution was noted to be further north than in the same period of 2022. The accumulated catch, 45,171 tons, by the end of October of 2023 is higher than that of the same period of 2022, and it is noted that the nominal CPUE is 1.53 tons/haul of 2023 which is higher than 1.01 tons/haul of 2022. Regarding the size box composition (S: less than 6 pcs/kg; 1: 7~9 pcs/kg; 2: 10~12 pcs/kg; 3: 13~15 pcs/kg; 4: 16~18 pcs/kg; 5: more than 19 pcs/kg), the mode size boxes for Pacific saury caught in each month from June to October were 3, 5, 4, 4, and 5, respectively. Overall, the size of Pacific saury caught in 2023 was smaller than in 2022.
16. Chinese Taipei further informed the SSC PS that, during the 2023 fishing season, 29 of 66 vessels fishing for Pacific saury temporarily returned to port for safety inspections from the end of July until the middle of September, before resuming fishing afterwards.
17. China presented its fisheries status (NPFC-2023-SSC PS12-IP02). Total catch in 2022 was 35,477 MT. In 2023, China reached its catch limit stipulated in CMM 2023-08 at the end of September and stopped fishing after 28 September, which was earlier than in previous years. The total catch was 39,252 MT. A total of 57 vessels have been operating, a decrease of 6 from 2022. The trend in relative seasonal catch in 2023 and 2022 were similar, but with higher overall catch in 2023. As of 28 September, the nominal CPUE has been 10.06 MT/vessel/day, the highest since 2020. Standardized effort was 8,367 vessel days in 2022. The fishing grounds in 2023 shifted slightly to the north and to the west, perhaps due to the adoption of a spatial closure east of 170°E longitude, and no fishing occurred from October onwards. A yearly comparison of body length compositions has been conducted up to 2019, using a size-length key provided by Japan. The size compositions in 2019 and 2016 were similar. The catch in 2018, which was the highest historically, was dominated by age-1 fish.
18. The SSC PS encouraged China to accelerate its efforts to calculate body length compositions for 2020 onwards. China said that it would endeavor to present the data ahead of SSC PS13.
19. Vanuatu presented its fisheries status (NPFC-2023-SSC PS12-IP03). Total annual catch peaked at 8,231 MT in 2018, after which it declined to a historical low in 2022. Total catch in 2023 was 1,108 MT. Vanuatu's Pacific saury fishery began in 2004. In total, it has authorized 16 vessels. The number of operating vessels was 4 from 2015 to 2021 and was 3 in 2022. Only 2

vessels are currently active in 2023. Annual comparison of accumulated catch shows a trend of abundance increasing from September. Annual comparison of the relative seasonal catch shows that there are usually two peaks in the fishing season. Nominal CPUE in 2023 was 9.8 MT/day. The main fishing grounds began in the east early in the season, before shifting to the west. Fishing grounds did not cross 165°E longitude in 2021–2023. Looking at the monthly size box compositions in 2023 (S: less than 6 pcs/kg; 1: 7~9 pcs/kg; 2: 10~12 pcs/kg; 3: 13~15 pcs/kg; 4: 16~18 pcs/kg; 5: more than 19 pcs/kg). There were no size box S catches and the percentage of size box 1 catches was very low.

20. Korea presented its fisheries status (NPFC-2023-SSC PS12-IP04). In 2023, total catch was 3,107 MT and annual catch has continued to decrease since 2018. The number of vessels operating has gradually decreased each year from 2015 to 2022, and has decreased from 10 in 2022 to 6 in 2023 due to the continued low level of Pacific saury catch. Nominal CPUE was 4.65 MT/vessel/day in 2023, almost double that in 2022. Standardized effort was 928 days in 2023, less than half of that in 2022. In 2023, fishing grounds were east of 150°E (150–170°E) longitude. In July, fishing moved northward. In 2023, the overall body length range was 20–32 cm, with a mean value of 27.7 cm. The monthly mean body length was lowest in November and highest in June. There was no significant difference in size compositions between 2022 and 2023, but fish seemed to be smaller in 2023. By size box composition (S: 18–30 cm; M: 23–33 cm; L: 27–34 cm; 2L: 29–34 cm (fork length)), the ratio of S was dominant for most of the fishing season, except May to July. The size composition appears to be smaller in 2023 compared to 2022.
21. Japan presented its fisheries status (NPFC-2023-SSC PS11-IP05). In 2023, the annual catch until the end of November was 24,046 MT, compared to 17,868 MT in 2022. The annual catch as of the end of 10 December was 24,432 MT, compared to 17,910 in 2022. 109 vessels were registered in 2023, a decrease of 3 from the previous year. Total landings until the end of November in 2023 exceeded the annual catches in 2021 and 2022 and was the third highest in the last five years. In 2023, as of the end of November, the peak in 10-day catch was in mid-October. This was earlier than the 2022 peak, which was in early November. 2023 nominal CPUE was 0.62, which was higher than that of 2021 and 2022, and the third lowest since 2000. In 2023, the fishing grounds in August and September were mainly in the high seas, but after October, the main fishing grounds moved into Japan's exclusive economic zone (EEZ). In addition to the Pacific Ocean side of the EEZ, the Sea of Okhotsk has also been a major fishing ground. The percentage of age-0 fish seems to have been high throughout the fishing season.
22. The SSC PS noted a shift in 2023 in the primary fishing grounds of Japanese fleets to coastal

areas earlier than in 2022, with an increase in fishing activities within the Japanese EEZ compared to 2019–2022. These timing differences in fishing ground transitions and the swift responses from fishing fleets suggest nonstationary fleet dynamics, potentially influencing key model parameters like catchability and selectivity in the stock assessment, and should be considered in future work, particularly as the SSC PS transitions to an age-structured model.

23. Russia presented its fisheries status (NPFC-2023-SSC PS12-IP07). The annual catch has continued to decrease since 2007. Total catch in 2021 was 609 MT (the lowest after 1991) and Russian vessels did not fish for Pacific saury in 2022. Since 2014, there has been an annual decrease in the number of Pacific saury fishing vessels. In 2020, the number of fishing vessels was at its lowest since 1991. 3 vessels operated in 2021 and 0 in 2022. 2021 seasonal catch and accumulated catch were at their lowest since 1991. Nominal CPUE in 2021 was 4.2, the lowest since 2000. Fishing grounds have shifted eastward between 2020 and 2021. In 2023, one Russian vessel fished for Pacific saury in the Convention Area beginning from late October. Total catch of Pacific saury was approximately 50 MT.
24. The Science Manager presented the cumulative catch of Pacific saury for 2020, 2021, 2022 and 2023. The cumulative catch in 2023 as of 2 December is approximately 102,006 MT, which is approximately 68% of the total allowable catch (TAC) in the Convention Area as stipulated in CMM 2023-08, compared to 94,623 MT in 2022, 89,492 MT in 2021, and 122,595 MT in 2020.
25. China noted that its fishing activities ceased at the end of September in accordance with relevant paragraphs in CMM 2023-08. China also noted a significant reduction in Chinese Taipei's fishing efforts, attributed to special circumstances such as vessels' safety inspections, resulting in a significantly lower catch. Without those two constraints mentioned above, the total catch of Pacific saury in 2023 could have been much higher.
26. The SSC PS noted that recent data indicate at least some improvement in stock condition. The SSC PS noted that the catch for almost all Members who fished for Pacific saury in 2023 increased compared to 2022. The SSC PS also noted that nominal CPUE for these Members increased from 2022 to 2023, apart from in the case of Russia, whose nominal CPUE data were not yet available. The SSC PS also noted that the average size of fish caught in 2023 for most Members was smaller than in 2022. In the case of the Japanese fishery, this was due to the increased proportion of age-0 fish in the catch.
27. The SSC PS noted that the distribution of fishing grounds in 2023 had shifted northward and, for most Members, westward compared to 2022.

28. The SSC PS noted that having Pacific saury bycatch data from other fisheries would ensure more reliable catch information and thus improve the Pacific saury stock assessment. The SSC PS encouraged Members to provide this information to the next SSC PS meeting.
29. The SSC PS noted that regular reporting of species-specific bycatch information from Members' fisheries, such as Pacific saury bycatch from chub mackerel fisheries, would be useful going forward. Conversely, if bycatch data were available from the Pacific saury fisheries, this may be useful for other stock assessments (e.g. chub mackerel) undertaken by the NPFC.

Agenda Item 6. Fishery-independent abundance indices

30. Japan informed the SSC PS that it plans to conduct its biomass survey with the usual method in 2024. Japan further explained that it plans to cover at least the usual survey area and to possibly extend the survey coverage northward to ensure greater coverage of the distribution of Pacific saury if a northward expansion is logistically possible.
31. The SSC PS welcomed Japan's plans to possibly expand the survey area and the additional information this would provide. At the same time, the SSC PS noted that care should be taken when incorporating additional data into the existing survey design.
32. Russia reminded the SSC PS that it has conducted research surveys in the North Pacific focusing on Pacific salmon since the 1980s. Russia explained that Pacific saury is also caught in these surveys and that the surveys overlap with some of the northern parts of the Japanese biomass survey. Russia suggested that the data from its surveys could potentially be integrated with the Japanese biomass survey data in the vector autoregressive spatio-temporal (VAST) model.
33. The SSC PS welcomed the suggestion from Russia and encouraged Russia and Japan to share information with each other and explore the potential for collaboration in the intersessional period.

Agenda Item 7. Fishery-dependent abundance indices

34. The SSC PS agreed to continue to prepare standardized CPUE indices as inputs for the Pacific saury stock assessment.
35. The SSC PS agreed on the importance of resolving the discrepancy between the stock assessment model results and Chinese Taipei's standardized CPUE index ahead of the next

Pacific saury stock assessment.

36. Chinese Taipei informed the SSC PS that it plans to analyze possible causes of this issue and present potential ways to resolve it at the next SSC PS meeting.
37. The SSC PS noted the value of reporting effective effort data (catch divided by standardized CPUE) by individual Members and encouraged Members to continue to do so.
38. The SSC PS noted the value of the joint CPUE standardization, thanked Chinese Taipei for contributing this work, and encouraged Chinese Taipei to continue.

Agenda Item 8. Biological information on Pacific saury

39. Dr. Jihwan Kim, a postdoctoral researcher under the NPFC Internship Program, presented a study on the interannual to decadal relationship between total catch variability of Pacific saury and basin-scale ocean environmental variability in the North Pacific (NPFC-2023-SSC PS12-IP06). The fluctuating total annual catch and significant decline of Pacific saury over the past decade underscore the importance of understanding the factors affecting its abundance, including its relationship to long-term ocean environmental variability. The study examined the relationship between annual Pacific saury catch and the North Pacific basin-scale ocean environment. The results show a significant correlation between increased catches and the intensification of the Kuroshio Extension Jet. A 2-year lead-lag relationship between the North Pacific Gyre Oscillation (NPGO) and saury catches suggests its potential as a predictor of annual catches of Pacific saury. These results constitute a major contribution and may lead to improved stock assessment models for Pacific saury stocks.
40. The SSC PS noted that the catch of Pacific saury exhibits some synchronicity with climatically-induced environmental variability. This is evidenced by the correlation between the decrease in the total catch of Pacific saury in recent years and the NPGO. Caution is required because correlation does not prove causality and catch is not abundance. However, it seems likely, based on this analysis, that environmental information could be used to improve stock assessments and management advice. This is a key area of future research and should be considered at the next stock assessment.
41. The SSC PS welcomed the study and suggested conducting further analyses, such as by including Members' CPUE data and biomass estimates from the stock assessment results in the study. Members agreed that monthly 1 x 1 degree CPUE data and time series of biomass estimates will be shared with the intern for analyses on the relationship between Pacific saury

abundance indices and basin-scale ocean environmental variability in the North Pacific.

Agenda Item 9. Stock assessment using “provisional base models” (BSSPM)

9.1 Retrospective patterns and scaling issue

9.2 Model validation (model runs and retrospective analyses by Members using the same data and priors)

9.3 Process error assumptions

42. China presented the results of a study to cross-check Members’ code by testing the sensitivity of BSSPM results to different prior assumptions of key model parameters (NPFC-2023-SSC PS12-WP05 (Rev. 1)). The study tested two types of prior assumptions, as extracted from the BSSPM assessment reports of China (NPFC-2023-SSC PS11-WP15), which, like Japan, employed a flat prior distribution for free parameters, and Chinese Taipei (NPFC-2023-SSC PS11-WP16), which employed less informative priors for key parameters such as carrying capacity (K) and intrinsic growth rate (r). China compared reference points and parameter estimates from two prior scenarios and successfully reproduced the results of Chinese Taipei’s BSSPM. China found that, generally, Base case 1 is more robust to prior assumptions than Base case 2. Notably, key reference points (e.g., F_{MSY} , K, and B_{MSY}) in both Base case scenarios differed significantly between the two types of priors. Lognormal priors resulted in shorter tails in the posterior distributions of r and K in Base case 1 and Base case 2, respectively. In Base case 1, lognormal priors shifted the posterior distributions of q to the left. Time series plots confirmed scale differences among Members’ assessment results due to different prior assumptions. Base case 2 showed sensitivity of absolute estimated biomass and harvest rate to prior assumptions, while relative quantities (B/B_{MSY} and F/F_{MSY}) remained robust. The use of lognormal (less informative) priors alleviated scale difference between the two base case scenarios. In conclusion, the BSSPM code from China and Chinese Taipei have been cross-validated, and their assessments are reproducible. Scale differences among Members’ analyses stem from differing prior assumptions.
43. Chinese Taipei presented updates (NPFC-2023-SSC PS12-WP06) to the stock assessment for Pacific saury in the North Pacific Ocean using BSSPM that it submitted to SSC PS11 (NPFC-2023-SSC PS11-WP16). Chinese Taipei has conducted the diagnostics of retrospective analyses and posterior predictive model checks for the two base cases. No retrospective pattern was identified. However, a discrepancy between real and simulated data under the fitted models has been found.
44. The SSC PS agreed to study the methodologies and use the results to investigate further refining the index weighting configuration.

45. Japan presented updates (NPFC-2023-SSC PS12-WP09) to its stock assessment result submitted to SSC PS11 (NPFC-2023-SSC PS11-WP14). As for the combined base case stock assessment result, the 2023 median depletion level was only 21.0% (80%CI=10.7-34.8%) of the carrying capacity. Furthermore, B-ratio ($=B/B_{MSY}$) and F-ratio ($=F/F_{MSY}$) in 2022 were 0.337 (80%CI=0.229-0.474) and 0.799 (80%CI=0.517-1.384), respectively. The probability of the stock being in the green Kobe quadrant in 2022 was estimated to be nearly 0%, while the probabilities of being in the yellow and red Kobe quadrants were assessed as 72% and 28%, respectively. It should be noted that there is a large difference in the biomass series between the two base cases, while there is little difference in relative quantities such as the B- and F-ratios and depletion level. Based on the updated results, if the same formula used in TAC calculation in the 2019 Commission meeting is applied, it would be $F_{MSY} \times B_{2023} = 183,000$ (tons). However, considering the current overfished population level and applying a simple discount exploitation rate depending on the current B-ratio, an appropriate catch would be $(B_{2023}/B_{MSY}) \times F_{MSY} \times B_{2023} = 80,000$ (tons).

46. The SSC PS reviewed the stock assessments conducted by Members and aggregated the results, recognizing the agreement in trends among them (Annex F).

47. The SSC PS agreed that this year's stock assessment is of a comparable quality to its previous Pacific saury stock assessments and that it represents the best available understanding of the Pacific saury biomass and population dynamics. The SSC PS recognized that there remain sources of uncertainty that should be further investigated, including the prior assumptions, scaling issues, and retrospective patterns. The SSC PS also noted the need to investigate further refinements to the stock assessment model or the input data to improve predictive performance.

48. The invited expert suggested considering additional hyperdepletion parameters for Members' CPUE indices.

Agenda Item 10. New stock assessment models

10.1 Data available

49. Japan offered to provide Members with its age-length key (ALK) by around March or April 2024. The SSC PS requested Members to use the ALK to prepare catch-at-age and catch-at-size data and to share these on the collaboration site.

10.2 Review of progress on new stock assessment models

10.2.1 New information on parameters

50. Japan presented a summary of the possible ranges of the key parameters in the age-structured stock assessment models for Pacific saury and the possible ranges to be considered, based on the best biological knowledge available and discussion so far (NPFC-2023-SSC PS12-WP02 (Rev. 2)). Japan focused on 1. natural mortalities for age 0 and age 1 fish (M_0 and M_1 , respectively), 2. the treatment of age 0 fish spawning, and 3. the steepness of the Beverton-Holt stock recruitment relationship (h). Japan recommended considering (1.71, 2.75) and (0.5, 1) as the possible range of M_0 and M_1/M_0 , respectively. It also recommended considering (0.05, 0.2) as a possible range for a degree of relative contribution of age 0 to age 1 egg production, interpreted as the product of maturation rate, relative fecundity per weight, and relative times of spawning in a spawning season. Japan also created a prior distribution of steepness parameter based on the best knowledge available on Pacific saury biology to present a possible range of the steepness to be considered. The 0.025, 0.5, 0.975 percentiles of the distribution of h were 0.26, 0.96, and 0.99, respectively, indicating that the steepness of Pacific saury might be smaller than is estimated from phylogeny. Japan recommended checking model sensitivities inside these ranges when the parameters are fixed, or, if they are estimated, to check whether the estimated values are inside the ranges or not.

10.2.2 Stock Synthesis 3

51. Chinese Taipei presented the methodology for a preliminary age-structured assessment with the Stock Synthesis 3 (SS3) framework, including information on input data, model structure, and parametrization (NPFC-2023-SSC PS12-IP08). Chinese Taipei noted, however, that there is still uncertainty in life history parameters and input length composition data, such as maturation, growth, and natural mortality. Chinese Taipei recommended continuing model development work, reducing data conflicts and modeling uncertainties, and examining and improving input assessment data.

52. Chinese Taipei shared the latest version of developed SS3 files with the SSC PS group. The data and control files are designated for use within the Working Group on New Stock Assessment Models (WG NSAM). The SSC PS thanked Chinese Taipei for sharing these valuable resources.

53. Japan offered to provide the SSC PS with size composition data from its biomass survey. The SSC PS requested that Japan initially prepare and provide yearly data aggregated over space.

54. 4The SSC PS agreed to task the WG NSAM to use these conditional age-at-length data to estimate the growth function internally in the SS3 model.

55. The SSC PS agreed to switch from using non-age-specific natural mortality to age-specific natural mortality in the SS3 model.
56. The SSC PS agreed to conduct further updates on the biological parameters and a comprehensive review of input data required for the age-structure model through a thorough data preparation process.

10.2.3 State-space age-structured model

57. Japan presented a progress report on its development of a state-space age-structured stock assessment model for Pacific saury up to 2023 (NPPC-2023-SSC PS12-WP07 (Rev. 1)). The key assumptions for the next-generation stock assessment of Pacific saury are 1. the steepness (h) of the Beverton-Holt stock recruitment relationship, 2. the natural mortalities for age 0 and age 1 fish, and 3. the treatment of age 0 fish spawning. Japan narrowed down the candidate hypotheses on these assumptions based on biological perspectives, and then observed the sensitivity of the model behaviors against these assumptions. The model with estimated h and gamma (contribution of age-0 fish to the spawning activity relative to age-1 fish) and age-dependent M showed the maximum likelihood. Estimated h (0.47) was small but was inside the 95% confidence interval of the prior distribution. Estimated gamma (0.13) was plausible. Estimated gamma was very small when h was fixed at 0.86. F was unnaturally small, under $h=0.86$ and gamma = 0.2 or 0.1. One of small h , small gamma, and small F must be chosen. The model had predictability to some extent. The assumptions of h and gamma might have large effects.
58. Japan offered to share its code with the SSC PS.

10.2.4 Other models (if any)

59. The SSC PS invited other Members to also present any new stock assessment models at future meetings.

10.3 Preparation of the specification for new stock assessment models

60. The SSC PS compiled a table with updated initial specifications of the SS3 model and the state-space age-structured model presented by Chinese Taipei and Japan (Annex G). The SSC PS agreed to continue to discuss and refine these specifications.

10.4 Recommendations for future work

61. The SSC PS agreed to task the WG NSAM to continue to develop the SS3 model and the state-

space age-structured model and to hold regular virtual meetings and, if necessary, in-person meetings. The SSC PS agreed to appoint Dr. Libin Dai (China) to lead the WG NSAM.

62. The SSC PS agreed to continue to develop a new age-structured model, review results at the 2024 or 2025 stock assessment meeting, and use it to provide management advice subsequently.
63. The SSC PS agreed that the new age-structured model is expected to be very useful for Pacific saury but that it may not necessarily replace the current relatively simple BSSPM model, nor should use of the current BSSPM model necessarily stop entirely. The SSC PS agreed to address the question of how to use the two models alone or in combination at a later stage. The SSC PS agreed that an age-structured model will provide a wealth of detailed information about the stock, serve as a basis for MSE, and improve projection capability. However, biomass, fishing mortality estimates, and quota calculations used to provide management advice might be variable and sensitive to modest changes in model configuration and data. In contrast, MSY and relative estimates such B/B_{MSY} and F/F_{MSY} from the BSSPM model used to provide management advice are stable and robust. It is possible that the best approach will be to use both the new age-structured model and the current BSSPM model, if only to check results.

Agenda Item 11. Progress on development and evaluation of an interim harvest control rule (HCR) as a short-term task

11.1 Review of conditioning of operating models (OMs)

64. The invited expert presented considerations for managing uncertainty about Pacific saury population dynamics in HCR analyses, including possible ways to manage the volume of calculations and possible key parameters for simulation analyses (NPFC-2023-SSC PS12-WP08). The invited expert recommended focusing simulations on MCMC results with relatively high posterior probability by eliminating cases with low probability or, as a more extreme but possibly acceptable alternative, to use the single MCMC run with the highest posterior probability.
65. The Chair presented a comparison of possible screening approaches using combined constraints with the highest density intervals over key parameters (r , K , z , and D_{2023}) for ensuring the representativeness of samples from MCMC outcomes. The SSC PS agreed to use that approach in the final simulation.
66. Canada presented joint work by Canada and China simulating climate indices for process error in Pacific Saury assessment (NPFC-2023-SSC PS12-WP03). Canada and China sought to build out a function that could simulate future conditions for environmental indices by calculating

the autocorrelation function and variance (here standard deviation) of some common environmental covariates that could then be used as an alternative to sampling from the historical distribution of process errors from the stock assessment. Canada and China suggested that process errors could be chosen from a distribution that “looked like” environmental variables thought to be controlling stock productivity. Canada and China explored six large scale environmental covariates that have been linked to fish productivity in the North Pacific Ocean through a number of studies: Pacific Decadal Oscillation, Kuroshio Current Extension, the NPGO Index, the North Pacific Index (NPI), the Aleutian Low Pressure Index and the Arctic Oscillation Index.

67. The SSC PS agreed to adopt an additional base case scenario for simulating the process error with autocorrelation and assumed values of $\sigma = 0.182$ (median over 6 runs) and $\rho = 0.2$ (ρ estimated from NPI).
68. The SSC PS reviewed and further refined the draft specification of simulation for testing HCRs (Annex H). The SSC PS agreed to conduct the simulation work to test the HCRs based on the updated specification and understands that the analyst may need to make some relatively minor modifications to the specifications as the work proceeds.

11.2 Review of candidate harvest control rules (HCRs)

69. The SSC PS reviewed and agreed to retain the current set of candidate HCRs.

11.3 Recommendations to the SWG MSE PS05

70. The SSC PS noted that the simulation work to test the candidate HCRs endorsed by SWG MSE PS04 is ongoing and that it therefore has no recommendations for the SWG MSE PS05 at this time.

Agenda Item 12. Development of recommendations to improve conservation and management of Pacific saury stock

71. The SSC PS recommended that the SC consider and endorse the following rationale and approach in its scientific advice to the Commission:

- (a) The current biomass is much lower than B_{MSY} and the TAC for 2023-2024 may not reduce fishing mortality (F) in those years. An HCR that reduces F when biomass is low may increase the probability of achieving long-term sustainable use of Pacific saury (i.e. higher long-term catch closer to MSY of around 396,570 tons). A reduction to the TAC for 2023-2024 would increase the probability of higher long-term biomass and catch levels in the Pacific saury stock.

- (b) The SSC PS recommended that the SC recommend that the Commission, at its 8th meeting, in accordance with its schedule, adopt an interim HCR from the list to be provided by the SWG MSE PS. In case the Commission cannot adopt an interim HCR, the following management recommendation is provided.
- (c) An HCR that reduces the target harvest rate and TAC when biomass falls below its target level may be appropriate for Pacific saury. This type of HCR is used in managing many fisheries around the world. For example, if an HCR that reduces F linearly when biomass is below B_{MSY} is applied, the TAC calculated based on such an HCR ($B_{2023} \cdot F_{MSY} \cdot (B_{2023}/B_{MSY}) = 73,490$ tons) could be smaller than the current catch. Note, the above HCR is currently being evaluated for management.
- (d) The SSC PS noted that a possible TAC catch limit in 2024 calculated by $B_{2023} \cdot F_{MSY} \cdot (B_{2023}/B_{MSY})$ based on the 2023 assessment would be lower relative to that based on the 2022 assessment, even though biomass in 2023 itself is higher than that in 2022. The SSC PS discussed why this was the case and agreed that the main reason is an overall reduction of scales in biomass estimates in the 2023 assessment relative to that in 2022 because of slight changes in model configurations, use of new abundance indices, and time lag between fishery-independent and dependent abundance indices, particularly that the most recent CPUE data (2023) are not included in the model used to set the current limit in 2024.
- (e) There is a two-year lag between the collection of fishery data and stock assessment work. There is a one-year lag between the survey and stock assessment work. The condition of the stock may change substantially between collection of data and management so that management measures are less effective or less appropriate. Approaches to reducing the delay should be considered. Such approaches were considered in HCR analysis but were dropped due to time constraints.

Agenda Item 13. Review of the Work Plan of the SSC PS

13.1 Work Plan of the SSC PS

- 72. The SSC PS reviewed, revised and endorsed the 2023-2027 SSC PS 5-Year Rolling Work Plan (NPFC-2023-SSC PS12-WP01 (Rev. 1)).

13.2 NPFC Performance Review recommendations

- 73. The Chair presented the proposed responses, drafted with the SC Chair and the Secretariat, to the recommendations from the Performance Review report that concern Pacific saury.
- 74. The SSC PS reviewed the Performance Review panel's recommendations and the draft responses presented by the Chair, and developed a table with its comments on each

recommendation (NPFC-2023-SSC PS12-WP10).

Agenda Item 14. Other matters

14.1 Observer Program

75. The Science Manager reminded the SSC PS of previous discussions regarding the establishment of a regional NPFC observer program and the data gaps and needs that could be filled by such a program as identified by the SSC PS. He further informed the SSC PS that the TCC is discussing the development of a regional observer program for compliance and that the Compliance Manager, Ms. Judy Dwyer, will provide an update at SC08 and seek input from the SC regarding potential ways to combine this program with a program for collecting scientific observer data.
76. The SSC PS reaffirmed the importance of having the opportunity to provide direct input on its data needs during the regional observer program development process.

14.2 Draft agenda, priority issues and timeline for next meeting

77. The SSC PS agreed to hold a 5-day meeting in the virtual format on 26-30 August 2024 and a 3-and-a-half-day in-person meeting on 12-16 December 2024. In addition, the SSC PS will hold regular virtual intersessional meetings. The WG NSAM will hold regular virtual intersessional meetings and may meet in person in June (TBD) for a 3-day workshop.
78. The SSC PS agreed on the following priorities for the next meeting:
 - (a) Review standardized CPUE up to 2023.
 - (b) Review the Japanese fishery-independent survey results up to 2024.
 - (c) Update BSSPM analyses.
 - (d) Review progress on new assessment models, review required data, finalize a set of models and specification, and evaluate key uncertainties.
 - (e) Investigate environmental impact on productivity.
 - (f) Review progress on development and evaluation of management procedure as a medium-term task.
 - (g) Review Pacific saury bycatch data from Members.

14.3 Invited expert

79. The SSC PS expressed its appreciation for the continued valuable contributions of the invited expert, Dr. Larry Jacobson. The SSC PS recommended that Dr. Jacobson be invited to the next SSC PS and WG NSAM meetings.

14.4 Selection of Chair and vice-Chair for SSC PS

80. The SSC PS re-elected Dr. Toshihide Kitakado to serve as its Chair.
81. The SSC PS elected Dr. Libin Dai to serve as its vice-Chair.

14.5 Other

82. No other issues were discussed.

Agenda Item 15. Consolidated recommendations to the Scientific Committee

83. The SSC PS recommended that the SC:
 - (a) Endorse the revised ToR of the SSC PS (Annex D).
 - (b) Endorse the revised Stock Assessment Protocol (Annex E).
 - (c) Endorse the stock assessment report (Annex F).
 - (d) Endorse the SSC PS Work Plan (NPFC-2023-SSC PS12-WP01 (Rev. 1)).
 - (e) Allocate funds for the participation of an invited expert in the next SSC PS and WG NSAM meetings.
 - (f) Consider the SSC PS's comments on the NPFC Performance Review recommendations that concern Pacific saury (NPFC-2023-SSC PS12-WP10).

Agenda Item 16. Adoption of the Report

84. The SSC PS12 Report was adopted by consensus.

Agenda Item 17. Close of the Meeting

85. The SSC PS thanked the Chair for his effective leadership and guidance.
86. The Chair thanked the participants for their dedicated and constructive discussions, Canada for hosting the meeting and its hospitality, the Secretariat for helping the host to organize the meeting, the invited expert for his technical guidance, and the rapporteur for his support.
87. The meeting closed at 16:45 on 14 December 2023, Nanaimo time.

Annexes:

Annex A – Agenda

Annex B – List of Documents

Annex C – List of Participants

Annex D – Revised Terms of Reference of the SSC PS

Annex E – Revised Stock Assessment Protocol for Pacific Saury

Annex F – Stock Assessment Report for Pacific Saury

Annex G – Specifications of the Stock Synthesis 3 model and the state-space age-structured model

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Please refer to the NPFC website for the complete annexes.

8th Scientific Committee Meeting

15-16, 18-19 December 2023
Nanaimo, British Columbia, Canada (Hybrid)
Meeting Report



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MEETING REPORT

Agenda Item 1. Opening of the Meeting

1.1 Welcome Address and Introductions

1. The 8th Meeting of the Scientific Committee (SC) was held in a hybrid format, with participants attending in-person in Nanaimo, British Columbia, Canada, or online via WebEx, on 15-16, 18-19 December 2023. The meeting was attended by Members from Canada, China, the European Union (EU), Japan, the Republic of Korea, the Russian Federation, Chinese Taipei, the United States of America (USA) and Vanuatu. The Deep Sea Conservation Coalition (DSCC), the United Nations Food and Agriculture Organization (FAO), the North Pacific Anadromous Fish Commission (NPAFC), the North Pacific Marine Science Organization (PICES), and the Pew Charitable Trusts (Pew) attended as observers.
2. The meeting was opened by Dr. Janelle Curtis (Canada), who served as the SC Chair. She thanked the participants for attending the meeting and wished them happiness and good health. The Chair acknowledged the strong and historic presence of the Snuneymuxw First Nation in Nanaimo, recognized its role as past, present and future custodians of the local lands and waters, and expressed her appreciation to be able to hold the meeting in the traditional and unceded territory of the Snuneymuxw First Nation.
3. Elder Stephanie Thomas of the Snuneymuxw First Nation welcomed the participants to the Snuneymuxw First Nation's territory. She emphasized the importance of the ocean and its resources, noted the need to work as one to protect the ocean and conserve its resources, and wished the participants a successful meeting.
4. Dr. John Holmes, Division Manager, Stock Assessment and Research Division, Science Branch, Fisheries and Oceans Canada, welcomed the participants to Nanaimo. He noted that Canada has been a Member of the NPFC since its inception and expressed Canada's honour to be hosting an NPFC meeting for the first time. Dr. Holmes highlighted the protection of marine

ecosystems as being of particular importance to Canada and expressed his belief that advancing measures to protect marine ecosystems through the Commission would also benefit individual Members and their fisheries. He noted that a new challenge for fisheries scientists, including those of the NPFC, is how to incorporate climate change and ecosystem considerations when providing advice to fisheries managers and emphasized the importance of sharing practices and experiences. Lastly, Dr. Holmes expressed his hope that the meeting would yield fruitful and productive discussions.

5. The Executive Secretary, Dr. Robert Day, welcomed the participants to the meeting. Speaking on behalf of the Commission and its Chair, Mr. Shingo Ota, he thanked Elder Thomas for her welcome and Fisheries and Oceans Canada for hosting the meeting. The Executive Secretary also noted with pleasure that this would be the first in-person SC meeting since the COVID-19 pandemic. Finally, he expressed his hope that the SC would continue to advance its important work and support the continued progress of the NPFC in the lead-up to its 10th anniversary.

1.2 Appointment of Rapporteur

6. Mr. Alex Meyer was selected as rapporteur.

1.3 Meeting Arrangements

7. The Science Manager, Dr. Aleksandr Zavolokin, outlined the meeting arrangements.

Agenda Item 2. Adoption of Agenda

8. The agenda was adopted without revision (Annex A). The List of Documents and List of Participants are attached (Annexes B, C).

Agenda Item 3. Review of the NPFC Performance Review (NPFC PR) Panel Recommendations

3.1 Overview of key recommendations for SC over short term (next 1-5 years)

9. The SC reviewed the NPFC Performance Review recommendations that concern the SC and its subsidiary bodies and compiled a table with a summary of its comments and the comments of its subsidiary bodies on each recommendation (NPFC-2023-SC08-WP04 (Rev. 1)).
10. In reviewing NPFC Performance Review Recommendations 3.1.8, 3.4.3 and 4.2.4, the SC noted the need for a clear definition of what constitutes “bycatch” and recommended that the Commission develop such a definition.

Agenda Item 4. Review of reports and recommendations from the Technical Working Group on Chub Mackerel Stock Assessment (TWG CMSA) and the Small Scientific Committees (SSC BF-

ME and SSC PS)

4.1 Technical Working Group on Chub Mackerel Stock Assessment (TWG CMSA)

11. The TWG CMSA Chair, Dr. Kazuhiro Oshima (Japan), summarized the outcomes and recommendations of the 7th TWG CMSA meeting (NPFC-2023-TWG CMSA07-Final Report).
12. The SC reviewed the recommendations of the TWG CMSA and endorsed the following recommendations:
 - (a) Adopt the Work Plan of the TWG CMSA (NPFC-2023-TWG CMSA07-WP01 (Rev. 1)).
 - (b) Endorse the TWG CMSA meeting schedule for 2023-2024 financial years: TWG CMSA08 on 22–25 January 2024 and TWG CMSA09 in 2024.
 - (c) Hire an invited expert to support the TWG CMSA in the future stock assessment project.
 - (d) Develop general protocols and guidelines for using git repositories for joint data analysis projects.
13. The SC noted that the TWG CMSA will use SAM as the chub mackerel stock assessment model and complete the first assessment in 2024.
14. The SC endorsed the report provided by the TWG CMSA Chair.

4.2 SSC on Bottom Fish and Marine Ecosystems

15. The Chair of the SSC on Bottom Fish and Marine Ecosystems (SSC BF-ME), Dr. Chris Rooper (Canada), summarized the outcomes and recommendations of the 4th SSC BF-ME meeting (NPFC-2023-SSC BFME04-Final Report).
16. The SC reviewed the recommendations of the SSC BF-ME and endorsed the following recommendations:
 - (a) Adopt the updated species summaries of North Pacific armorhead (NPA; Annex D), splendid alfonsino (SA; Annex E), sablefish (Annex F), and blackspotted and rougheye rockfishes (Annex G).
 - (b) Adopt the Terms of Reference (TOR) for Data Sharing of Catch and Effort Data for Depletion Analysis of North Pacific Armorhead (Annex N) and template for data sharing (Annex O).
 - (c) Communicate to the Commission that:
 - i. although NPA catch was slightly higher in 2022 than 2021, the catch remains at low levels relative to historical values.
 - ii. there are some indications that Japanese fishers have been avoiding catching NPA

since the voluntary catch limit was introduced in 2019.

- iii. there has been no indication of high recruitment of NPA detected in the monitoring survey.
- iv. SA catch has been about 1/2 of the mean for the last 10 years, but nominal CPUE is only slightly lower than the 10 year average.

- (d) Endorse the method proposed by Japan (NPFC-2019-SSC VME04-WP02) as one framework for identifying vulnerable marine ecosystems (VMEs), noting that the density thresholds should be further explored.
- (e) Endorse the updated 2023-2027 SSC BF-ME 5-Year Rolling Work Plan (NPFC-2023-SSC BFME04-WP01 (Rev. 1)).
- (f) Consider the SSC BF-ME's comments on the NPFC Performance Review recommendations that concern bottom fishing and marine ecosystems (NPFC-2023-SSC BFME04-WP19).
- (g) Hire an external expert to support the work of the Small Working Group on North Pacific Armorhead and Splendid Alfonsino (SWG NPA-SA).
- (h) Recommend that the Commission close two new areas as VME protection sites on Cobb Seamount as described in NPFC-2023-SSC BFME04-WP13.
- (i) Endorse a new interim encounter threshold for sponges of 350 kg.
- (j) Endorse encounter thresholds for pot gear of 2 kg for corals and 5 kg for Hexactinellida and Demospongiae in the NE Pacific.
- (k) Endorse pennatulaceans as a VME indicator taxa and include pennatulaceans in the encounter threshold of 50 kg for corals.
- (l) Endorse the revised CMM 2023-05 (Annex P).
- (m) Endorse the revised CMM 2023-06 (Annex Q).
- (n) Consider, in cooperation with TCC and the Commission, amending CMM 2023-05 to address the ambiguity around the referenced effort limits agreed in February 2007 in Paragraph 4A and amending CMM 2023-06 to determine the level of a historical average in Paragraph 3, i.
- (o) Look for opportunities for collaboration with other organizations such as the FAO ABNJ Deep-sea Fisheries Project, PICES or NPAFC to collect new data (such as biomass estimates from fishery-independent surveys or biological data collections) that would help with stock assessments for bottom fisheries and outstanding issues on VME such as VME recovery.

17. The SC noted the request from the SSC BF-ME to amend the SSC BF-ME's TOR to specifically mention the review and proposal of amendments to CMMs. The SC agreed to revise the TOR as described in Annex R.

18. The SC noted that the SSC BF-ME plans to assess the status of SA in 2024.
19. Based on the most recent stock assessments from the USA and Canada, the SC noted that the sablefish spawning stock biomass has been increasing since about 2018, supported by a large coastwide recruitment in around 2016.
20. The SC endorsed the report provided by the SSC BF-ME Chair.

4.3 SSC on Pacific Saury

21. The Chair of the SSC on Pacific Saury (SSC PS), Dr. Toshihide Kitakado (Japan), summarized the outcomes and recommendations of the 11th and 12th SSC PS meetings (NPFC-2023-SSC PS11-Final Report, NPFC-2023-SSC PS12-Final Report).
22. The SC reviewed the recommendations of the SSC PS and endorsed the following recommendations:
 - (a) Endorse the revised TOR of the SSC PS (Annex S).
 - (b) Endorse the revised Stock Assessment Protocol (Annex T).
 - (c) Endorse the stock assessment report (Annex U).
 - (d) Endorse the SSC PS Work Plan (NPFC-2023-SSC PS12-WP01 (Rev. 1)).
 - (e) Allocate funds for the participation of an invited expert in the next SSC PS and Working Group on New Stock Assessment Models (WG NSAM) meetings.
 - (f) Consider the SSC PS's comments on the NPFC Performance Review recommendations that concern Pacific saury (NPFC-2023-SSC PS12-WP10).
 - (g) Consider and endorse the following rationale and approach in its scientific advice to the Commission:
 - i. The current biomass is much lower than B_{MSY} and the total allowable catch (TAC) for 2023-2024 may not reduce fishing mortality (F) in those years. A harvest control rule (HCR) that reduces F when biomass is low may increase the probability of achieving long-term sustainable use of Pacific saury (i.e. higher long-term catch closer to MSY of around 396,570 tons). A reduction to the TAC for 2023-2024 would increase the probability of higher long-term biomass and catch levels in the Pacific saury stock.
 - ii. Recommend that the Commission, at its 8th meeting, in accordance with its schedule, adopt an interim HCR from the list to be provided by the SWG MSE PS. In case the Commission cannot adopt an interim HCR, the following management recommendation is provided.
 - iii. An HCR that reduces the target harvest rate and TAC when biomass falls below its

target level may be appropriate for Pacific saury. This type of HCR is used in managing many fisheries around the world. For example, if an HCR that reduces F linearly when biomass is below B_{MSY} is applied, the TAC calculated based on such an HCR ($B_{2023} \cdot F_{MSY} \cdot (B_{2023}/B_{MSY}) = 73,490$ tons) could be smaller than the current catch. Note, the above HCR is currently being evaluated for management.

- iv. The SSC PS noted that a possible TAC catch limit in 2024 calculated by $B_{2023} \cdot F_{MSY} \cdot (B_{2023}/B_{MSY})$ based on the 2023 assessment would be lower relative to that based on the 2022 assessment, even though biomass in 2023 itself is higher than that in 2022. The SSC PS discussed why this was the case and agreed that the main reason is an overall reduction of scales in biomass estimates in the 2023 assessment relative to that in 2022 because of slight changes in model configurations, use of new abundance indices, and time lag between fishery-independent and dependent abundance indices, particularly that the most recent CPUE data (2023) are not included in the model used to set the current limit in 2024.
- v. There is a two-year lag between the collection of fishery data and stock assessment work. There is a one-year lag between the survey and stock assessment work. The condition of the stock may change substantially between collection of data and management so that management measures are less effective or less appropriate. Approaches to reducing the delay should be considered. Such approaches were considered in HCR analysis but were dropped due to time constraints.

23. The SC endorsed the reports provided by the SSC PS Chair.

Agenda Item 5. Report and recommendations from the Joint SC-TCC-COM Small Working Group on Management Strategy Evaluation for Pacific Saury (SWG MSE PS)

- 24. The co-Chair of the joint SC-TCC-COM Small Working Group on Management Strategy Evaluation for Pacific saury (SWG MSE PS), Dr. Toshihide Kitakado (Japan), informed participants about progress of the SWG MSE PS including the outcomes and recommendations of its 3rd and 4th meetings (NPFC-2023-SWG MSE PS03-Final Report, NPFC-2023-SWG MSE PS04-Final Report).
- 25. The SC Chair stressed the importance of having management perspectives at the upcoming SWG MSE PS meeting and strongly encouraged Members to have their managers attend the meeting.

Agenda Item 6. Priority species

6.1 Summary of progress on the remaining four priority species

26. The Leads of the Small Working Groups (SWGs) on neon flying squid (NFS), Japanese sardine (JS), Japanese flying squid (JFS), and blue mackerel (BM) reported on the SWGs' intersessional activities, including the relevant outcomes of the 1st and 2nd joint virtual meetings of these SWGs in 2023, in the respective sections below (6.1.1 – 6.1.4). Detailed summaries of the joint SWG meetings are available in NPFC-2023-SC08-WP16 (1st meeting) and NPFC-2023-SC08-WP17 (2nd meeting).

6.1.1 Neon flying squid

27. The SWG NFS Lead, Dr. Luoliang Xu (China), reported on the SWG NFS' intersessional activities. The SWG NFS has met twice intersessionally (as part of the joint meetings of the SWGs on NFS, JFS, JS, and BM). It shared and reviewed Members' catch and effort data; discussed stock assessment model candidates and data requirements, focusing on the surplus production model, depletion model and State space Assessment Model Used for IKA (SAMUIKA); calculated and discussed Members' nominal catch per unit effort (CPUE) and preliminary CPUE standardization work; shared and reviewed spatial information on catch and effort; and reviewed Japan's fishery-independent survey.

6.1.2 Japanese sardine

28. The SWG JS Lead, Dr. Chris Rooper (Canada), reported on the intersessional activities of the SWG JS (NPFC-2023-SC08-WP05). The SWG JS has met twice intersessionally (as part of the joint meetings of the SWGs on NFS, JFS, JS, and BM). It updated and reviewed Members' catch and effort data, discussed catch distribution, reviewed Japan's domestic assessment, prepared an updated species summary, calculated and discussed nominal CPUE using Members' shared data, and discussed the sharing of the code for the Japanese domestic stock assessment within the SWG.

29. The SC noted that Japan and China have shared their length frequency data and length-weight relationship data and requested Russia to also share these data, so that these data can be used to further improve the domestic Japanese sardine stock assessment updated annually by Japan and assist the NPFC in determining the status of this species in the Convention Area.

6.1.3 Japanese flying squid

30. The SWG JFS Lead, Dr. Hajime Matsui (Japan), reported on the SWG JFS' intersessional activities. The SWG JFS has met twice intersessionally (as part of the joint meetings of the SWGs on NFS, JFS, JS, and BM). It updated and reviewed Members' catch and effort data, reviewed Japan's domestic stock assessment models and results, discussed data needs to improve Japan's stock assessment, reviewed the distribution of the winter and autumn

spawning cohorts of JFS, and updated the species summary.

6.1.4 Blue mackerel

31. The SWG BM Lead, Dr. Shota Nishijima (Japan), reported on the SWG BM's intersessional activities. The SWG BM has met twice intersessionally (as part of the joint meetings of the SWGs on NFS, JFS, JS, and BM). It updated the species summary, updated Members' estimated catch and effort, reviewed the feasibility of calculating the proportion of BM and chub mackerel catch by gear, shared and reviewed data on BM fork length and age, reviewed methods for distinguishing BM and chub mackerel, reviewed historical catch and updated the estimate of the proportion of BM and chub mackerel, reviewed Japan's domestic stock assessment, and shared and reviewed BM length frequency data and length-weight relationship data.
32. The SC recommended that the Commission amend CMM 2023-11 For Japanese Sardine, Neon Flying Squid and Japanese Flying Squid to change "spotted mackerel" to "blue mackerel".
33. The SC discussed whether or not it is worthwhile assessing and managing chub and blue mackerel separately. The SC noted that the chub and blue mackerel fisheries are very similar as they are conducted with the same fishing gear and have the same fishing season, and that it is very difficult for fishers to distinguish between the two species. Therefore, from a management perspective, it could be possible to have joint management measures for the two fisheries. On the other hand, the SC also noted that there are differences in the catch distribution of chub and blue mackerels. The mackerel catch can be separated into each species with the ratio of blue mackerel provided from Members in the NPFC stock assessment. Therefore, from a scientific perspective, the two mackerel species should be assessed separately. The SC agreed that this matter could be discussed further when the results of the chub mackerel stock assessment are available.

6.2 Species summaries

6.2.1 Review of priority species summaries

34. The SWG NFS Lead presented the updated species summary document for NFS (NPFC-2023-SC08-WP14 (Rev. 1)).
35. The SC reviewed, further revised, and endorsed the updated species summary document for NFS (Annex H).
36. The SWG JS Lead presented the updated species summary document for JS (NPFC-2023-

SC08-WP06).

37. Regarding the figure on historical JS catch, Japan explained the reason for the large difference in the historical FAO data and the recent data. The historical FAO data contain data from two JS stocks (Tsushima Warm Current stock and Pacific stock), whereas the recent data, which are the data reported by Japan to the NPFC, only contain data on the Pacific stock. Japan suggested that, for consistency, the figure should only include data on the Pacific stock, which is the stock distributed in the Convention Area, and it offered to share these data after the meeting. The SC agreed to Japan's suggestion.
38. The SC reviewed, further revised, and endorsed the updated species summary document for JS (Annex I).
39. The SWG JFS Lead presented the updated species summary document for JFS (NPFC-2023-SC08-WP08).
40. The SC reviewed, further revised, and endorsed the updated species summary document for JFS (Annex J).
41. When reviewing the species summary documents for NFS, JS, and JFS, the SC noted that paragraphs 1 and 2 of CMM 2023-11 for Japanese Sardine, Neon Flying Squid and Japanese Flying Squid do not define the historical existing level of the number of fishing vessels. The SC noted that the TCC and the SWG Planning and Development (SWG PD) are assessing all CMMs to provide greater clarity, including on these paragraphs (and similar paragraphs for other species), while reviewing the Compliance Monitoring Scheme, and the SC expressed its support for these efforts to clarify CMMs.
42. The SWG BM Lead presented the updated species summary document for BM (NPFC-2023-SC08-WP07).
43. The SC reviewed and endorsed the updated species summary document for BM (Annex K).
44. The SC agreed that, like the SSC PS and the TWG CMSA, the subsidiary bodies for NFS, JS, JFS, and BM should include ecosystem considerations and the potential impacts of climate change in future discussions and work.
45. The SC Chair presented the species summary document for Pacific saury (NPFC-2023-SC08-

WP09 (Rev. 2)).

46. The SC reviewed, revised, and endorsed the updated species summary document for Pacific saury (Annex L).
47. The SC requested that the Secretariat create a standalone section on the NPFC website for stock assessment reports so that they can be more easily found and accessed.
48. The TWG CMSA Chair presented the species summary document for chub mackerel (NPFC-2023-SC08-WP15 (Rev. 1)).
49. The SC reviewed and endorsed the species summary document for chub mackerel (Annex M).

6.3 Changes to common and scientific species names

50. The Chair informed the SC that she had consulted a variety of parties on developing a potential process to change the common and scientific names of species used by the NPFC. Based on her consultations, she determined that it would be very challenging to develop a process that would encompass all proposals and circumstances for changing a common and/or scientific species name used by the NPFC.
51. The SC agreed to consider proposed changes to common and scientific species names used by the NPFC on a case by case basis.

6.4 Domestic stock assessments of NFS, JFS, JS, and BM

52. The Chair reminded the SC that, at the 2nd joint meeting of the SWGs on NFS, JFS, JS, and BM in 2023, participants agreed that the results of the domestic stock assessments of JFS, JS and BM conducted by Japan would be observed at SC08, incorporated in the species summary documents, and submitted to the Commission.
53. China presented its preliminary domestic stock assessment of NFS (NPFC-2023-SC08-IP10). China found that El Niño-Southern Oscillation (ENSO) events (Niño indices) heavily affect the distribution and the local and global abundance of NFS in three spatiotemporal models. Thus, Niño indices and related environmental factors should be strongly incorporated in the stock assessment models. The results of China's preliminary stock assessment showed that the status of NFS stock is healthy, although annual fluctuation in biomass has occurred. The projections showed that climate change seems to be beneficial for the NFS, but the biomass would decrease in the traditional fishing ground, increasing the difficulty of fishing in the future.

China also informed the SC that China will mandate the use of electronic logbooks for the NFS fishery from 1 January 2024 and that it will update its related NFS work accordingly.

54. Japan was concerned that CPUE might have been standardized using annual measures of environmental variables related to the productivity of NFS, which has a one-year longevity, and requested China to prepare a paper explaining the details of its CPUE standardization work, including the variables considered, and submit it to the next meeting of the new Small Scientific Committee on Neon Flying Squid (SSC NFS), which SC agreed to establish under Agenda Item 6.6.1.
55. China intends to present a paper explaining the details of its CPUE standardization for NFS at the SSC NFS meeting next year.
56. Russia suggested that China consider incorporating oceanographic conditions in its future NFS stock assessment work.
57. The SC noted that China's preliminary stock assessment indicated that the status of the NFS stock is healthy.
58. Japan presented its domestic stock assessment of JFS (NPFC-2023-SC08-IP06). The estimated total biomass of the winter spawning stock decreased largely from 2015 to 2016 and has remained low since then. The maximum sustainable yield (MSY) based reference points were estimated from the stochastic simulation with the Beverton Holt stock-recruitment (SR) relationship. In 2022, the estimated total biomass was 141,000 MT and spawning stock biomass (SSB) was 49,000 MT. SSB is lower than SSB_{MSY} , and F is lower than F_{MSY} in 2021. In the current stock assessment method, there are uncertainties such as the absolute value of stock abundance estimates.
59. Based on the latest Japanese domestic stock assessment for JFS, the SC noted that the estimated total biomass of the winter spawning stock decreased largely from 2015 to 2016 and has remained low since then, that SSB was lower than SSB_{MSY} and F was lower than F_{MSY} in 2021, and that the estimated total biomass was 141,000 MT and SSB was 49,000 MT in 2022.
60. Japan presented its domestic stock assessment of JS (NPFC-2023-SC08-IP04). Japan conducts its JS stock assessment by the tuned Virtual Population Analysis (VPA) with ridge penalty. The MSY-based reference points were estimated from the stochastic simulation from the normal regime SR relationship of the hockey stick function. In 2022, estimated total biomass

was 4.91 million MT and spawning stock biomass (SSB) was 2.41 million MT, which exceeded SSB_{MSY} (1.19 million MT). The current F (F2020–2022) exceeded F_{MSY} . As future issues, it is necessary to reflect actual age composition for fishes captured outside the Japanese exclusive economic zone (EEZ). Greater consideration of how to treat regimes for future projection and biological reference points (BRPs) is also needed. Furthermore, CPUE standardization should be conducted.

61. China noted that JS may be landed as either targeted catch or bycatch and encouraged Japan to consider how to account for this in its future CPUE standardization work.
62. Based on the latest Japanese domestic stock assessment for JS, the SC noted that SSB exceeded SSB_{MSY} and current F (F2020–2022) exceeded F_{MSY} .
63. Japan presented its domestic stock assessment of BM (NPFC-2023-SC08-IP05). Japan conducts its BM stock assessment by the tuned VPA. The MSY-based reference points were estimated from the stochastic simulation from the Ricker SR relationship. Biomass and SSB have been decreasing since 2011, and recruitment has been much lower than the expectation from the SR relationship. The status in 2021 is that overfishing ($F > F_{MSY}$) is occurring and the stock is overfished ($SSB < SSB_{MSY}$). For future assessments, it is necessary to reflect actual age composition of fishery catch outside the Japanese EEZ. The development and standardization of abundance indices should also be conducted.
64. Based on the latest Japanese domestic stock assessment for BM, the SC noted that biomass and SSB have been decreasing since 2011 and that the status in 2021 is that overfishing ($F > F_{MSY}$) is occurring and the stock is overfished ($SSB < SSB_{MSY}$).
65. The SC noted the usefulness of having information from Members' domestic stock assessments for NFS, JFS, JS, and BM. The SC requested that Japan submit English summaries of its updated domestic stock assessments for JFS, JS, and BM to SC09. The SC agreed that China's updated domestic stock assessment will be reviewed at the SSC NFS.
66. Japan presented a comparison of length-weight relationships (LWR) and catch numbers by size and age between China and Japan for JS and BM (NPFC-2023-SC08-WP11 (Rev. 1)). Japan compared the LWR and catch numbers by size and age between China and Japan, and found that JS caught by the Chinese fishery may be fatter than those caught by the Japanese fishery in 2021 and 2022, while the degree of obesity for BM did not differ much between China and Japan. It also found that fish caught by the Chinese fishery were smaller and probably younger

than those caught by the Japanese fishery for both JS and BM. These differences may reflect size-dependent spatial distributions of JS and BM: large and old fish may be distributed mainly along the Pacific coast of Japan, while only small and young fish may be distributed as far as the NPFC Convention Area. The current domestic stock assessment for the Pacific stocks of JS and BM in Japan assumed that the age composition of foreign catches was identical to that of the northern purse seine fishery in Japan. However, according to the current results, this assumption would be invalid and risky because the Chinese JS and BM fisheries are composed of smaller and younger fish, and the Chinese catch weight and number of JS and BM have been increasing. Continued sharing of data on length-weight relationships and size and age composition in Members' fisheries will be important for accurate estimates of stock abundance and fishery impacts through Japanese domestic stock assessment on those species.

67. Russia noted that its catch of JS has increased in recent years and suggested that it could share its gear-specific length and weight data from its fisheries, length and weight data from its surveys in the Northwestern Pacific Ocean, and, if needed, age data calculated using the Japanese age-length key (ALK).
68. The SC welcomed Russia's input and agreed that these data can be used to further improve the Japanese sardine stock assessment and assist the NPFC in determining the status of this species in the Convention Area.

6.5 Key milestones to achieve for NPFC stock assessments and provision of management advice

69. Canada presented a summary of the current assessment status for NPFC priority species and species that are targeted but not on the priority species list (sablefish, skilfish, rougheye and blackspotted rockfishes) as well as a draft set of standardized activities or milestones to achieve for conducting stock assessments and providing management advice on these species (NPFC-2023-SC08-IP12). Canada also suggested streamlining reporting to Commission from the SC with statements of status for each species, time series of catch and effort for all species, and standardized CPUE or biomass where available; establishing a cycle of an independent review of stock assessments every 5–10 years; and considering collecting fishery catch data through a regional observer program.
70. The summary of the current assessment status for NPFC priority species and sablefish, skilfish, and rougheye and blackspotted rockfishes, and the draft set of standardized activities or milestones to achieve for conducting stock assessments and providing management advice on these species are included as Annex V.

71. The EU and Canada developed and shared draft biological data provision templates for age, ALKs, length, and maturity at age (NPFC-2023-SC08-IP13).
72. The SC requested Members to test the biological data provision templates when submitting data to the SC's subsidiary bodies. The SC tasked its subsidiary bodies to evaluate the templates and present feedback to SC09, as well as to discuss the appropriateness of having a standardized approach for sharing data and present the outcomes of their discussions to SC09.
73. The SC agreed to establish a Small Working Group on Milestones and tasked it to further develop milestones for conducting stock assessments and providing management advice, discuss the potential use of the biological data provision templates, and present the outcomes at SC09.
74. The SC acknowledged that it may be difficult to develop a uniform set of milestones due to the differences among the NPFC priority species and encouraged the Small Working Group on Milestones to endeavor to identify common key steps to work towards to the extent possible.

6.6 Future roles and activities of the SWG NFS, SWG JFS, SWG JS, and SWG BM

75. The SC developed a table of future tasks for the SWG JFS, the SWG JS, the SWG BM and the Small Scientific Committee on Neon Flying Squid, which will supersede the SWG NFS as described in Agenda Item 6.6.1 below (Annex W).

6.6.1 Potential establishment of a new formal SC subsidiary body to focus on NFS

76. The SC agreed to establish a Small Scientific Committee on Neon Flying Squid (SSC NFS) to supersede the SWG NFS.
77. The SC agreed to appoint Dr. Luoliang Xu (China) as the SSC NFS Chair and Dr. Bungo Nishizawa (Japan) as the SSC NFS Vice-Chair.

6.6.2 Scientific project(s) to support CPUE standardization and assessment of NFS

78. The SC agreed that it would be worthwhile hiring a contractor to support the work of the SSC NFS.

6.6.3 Virtual or in-person meetings

79. The SC agreed to hold an initial virtual meeting of the SSC NFS in the intersessional period (in August or September 2024) to develop its TOR and Work Plan.

80. The SC agreed to hold joint virtual meetings of the SWG JFS, SWG JS, and SWG BM in the intersessional period.

Agenda Item 7. Climate change

7.1 Climate change effects on NPFC's priority species and associated ecosystems

81. The Science Manager presented an overview of the NPFC's Resolution on Climate Change and, for reference, potential scientific tasks that Members of South Pacific Regional Fisheries Management Organisation (SPRFMO) have identified in relation to climate change (NPFC-2023-SC08-IP08).
82. Dr. Tony Thompson (FAO) introduced the climate change-related aspects of the Areas Beyond National Jurisdiction (ABNJ) Deep Sea Fisheries (DSF) Project (NPFC-2023-SC08-OP02). The DSF Project would like to fund a consultancy and work with the NPFC on climate change. The consultancy would be guided by NPFC needs and focus on scientific aspects. The DSF Project aims to conduct similar consultancies with a number of regional fisheries management organizations (RFMOs) and eventually support a global workshop to further develop guidance for climate change among RFMOs. The consultancy would aim to summarize potential climate change impacts on managed stocks, non-target species and associated ecosystem; study climate change-related distribution shifts; review the most recent Intergovernmental Panel on Climate Change (IPCC) ocean climate change predictions in the North Pacific; summarize how this may affect the ecosystem and the likely impacts on managed stocks and non-target species; identify any new data requirements needed to detect and monitor climate-related changes; and consider how to integrate climate change effects into stock assessments and fishery management advice.
83. The SC agreed to continue to communicate with the FAO on developing a climate-change-related consultancy.
84. The Executive Secretary of the North Pacific Marine Science Organization (PICES), Dr. Sonia Batten, provided an overview and an update on the Basin-scale Events to Coastal Impacts (BECI) project (NPFC-2023-SC08-OP01). BECI has been endorsed by the United Nations Decade of Ocean Science and its objective is to implement an international ocean intelligence system of monitoring, research and analytical approaches that provides timely advice to decision-makers about the impact of current and future climate conditions on socio-ecological systems. Major components of the project are modeling; data mobilization; observation and monitoring; targeted at-sea research; and outreach, communication and coordination. In 2023, BECI convened a science plan development workshop and it is aiming to make a funding

announcement for an initial BECI project office and to appoint a Science Director to lead the development and implementation of BECI within this year. In 2024, BECI is aiming to establish its science plan and distribute it for comments, as well as to build an implementation plan and collaboration network.

7.1.1 Current knowledge

7.1.2 Ongoing research activities

85. China presented an overview of surveys conducted from 2021 to 2023 by Chinese research vessel “Song Hang” in the Northwestern Pacific Ocean in the NPFC Convention Area (NPFC-2023-SC08-WP12). This comprehensive program covers fisheries resources, larval-juvenile fish, plankton, and environmental surveys and has collected fundamental data and biological tissue samples that could improve understanding of the marine ecosystem in that part of the Convention Area. China welcomed any comments and suggestions for improving the survey, and invited participants to attend a workshop on survey design optimization for 2024 that will be held in March 2024 in Shanghai. China offered to financially support the travel of 1-2 participants from NPFC Members and other relevant experts.
86. Members provided some comments on the research surveys conducted by China and welcomed China’s effort to collect more data on fisheries resources and marine ecosystems in the Convention Area.

7.1.3 Research priorities and potential scientific projects for SC

87. The DSCC presented an overview of the research project “Defying Dissolution: Deep-sea Scleractinian Reefs in the North Pacific” (NPFC-2023-SC08-IP14). Scleractinian reefs were discovered below the aragonite saturation horizon (ASH) in the North Pacific. This may be because the ASH has shoaled since formation due to ocean acidification. To test this hypothesis, research cruises were conducted in fall 2021 and fall 2022. The cruises included species distribution studies, species distribution and habitat suitability modeling, carbonate chemistry and dissolution experiments, and other research activities. Depth analyses are ongoing and the preliminary results will be presented at Ocean Sciences in February 2024.
88. Canada presented an overview of a research proposal (NPFC-2023-SC08-IP07) it has submitted to Canada’s Competitive Science Research Fund (CSRF) to study the cumulative impacts of climate vulnerability and significant adverse impacts (SAIs) caused by bottom-contact fishing on vulnerable marine ecosystems (VMEs) in the NPFC Convention Area, specifically the Cobb-Eickelberg seamount chain in the Northeastern Pacific Ocean. The project is aimed at advancing progress on defining SAI, assessing the cumulative risks of SAIs

to VMEs caused by bottom-contact fishing and anticipated climate-induced changes, and using spatial optimization software to identify climate-resilient VMEs and potential VMEs to protect from SAIs.

Agenda Item 8. Data Collection and Management

8.1 Data Management System

89. The Data Coordinator, Mr. Sungkuk Kang, and a postdoctoral researcher under the NPFC Internship Program, Dr. Jihwan Kim, reported on the progress in the development of the SC-related data management system (NPFC-2023-SC08-IP03). The Data Coordinator explained updates to the Members Home, Significant dates/Events, Pacific Saury Weekly Report, Collaboration, and Annual reports sections, as well as updates to the NPFC GIS Map to include Pacific saury catch and effort data with sea surface temperature per 1 x 1 degree grid from 1994 to 2022. The NPFC Intern reported on the progress in the development of an NPFC neon flying squid map that will be similar to the Pacific Saury Catch and Effort Map, and invited Members to provide suggestions before the map is deployed on the Members' section of the NPFC website.
90. The SC noted that the NPFC Performance Review Panel had recommended developing GIS maps with catch and effort data for NFS, JS and JFS. The SC agreed that it could be useful to create such maps for NFS and JS. In the case of the JFS, the SC agreed that it may not be worthwhile as the JFS catch in the Convention Area is small and only taken by one Member.
91. The SC also discussed the distinction between the sharing of data for scientific analyses and stock assessment work within a scientific group of experts, and the displaying/visualization of data, for example on maps, for all NPFC Members. The SC agreed that, for scientific analyses and stock assessment work, data should be shared at the finest resolution possible. The SC agreed that the display/visualization could be done at coarser resolutions. The SC also noted that the appropriate resolution for displaying/visualizing data may differ by fisheries.
92. The SC requested the SSC NFS and the SWG JS to discuss whether it would be useful to create GIS maps with catch and effort data for NFS and JS. The SC agreed that, if the SSC NFS and/or the SWG JS determine that such maps would be useful, the SC would seek the Commission's guidance on how to present the data.
93. The Data Coordinator presented an overview of GIT repository options provided by GitHub and GitLab (NPFC-2023-SC08-WP13) and invited Members to indicate their preferences.

94. The SC expressed its preference for the GitHub Team plan. The SC requested the Secretariat to continue its discussions with GitHub to see if it is possible for the NPFC to utilize the GitHub Team Plan for free as a non-profit organization and report to TWG CMSA08 in January 2024.
95. The SC requested the Secretariat to develop guidelines and a manual for using GitHub in cooperation with Members. The SC encouraged Members to share any other resources that may be useful and requested the Secretariat to compile them into a list.

8.2 NPFC Data Sharing and Data Security Protocol

96. The Data Coordinator outlined the NPFC Data Sharing and Data Security Protocol that was developed and adopted by the Commission at its 7th meeting.

8.2.1 Revision of Regulations for Management of Scientific Data and Information

97. The Science Manager presented proposed revisions to the Regulations for Management of Scientific Data and Information to align it with the NPFC Data Sharing and Data Security Protocol (NPFC-2023-SC08-WP10).
98. The SC reviewed and endorsed the proposed revisions (Annex X).

8.3 Data needs, data gaps, and strategies to fill gaps

8.3.1 Information about species belonging to same ecosystem or dependent/associated with target stocks

99. The Chair reminded the SC that, in accordance with Article 10, paragraph 4(d), one of the functions of the SC shall be to assess the impacts of fishing activities on fisheries resources and species belonging to the same ecosystem or dependent upon or associated with the target stocks. She further pointed out that the NPFC Performance Review Panel has recommended that the SC and TCC should coordinate formal efforts to collect standardized data and validate bycatch of associated and dependent species, and that the SC develop strategies that address the lack of information needed to take ecosystem considerations into account for NPFC pelagic fisheries in the Convention Area, and include these in the SC's Research Plan, data collection procedures and obligations. The Chair also reminded the SC that SC06 agreed that the establishment of an observer program in the NPFC Convention Area would facilitate the collection of more data for such non-targeted species, as well as for NPFC priority species.

100. The SC agreed that it would be useful to have Members' historical information about discarded bycatch from the Convention Area. The SC requested Members to identify whether they have any historical information about species captured in surveys and/or discarded bycatch from

their fisheries in the Convention Area and to present summaries of such information to the relevant SC subsidiary body. The SC tasked its subsidiary bodies to review this information and report any potential impacts on species belonging to same ecosystem or dependent/associated with target stocks during SC09.

8.3.2 Potential roles of regional observer program or e-monitoring

101. The SC noted that its subsidiary bodies have identified some of the data needs and data gaps that could be filled by a regional observer program. The SC tasked its subsidiary bodies to review and update such data needs and gaps in light of advances in their scientific analyses and stock assessment work. The SC also tasked its subsidiary bodies to discuss the structure of a potential regional observer program, such as necessary levels of coverage by fishery and gear type. The SC agreed that these tasks would be a lower priority for the SSC PS and the TWG CMSA as they are currently working on the high priority tasks of the Pacific saury management strategy evaluation and the chub mackerel stock assessment, respectively.
102. The SC reaffirmed the scientific value of having a regional observer program. At the same time, some Members noted that the establishment of a regional observer program could be challenging and take a significant amount of time and suggested that Members' domestic observer programs could fill many of the data needs and gaps that have been identified. Other Members pointed out that it is difficult for Members to evaluate whether data collected by each other's observer programs are representative of the fished stock. The SC noted that the EU presented a template for collecting qualitative information about Members' sampling programs at TWG CMSA07. The SC requested the EU to share this template with Members and requested Members to fill it out and submit it to the relevant subsidiary bodies.
103. The SC noted that there remain some technical issues with electronic monitoring that require further discussion.
104. The EU pointed that a regional observer program and electronic monitoring are separate, albeit complementary, matters and that the SC should take care to distinguish between the two in its discussions. The logistical challenges associated with implementing a regional electronic monitoring program significantly add to the complexity of a scientific data collection initiative and might impede the discussions of traditional and well-established data collection methods such as observer programs.

Agenda Item 9. Scientific projects for 2024

9.1 Ongoing/planned projects

9.2 *New projects*

9.3 *Review and prioritization of projects*

105. The Science Manager presented a draft list of scientific projects that were discussed during the meetings of the SC and its subsidiary bodies (NPFC-2023-SC08-WP01 (Rev. 1)).
106. The SC agreed that capacity building within Members was important and support for scientists to attend training and meetings should be supported as much as possible. The SC agreed to add a new project to the list: “Other science meetings / capacity development.” With that support would come an obligation to transmit the skills and knowledge to the SC through reports, workshops, or shared scientific products (e.g. modeling methods or code).
107. The SC reviewed the list of proposed scientific projects and endorsed it for consideration by the Commission (Annex Y).
108. The Science Manager presented a special project to be sponsored by the Special Project Fund which is to hire an expert in the use of data limited methods in stock assessment to assist the SWG NPA-SA in conducting an assessment of the SA and possibly NPA stocks in the Emperor Seamounts as recommended by SSC BF-ME04 (NPFC-2023-SC08-IP11). The Secretariat, in cooperation with the Chair of SSC BF-ME04, will prepare a proposal and submit it to the Finance and Administration Committee (FAC) for consideration.
109. The SC recommended that the FAC endorse this as a special project.

Agenda Item 10. Cooperation with other organizations

110. The Science Manager outlined a compiled list of cooperation opportunities and requests from other organizations, for consideration by the SC (NPFC-2023-SC08-IP02).

10.1 *Reports on the joint NPFC-PICES activities since the SC07 meeting, including a report from the PICES Secretariat*

111. Dr. Sonia Batten (PICES), reported on recent and upcoming planned joint activities between PICES and NPFC (NPFC-2023-SC08-OP01), highlighting the following:
 - (a) Participation by NPFC and PICES representatives at each other’s annual meetings
 - (b) NPFC representation to the joint PICES-ICES Working Group (WG) on Small Pelagic Fish (WG 43)
 - (c) Involvement by some NPFC scientists, including the Chair of the NPFC SC, in the Working Group on the Ecology of Seamounts (WG 47)
 - (d) Co-sponsoring of a PICES-ICES-FAO symposium, “Small Pelagic Fish: New Frontiers

in Science and Sustainable Management” in 2022

- (e) Co-sponsoring of a topic session, “Environmental variability and small pelagic fishes in the North Pacific: exploring mechanistic and pragmatic methods for integrating ecosystem considerations into assessment and management” by the NPFC at the PICES-2022 Annual Meeting in Busan, Korea in September 2022
- (f) Co-convening of a hybrid workshop at PICES-2022 with members of WG47 on “Distributions of pelagic, demersal and benthic species associated with seamounts in the North Pacific Ocean and factors influencing their distributions”
- (g) Co-sponsoring of a topic session, “S14: BIO Topic Session Seamount biodiversity: vulnerable marine ecosystems (VMEs) and species associated with seamounts in the North Pacific Ocean,” at PICES-2023 in Seattle, USA.
- (h) Agreement by the NPFC and PICES to hold a joint international course/workshop on VME indicator taxa identification, and approval of financial contributions of US\$15,000 from each organization (postponed)
- (i) Revision of the NPFC-PICES Framework for Enhanced Scientific Collaboration to plan the next phase
- (j) Workshop in February 2024 to begin planning of the Small Pelagic Fish-2026 Symposium
- (k) Holding of PICES-2024 in Honolulu, USA
- (l) Endorsement of the BECI project by NPFC

112. The Science Manager reminded the SC that the planned joint international course/workshop on VME indicator taxa identification was first postponed because of the COVID-19 and subsequently further postponed due to difficulty finding a host for the course/workshop, which should be conducted in person. The course/workshop has since been removed from the SC’s list of scientific projects, but can be restored when the SC determines it to be appropriate to do so.

10.2 SC representation at PICES meetings

10.2.1 SC representation in the Joint ICES-PICES WGSPF

113. Dr. Chris Rooper (Canada) provided a report on the activities of the joint PICES-ICES Working Group on Small Pelagic Fish in 2023 of relevance to the NPFC (NPFC-2023-SC08-IP15). These include:

- (a) Two special issues in *Canadian Journal of Fisheries and Aquatic Sciences* (CJFAS) and *Marine Ecology Progress Series* (MEPS) resulting from the PICES-ICES-FAO symposium, “Small Pelagic Fish: New Frontiers in Science and Sustainable Management” conducted in 2022
- (b) Plans to hold a small report writing workshop in February 2024 in La Paz, Mexico

- (c) Proposal of a new PICES WG to jointly collaborate with the ongoing ICES WG
- (d) Plans to hold a PICES topic session on advances in observational, analytical, and modeling tools that lead to better observations and improved understanding of small pelagic fish at the PICES Annual Meeting in 2024
- (e) Plans to hold a Small Pelagic Fish symposium in spring 2026 in La Paz, Mexico

10.2.2 Report on PICES' topic session on VMEs and Seamounts

114. Ms. Devon Warawa (Canada) provided a report on the PICES S14: BIO Topic Session – “Seamount biodiversity: VMEs and species associated with seamounts in the North Pacific Ocean” and the business meeting of PICES WG47 on Ecology of Seamounts (NPFC-2023-SC08-IP16). At the topic session, the invited speaker, Dr. Ashley Rowden, presented a paper on “Methods and challenges for identifying VMEs and monitoring biodiversity on seamounts: a personal perspective from the South Pacific Ocean.” There were also presentations by NPFC scientists on topics such as association analysis of seamount benthos for identifying the validity of VME indicator taxa; visual surveys and distribution models to identify VMEs in the Convention Area; distribution, abundance and size structure of deep-sea corals and sponges in the Northeastern Pacific Ocean, and a study from the Emperor Seamounts of environmental DNA as a potential tool for understanding demersal ichthyofauna in seamounts. The PICES WG47 business meeting discussed the WG’s TOR and exchanged information and ideas about participants’ seamount research activities.

10.2.3 Selecting SC representatives to PICES 2024

115. The Chair reminded the SC of the criteria and process it agreed on at SC07 for selecting an SC representative to PICES 2024 and encouraged Members to submit nominations in the intersessional period.

10.3 Report on cooperation between NPFC and NPAFC

116. The Deputy Director of NPAFC, Dr. Ricardo Federizon, presented the current status of the Five-year Work Plan to implement the NPAFC/NPFC Memorandum of Cooperation (NPFC-2023-SC08-OP03 (Rev. 1)) with commentary from the NPAFC.

117. The SC welcomed the continued collaboration between the NPFC and the NPAFC to implement their Memorandum of Cooperation.

10.4 FAO ABNJ Deep-sea fisheries project

118. Dr. Tony Thompson (FAO) presented an update on the ABNJ DSF Project (NPFC-2023-SC08-OP02). The work of the project has four main components: strengthening and implementing

regulatory frameworks, strengthening effective management of deep-sea fisheries, improving understanding and management of cross-sectoral interactions on deep-sea fisheries, and knowledge management and communication. The DSF Project would like to support a number of regional studies to review modalities for incorporating climate change effects into the work of deep-sea RFMOs, including the NPFC. The DSF Project would also like to partner with the ICES to assess data-limited stocks, such as SA and NPA, and monitor rapid change and would like suggestions from NPFC of stock experts that would like to join this initiative. The DSF Project will hold a symposium in 2025 on the “Application of the Ecosystem Approach to Fisheries Management in ABNJ – recent development in the monitoring, assessment and mitigation of ecosystem impacts of fisheries.” The DSF Project is also reviewing the implementation of the FAO DSF Guidelines and will develop and publish the final draft in the FAO Fisheries and Aquaculture Technical Paper series in early 2024. The DSF Project thanks NPFC for its continued partnership with the DSF Project and looks forward to developing concrete joint activities to contribute to strengthened global fisheries management and protection of biodiversity in the ABNJ. To facilitate further progress, the DSF Project requests the NPFC to identify contact people for climate change work, data-limited stock assessments, and the ecosystem approach to fisheries management (EAFM) framework and symposium.

119. The SC identified the following points of contact for the DSF Project:

- (a) Climate change work: Dr. Erin Bohaboy (USA)
- (b) Data-limited stock assessment of SA and NPA: Dr. Takehiro Okuda (Japan)
- (c) EAFM framework and symposium: The NPFC Secretariat

10.5 Partnership with the Fisheries and Resources Monitoring System of FAO (FIRMS)

120. Dr. Aureliano Gentile (FAO) provided an overview of the FAO Blue Transformation strategy and an overview and update on the partnership between FIRMS and NPFC (NPFC-2023-SC08-OP04). The FAO Blue Transformation is a vision to expand aquatic food systems and increase their contribution to better production, better nutrition, better environment and better life. FIRMS was launched in 2004 to provide decision makers and others with high quality, authoritative information on global marine fisheries resources to develop informed fisheries and marine resource policies. FIRMS has steadily grown its membership as well as its information base and has now operationalized comprehensive reporting and developed a number of tools and products, such as the Global Record of Stocks and Fisheries (GRSF) areas database, an inventory of fishery management units, an inventory of fishing units, the FIRMS Global Tuna Atlas, regional databases on catch and effort. FIRMS Partners have also established core concepts, definitions, and data presentation formats and standards. In terms of recent key developments, FIRMS held a Steering Committee meeting to deliberate strategic

decisions for the next decade, is working on updating the FIRMS system, and is working to support SDG Indicator 14.4.1 (proportion of fish stocks within biologically sustainable levels). As for the NPFC's role in FIRMS, as a new Partner and data provider, NPFC is instrumental to increase the monitoring of the North Pacific region with data coverage and information, and with networking and flagging other opportunities for partnership.

121. The NPFC is invited to take part in assigning unique identifiers to NPFC stocks and fisheries and informing about the North Pacific fish stock structure; the FIRMS dissemination of the stock-by-stock disaggregation of the State of World Fisheries and Aquaculture (SOFIA) index, which will combine public data provided by RFBs and non-public data from the SDG14.4.1 Questionnaire and other national sources; contribute to the newly borne FAO sub-Committee on fisheries management; contribute to the GRSF Area database from the Member level; and contribute to the development of FIRMS information standards.
122. The SC welcomed the progress made so far in the partnership between NPFC and FIRMS and the plans for moving forward.

10.6 Partnership with WCPFC and ISC

123. On behalf of Dr. John Holmes, the Chair of the International Scientific Committee for Tuna and Tuna-Like Species in the North Pacific Ocean (ISC), Ms. Sarah Hawkshaw (Canada) reported on progress towards concluding a Memorandum of Understanding (MOU) between the NPFC and the ISC (NPFC-2023-SC08-OP05). A draft MOU developed by the NPFC Executive Secretary was presented for discussion at ISC23 Plenary meeting held in July 2023 in Kanazawa, Japan. The MOU focuses on mutual interests, including exchanging data and scientific information in support of the work and objectives of both organizations; collaborating on research efforts relating to species and stocks of mutual interest; exchanging expertise gained, lessons learned and use of best practices in their areas of activity; and granting reciprocal observer status to representatives of the respective organizations in relevant meetings. The ISC Plenary was supportive of the MOU in general but sought to address some concerns. The ISC Chair is proposing changes based on the ISC Plenary's input. The ISC Chair and the NPFC Executive Secretary will work together to put in place language acceptable to both and the revised MOU will be presented for approval by each organization at the next available opportunity (NPFC: April 2024; ISC: June 2024).
124. The Executive Secretary informed the SC that the Western and Central Pacific Fisheries Commission (WCPFC) recently held its annual meeting, where it reviewed the draft MOU submitted by the NPFC and proposed revisions, and that the WCPFC is expected to submit a

revised proposal to NPFC in due course.

10.7 Partnership with SPRFMO

125. The Executive Secretary informed the SC that, following the 7th meeting of the Commission, the NPFC has signed an MOU with SPRFMO to facilitate consultation, cooperation, and collaboration between the two organizations.

10.8 Cooperation with other organizations

126. There was no discussion of cooperation with any other organizations.

Agenda Item 11. SC Terms of Reference (TOR) and 2024-2028 Research Plan and Work Plan

11.1 Review of the SC TOR

127. The SC reviewed its TOR and determined that no revisions are currently needed.

11.2 Five-year Research Plan

11.3 Five-year Work Plan

128. The SC reviewed and updated its 2023-2027 Five-Year Rolling Research Plan (NPFC-2022-SC08-WP02) and Work Plan (NPFC-2023-SC08-WP03 (Rev. 1)). The updated Research Plan and the Work Plan of the SC and its subsidiary bodies are attached as Annex Z.

11.4 Progress on addressing NPFC PR recommendations for SC

129. The SC's progress on addressing the NPFC Performance Review Panel's recommendations, as well as the SC's ongoing and future actions, are described in NPFC-2023-SC08-WP04 (Rev. 1).

Agenda Item 12. Other Matters

12.1 Coordination between SC and TCC

130. The Compliance Manager, Ms. Judy Dwyer, provided an update on the compliance program (NPFC-2023-SC08-IP09). She explained the current observer requirements as stipulated in the Convention and three CMMs, including the establishment of a regional observer and/or electronic monitoring program no later than COM09 for transshipment, and informed the SC that the SWG PD has had preliminary conversations on the development of a broader observer program that would also collect data on NPFC's pelagic fisheries. To ensure the data collected meet the SC's objectives, SC input will be needed to design the program, including in relation to scientific objectives, structure, minimum observer qualifications, data collection forms, training, certification, required coverage levels, operations, and data collection/reporting. The Compliance Manager also outlined the compliance-related recommendations from the NPFC

Performance Review Panel, as well as three new CMMs adopted by the Commission: a revised CMM on transshipment and new CMMs on sharks and marine pollution. In addition, the Compliance Manager reported on the launch and ongoing implementation of the NPFC Vessel Monitoring System (VMS) and pointed out that the related CMM (2023-12) also envisions potential use of the VMS to support scientific purposes.

131. The FAO suggested that it may be able to provide or help the NPFC develop a key for shark identification. The SC thanked the FAO for the offer.
132. The SC suggested it may be worthwhile for the SC Chair and the TCC Chair to hold periodic meetings, and, as appropriate, to include the Science Manager and the Compliance Manager, as well as the Chairs and leads of the subsidiary bodies of the SC and the TCC.
133. Based on the discussions above, the SC identifies the following as matters for coordination between the SC and the TCC and requests the Secretariat to inform the TCC of:
 - (a) The SC supports the efforts of the TCC and the SWG PD to seek clarification on CMM 2023-11 for Japanese Sardine, Neon Flying Squid and Japanese Flying Squid to address the fact that paragraphs 1 and 2 do not define the historical existing level of the number of fishing vessels, and similar paragraphs in other CMMs.
 - (b) The SC intends to work in cooperation with TCC and the Commission to amend CMM 2023-05 to address the ambiguity around the referenced effort limits agreed in February 2007 in Paragraph 4A and to amend CMM 2023-06 to determine the level of a historical average in Paragraph 3, i.
 - (c) The SC will continue to discuss data needs and data gaps that could be filled by a regional observer program as described in paragraph 101 and inform the TCC about progress in these developments.

12.2 Other Matters

134. The SC reviewed the current list of NPFC priority species. The SC agreed that priority species should be species that are targeted or that are captured in large abundances in the Convention Area and therefore warrant prioritization for the provision of scientific advice. Based on this understanding, the SC recommended that the Commission add sablefish and skilfish to the list of NPFC priority species.

Agenda Item 13. Advice and recommendations to the Commission

135. Based on the recommendations from its SSCs, the TWG CMSA, and its SWGs, the SC recommends that the Commission:

- (a) Develop a clear definition of what constitutes “bycatch.”
- (b) Endorse its 5-Year Rolling Research and Work Plans (Annex Z).
- (c) Endorse the proposed scientific projects (Annex Y).
- (d) Consider the species summary documents as reference information when taking decisions on the management of the NPFC priority species (Annexes D-M), including the information about the trends in catch and effort and other scientific information relevant to management of NPA and SA and the information about domestic stock assessments in the species summaries for JFS, JS and BM.
- (e) Consider the scientific meetings schedule for 2024 as described in paragraph 138.

Chub Mackerel

- (f) Allocate funds for the participation of an invited expert in the TWG CMSA meetings to support the TWG CMSA in the stock assessment project (Scientific Projects, Annex Y).

Bottom Fish and Marine Ecosystems

- (g) Endorse the proposed revisions to CMM 2023-05 (Annex P), including:
 - i. A new interim encounter threshold for sponges of 350 kg based on analyses of fishery bycatch data.
 - ii. Additional group of cold water corals, pennatulaceans, as a VME indicator taxa.
 - iii. Modified nomenclature for cold water corals to reflect recent taxonomy revisions.
- (h) Endorse the proposed revisions to CMM 2023-06 (Annex Q), including:
 - i. A new interim encounter threshold for sponges of 350 kg for fishing gears other than pots based on analyses of fishery bycatch data.
 - ii. Additional group of cold water corals, pennatulaceans, as a VME indicator taxa.
 - iii. Modified nomenclature for cold water corals to reflect recent taxonomy revisions.
 - iv. Encounter thresholds for pot gear of 2 kg for corals and 5 kg for sponges.
 - v. Close two new areas as VME protection sites on Cobb Seamount.
- (i) Note that:
 - i. Although NPA catch was slightly higher in 2022 than 2021, the catch remains at low levels relative to historical values.
 - ii. There are some indications that Japanese fishers have been avoiding targeting NPA since the encouraged catch limit was introduced in 2019.
 - iii. There has been no indication of high recruitment of NPA detected in the monitoring survey.
 - iv. SA catch has been about 1/2 of the mean for the last 10 years, but nominal CPUE is only slightly lower than the 10 year average.
- (j) Consider, in cooperation with the SC and the TCC, amending CMM 2023-05 to address the ambiguity around the referenced effort limits agreed in February 2007 in Paragraph 4A and amending CMM 2023-06 to determine the level of a historical average in

Paragraph 3, i.

Pacific Saury

- (k) Endorse the stock assessment report (Annex U).
- (l) Consider the following to improve conservation and management of Pacific saury:
 - i. The current biomass is much lower than B_{MSY} and the TAC for 2023-2024 may not reduce fishing mortality (F) in those years. An HCR that reduces F when biomass is low may increase the probability of achieving long-term sustainable use of Pacific saury (i.e. higher long-term catch closer to MSY of around 396,570 tons). A reduction to the TAC for 2023-2024 would increase the probability of higher long-term biomass and catch levels in the Pacific saury stock.
 - ii. At the 8th Commission meeting, in accordance with its schedule, adopt an interim HCR from the list to be provided by the SWG MSE PS. In case the Commission cannot adopt an interim HCR, the following management recommendation is provided.
 - iii. An HCR that reduces the target harvest rate and TAC when biomass falls below its target level may be appropriate for Pacific saury. This type of HCR is used in managing many fisheries around the world. For example, if an HCR that reduces F linearly when biomass is below B_{MSY} is applied, the TAC calculated based on such an HCR ($B_{2023} * F_{MSY} * (B_{2023}/B_{MSY}) = 73,490$ tons) could be smaller than the current catch. Note, the above HCR is currently being evaluated for management.
 - iv. The SSC PS noted that a possible TAC catch limit in 2024 calculated by $B_{2023} * F_{MSY} * (B_{2023}/B_{MSY})$ based on the 2023 assessment would be lower relative to that based on the 2022 assessment, even though biomass in 2023 itself is higher than that in 2022. The SSC PS discussed why this was the case and agreed that the main reason is an overall reduction of scales in biomass estimates in the 2023 assessment relative to that in 2022 because of slight changes in model configurations, use of new abundance indices, and time lag between fishery-independent and dependent abundance indices, particularly that the most recent CPUE data (2023) are not included in the model used to set the current limit in 2024.
 - v. There is a two-year lag between the collection of fishery data and stock assessment work. There is a one-year lag between the survey and stock assessment work. The condition of the stock may change substantially between collection of data and management so that management measures are less effective or less appropriate. Approaches to reducing the delay should be considered. Such approaches were considered in HCR analysis but were dropped due to time constraints.
- (m) Allocate funds for the participation of an invited expert in the next SSC PS and WG NSAM meetings (Scientific Projects, Annex Y).

Other Priority Species

- (n) Add sablefish and skilfish to the list of NPFC priority species.
- (o) Amend CMM 2023-11 to change “spotted mackerel” to “blue mackerel.”

Data Sharing

- (p) Adopt the revised Regulations for Management of Scientific Data and Information (Annex X).
- (q) Update the data shared by the SC, TWG CMSA, SSC BF-ME, SSC PS, SSC NFS including subsidiary SWGs JFS, JS and BM, in accordance with their Work Plans.

Performance Review

- (r) Note that the SC reviewed the Performance Review recommendations and provided comments on SC-related recommendations (NPFC-2023-SC08-WP04 (Rev. 1)).

136. In relation to other tasks for the SC specified in CMMs and the Convention, the SC informs the Commission of the following:

- (a) The SC agreed to establish a Small Working Group on Milestones and tasked it to further develop milestones for conducting stock assessments and providing management advice (Annex V), and discuss the potential use of the biological data provision templates.

Chub Mackerel

- (b) The SC will develop general protocols and guidelines for using GIT repositories for joint data analysis projects.
- (c) The TWG CMSA will use SAM as the chub mackerel stock assessment model and complete the first assessment in 2024.

Bottom Fish and Marine Ecosystems

- (d) The SC adopted the TOR for Data Sharing of Catch and Effort Data for Depletion Analysis of North Pacific Armorhead (Annex N) and template for data sharing (Annex O).
- (e) The SC revised the TOR for the SSC BF-ME as described in Annex R.
- (f) The SC endorsed the method proposed by Japan (NPFC-2019-SSC VME04-WP02) as one framework for identifying VMEs, noting that the density thresholds should be further explored.
- (g) The SC will look for opportunities for collaboration with other organizations such as the FAO ABNJ Deep-sea Fisheries Project, PICES or NPAFC to collect new data (such as biomass estimates from fishery-independent surveys or biological data collections) that would help with stock assessments for bottom fisheries and outstanding issues on VME such as VME recovery.
- (h) The SSC BF-ME plans to assess the status of SA in 2024.
- (i) Based on the most recent sablefish stock assessments from the USA and Canada, the SC

noted that the spawning stock biomass has been increasing since about 2018, supported by a large coastwide recruitment in around 2016.

Pacific Saury

- (j) The SC endorsed the revised TOR of the SSC PS (Annex S).
- (k) The SC endorsed the revised Stock Assessment Protocol for Pacific Saury (Annex T).

Other Priority Species

- (l) The SC noted that China's preliminary stock assessment indicated that the status of the NFS stock is healthy.
- (m) Based on the latest Japanese domestic stock assessment for JFS, the SC noted that the estimated total biomass of the winter spawning stock decreased largely from 2015 to 2016 and has remained low since then, that SSB was lower than SSB_{MSY} and F was lower than F_{MSY} in 2021, and that the estimated total biomass was 141,000 MT and SSB was 49,000 MT in 2022.
- (n) Based on the latest Japanese domestic stock assessment for JS, the SC noted that SSB exceeded SSB_{MSY} and current F (F2020–2022) exceeded F_{MSY}.
- (o) Based on the latest Japanese domestic stock assessment for BM, the SC noted that biomass and SSB have been decreasing since 2011 and that the status in 2021 is that overfishing (F > F_{MSY}) is occurring and the stock is overfished (SSB < SSB_{MSY}).
- (p) The SC agreed to establish the SSC NFS to supersede the SWG NFS.

Data Collection and Sharing

- (q) The SC will continue to develop biological data provision templates for age, ALKs, length, and maturity at age.
- (r) The SC will continue discussions on data gaps that could be filled by the establishment of an observer program in the NPFC Convention Area.

Climate change

- (s) The SC will communicate with the FAO on developing a climate-change-related consultancy which will be funded by FAO.

Cooperation with Other Organizations

- (t) The SC expressed its support for the development and implementation of the BECI project, which will provide valuable information for the SC's analyses, including those related to climate change.
- (u) The SC agreed to continue its cooperation with DSF Project and identified focal point contacts for the joint activities on climate change, data-limited stock assessments and EAFM.

SC Chair and vice-Chair

- (v) The SC selected Dr. Janelle Curtis (Canada) to continue to serve as the SC Chair and Dr. Jie Cao (China) to continue to serve as the SC vice-Chair.

Agenda Item 14. Next meeting of SC and its subsidiary bodies

14.1 Meeting Schedule for 2024/2025

137. The Science Manager presented a proposed meeting schedule for 2024-2025 and a call for interest to host scientific meetings (NPFC-2023-SC08-IP01).

14.2 Meeting format and Venue

138. The SC suggested the following provisional meeting schedule for the 2024 operational year:

- (a) TWG CMSA09: 16–19 July in Yokohama, Japan (hybrid)
- (b) SSC NFS01: 22–23 August (virtual)
- (c) SSC PS13: 26–30 August 2024 (virtual)
- (d) SSC BF-ME05: 9–11 December 2024 in Tokyo, Japan (hybrid)
- (e) SSC PS14: 11–13, 16 December 2024 (3.5 days) in Tokyo, Japan (hybrid)
- (f) SC09: 17–20 December 2024 in Tokyo, Japan (hybrid)
- (g) TWG CMSA10: Early 2025 (4 days, virtual)

139. The SC's subsidiary bodies will hold informal web meetings to check progress and plan intersessional work, when needed.

140. Members were invited to consider hosting scientific meetings in the 2025 operational year and inform the Secretariat preferably by summer 2024.

Agenda Item 15. Press release

141. The SC endorsed the press release for publication on the NPFC website after the meeting.

Agenda Item 16. Selection of SC Chair and Vice-Chair

142. The SC re-elected Dr. Janelle Curtis (Canada) as the SC Chair.

143. The SC re-elected Dr. Jie Cao (China) as the SC Vice-Chair.

Agenda Item 17. Adoption of the Report

144. The SC08 Report was adopted by consensus.

Agenda Item 18. Close of the Meeting

145. The Executive Secretary congratulated the SC on the conclusion of its meeting and expressed his appreciation to the Chair and all participants for their contribution to its success.

146. Canada thanked the participants again for coming to Nanaimo.

147. The SC expressed its appreciation to Canada and the Secretariat for their hard work to organize the meeting and its gratitude for Canada's generous hospitality.

148. The SC thanked the Chair for her leadership and guidance.

149. The SC expressed its appreciation to everyone who contributed to the NPFC's scientific work in the intersessional period and to the Chairs and Leads of the SC's subsidiary bodies.

150. The SC thanked the rapporteur for his support.

151. The meeting closed at 15:10 on 19 December 2023, Nanaimo time.

Annexes:

Annex A – Agenda

Annex B – List of documents

Annex C – List of participants

Annex D – Species summary for North Pacific armorhead

Annex E – Species summary for splendid alfonsino

Annex F – Species summary for sablefish

Annex G – Species summary for blackspotted and rougheye rockfishes

Annex H – Species summary for neon flying squid

Annex I – Species summary for Japanese sardine

Annex J – Species summary for Japanese flying squid

Annex K – Species summary for blue mackerel

Annex L – Species summary for Pacific saury

Annex M – Species summary for chub mackerel

Annex N – Terms of Reference for data sharing of catch and effort data for depletion analysis of North Pacific armorhead

Annex O – Template for data sharing of catch and effort data for depletion analysis of North Pacific armorhead

Annex P – Revised CMM 2023-05 - Conservation and Management Measure for

Bottom Fisheries and Protection of Vulnerable Marine Ecosystems in the Northwestern Pacific Ocean

Annex Q – Revised CMM 2023-06 - Conservation and Management Measure for Bottom

Fisheries and Protection of Vulnerable Marine Ecosystems in the Northeastern Pacific Ocean

Annex R – Revised Terms of Reference of the SSC BF-ME

Annex S – Revised Terms of Reference of the SSC PS

Annex T – Revised Stock Assessment Protocol for Pacific Saury

Annex U – Stock assessment report for Pacific saury

Annex V – Summary of the current assessment status for NPFC priority species and sablefish, skilfish, and rougheye and blackspotted rockfishes

Annex W – Table of tasks for the SWG JFS, the SWG JS, the SWG BM, and the SSC NFS in 2024

Annex X – Revised Regulations for Management of Scientific Data and Information

Annex Y – Scientific projects

Annex Z – Five-Year Research Plan and Work Plan of the Scientific Committee

Please refer to the NPFC website for the complete annexes.

5th Meeting of the Joint SC-TCC-COM Small Working Group on Management Strategy Evaluation for Pacific Saury

18-20 January 2024
Niigata, Japan (Hybrid)
Meeting Report



Agenda

Agenda Item 1. Introductory items

- 1.1 Opening of the meeting
- 1.2 Adoption of agenda
- 1.3 Meeting logistics

Agenda Item 2. Overview of the outcomes of previous NPFC meetings

- 2.1 SWG MSE PS04
- 2.2 SSC PS12 and SC08

Agenda Item 3. Overview of MSE

- 3.1 Roles of SWG MSE PS in the NPFC process
- 3.2 Basic principles of MSE
- 3.3 Roles of harvest control rules (HCRs) and management procedures (MPs)
- 3.4 Quick demonstration of MSE

Agenda Item 4. Review technical progress on development of an HCR as a short-term task

- 4.1 Management objectives and reference points
- 4.2 Conditioning of operating models (OMs)
- 4.3 Candidate interim HCRs and constraints therein
- 4.4 Performance indicators
- 4.5 Simulation outcomes

Agenda Item 5. Selection of an HCR and implementation schedule

- 5.1 Selection of an Interim HCR
- 5.2 Implementation schedule

Agenda Item 6. Discussion toward development of management procedures (MPs) as a mid-term goal

- 6.1 Management objectives and some constraint conditions for the regulation of fishery
- 6.2 Technical matters on operating models, MPs, performance indicators and simulation

Agenda Item 7. Other matters

Agenda Item 8. Timeline and future process

- 8.1 Timeline
- 8.2 Future process with assistance of SSC PS (e.g. conditioning of age-structured dynamics models)
- 8.3 Workplan till SSC PS13 and SWG MSE PS06 meetings

Agenda Item 9. Recommendations to the Commission

Agenda Item 10. Adoption of report

Agenda Item 11. Close of the meeting

MEETING REPORT

Agenda Item 1. Introductory items

1.1 Opening of the meeting

1. The 5th meeting of the joint SC-TCC-COM Small Working Group on Management Strategy Evaluation for Pacific Saury (SWG MSE PS) was held in a hybrid format, with participants attending in-person in Niigata, Japan or online via WebEx, on 18-20 January 2024. The meeting was attended by Members from Canada, China, Japan, the Republic of Korea, the Russian Federation, Chinese Taipei, the United States of America, and the Republic of Vanuatu. The Pew Charitable Trusts (Pew) attended as an observer. Dr. Larry Jacobson participated as an invited expert. The meeting was chaired by Dr. Toshihide Kitakado (Japan) and Mr. Derek Mahoney (Canada), the co-Chairs of the SWG MSE PS.
2. Mr. Mahoney opened the meeting and welcomed the participants. He thanked Japan for hosting the meeting and the Fisheries Agency of Japan for its efforts in organizing the meeting.
3. Mr. Takumi Fukuda, Fisheries Agency of Japan, welcomed the participants to Niigata and thanked them for coming. He also expressed his thanks to the co-Chairs for their dedicated preparations, and to the Secretariat for its assistance. Mr. Fukuda reminded the participants that the Commission had tasked the SWG MSE PS with testing and recommending candidate harvest control rules (HCRs) for Pacific saury and presenting the outcomes at the eighth Commission meeting (COM08) in April. He further noted that, as this is the working group's last meeting before COM08, the SWG MSE PS is expected to narrow down the candidate HCRs that it will recommend to the Commission.
4. Mr. Alex Meyer was selected as rapporteur.

1.2 Adoption of agenda

5. The agenda was adopted without revision (Annex A). The List of Documents and List of Participants are attached (Annexes B, C).

1.3 Meeting logistics

6. The Science Manager, Dr. Aleksandr Zavolokin, outlined the meeting arrangements. He also thanked China for providing a voluntary contribution for purchasing the Secretariat's hybrid meeting equipment and the United States for providing a voluntary contribution to facilitate scientific analyses on the NPFC priority species, in particular Pacific saury and chub mackerel.

Agenda Item 2. Overview of the outcomes of previous NPFC meetings

2.1 SWG MSE PS04

7. Dr. Kitakado (hereafter "co-Chair") presented the outcomes and recommendations from the SWG MSE PS04 meeting.

2.2 SSC PS12 and SC08

8. The co-Chair presented the outcomes and recommendations from the 12th Meeting of the Small Scientific Committee on Pacific Saury (SSC PS12).
9. The Science Manager presented the outcomes from the 8th Meeting of the Scientific Committee (SC08) that are relevant to the SWG MSE PS.

Agenda Item 3. Overview of MSE

3.1 Roles of SWG MSE PS in the NPFC process

3.2 Basic principles of MSE

3.3 Roles of harvest control rules (HCRs) and management procedures (MPs)

10. The co-Chair presented an overview of an MSE process (NPFC-2024-SWG MSE PS05-IP01), including the role of the SWG MSE PS, the basic principles of an MSE, the roles of HCRs and management procedures (MP), and the advantages of MPs (including HCRs) over non-MSE approaches.
11. Pew gave a presentation on restoring Pacific saury to a more predictable and productive fishery (NPFC-2024-SWG MSE PS05-OP01). Pew emphasized the benefits to the NPFC of adopting proactive, science-based management via an interim HCR, followed by the development of a full MP, for the Pacific saury fishery, pointing out that, where adopted elsewhere, these pre-agreed, carefully tested approaches have generated positive results.

3.4 Examples in other RFMOs

12. Pew presented examples of the application of hockey-stick HCRs and the outcomes of their

implementation in other fisheries, specifically the Australian southern and eastern scalefish and shark fishery, the British Columbia sablefish fishery, the US Atlantic herring fishery, and the Bay of Biscay anchovy fishery.

3.5 Quick demonstration of MSE

13. The co-Chair presented a quick demonstration of HCR simulations using the Shiny application. The latest version of the Shiny application used for this analysis will be made available to Members for future HCR work.

Agenda Item 4. Review technical progress on development of an HCR as a short-term task

14. The co-Chair presented the results of the SWG MSE PS's simulation testing for HCRs in the Pacific saury fishery (NPFC-2024-SWG MSE PS05-WP01). The details are described in the relevant sections under agenda items 4.1-4.5 below.

4.1 Management objectives and reference points

15. The SWG MSE PS conducted its simulation analysis based on the following three types of management objectives agreed to at SWG MSE PS04, while putting higher priority on (a).
 - (a) Recovery of the stock (primary objective):
 - i. The stock status is recovered above B_{tar} within 5 years with 50% probability.
 - ii. The stock status is maintained above the B_{tar} level in each of years 6-10 with 50% probability.
 - (b) Avoiding unsustainable state of the stock (secondary objective):
 - i. The annual probability in each of years 6-10 that the stock drops below B_{lim} should not exceed 10%.
 - ii. The annual probability in each of years 6-10 that fishing mortality is above F_{lim} should not exceed 10%.
 - (c) Achieving high and stable catch (tertiary objective):
 - i. Average catch over years 6-10 is as high as possible.
 - ii. Catch in each of years 6-10 is as stable as possible.

4.2 Conditioning of operating models (OMs)

16. The SWG MSE PS applied the OM specifications for generating future data as input for HCRs that were agreed to at SWG MSE PS04.
17. The SWG MSE PS assumed the following scenarios for environmental variability modeled as process errors in HCR simulations (Table 1). R1 and R2 are reference case scenarios used directly to provide HCR advice. S1 and S2 are sensitivity analyses to try to understand the performance of the candidate HCRs under alternate productivity regimes that were indicated

to have occurred in the early 2000s (positive or favorable) and the 2010s (negative or unfavorable) evident in results from the most recent stock assessment.

Table 1: OM specifications

| Name | Model | Scenario |
|------|--|--|
| R1 | IID log-normal assumption | Reference scenario (1) “Random environmental effects” |
| R2 | Auto-correlated log-normal assumption | Reference scenario (2) “Some short-term correlation in environmental effects” |
| S1 | IID log-normal assumption with a mean adjustment | Sensitivity scenario (1) “Climate trends cause negative effects on productivity” |
| S2 | IID log-normal assumption with a mean adjustment | Sensitivity scenario (2) “Climate trends cause positive effects on productivity” |

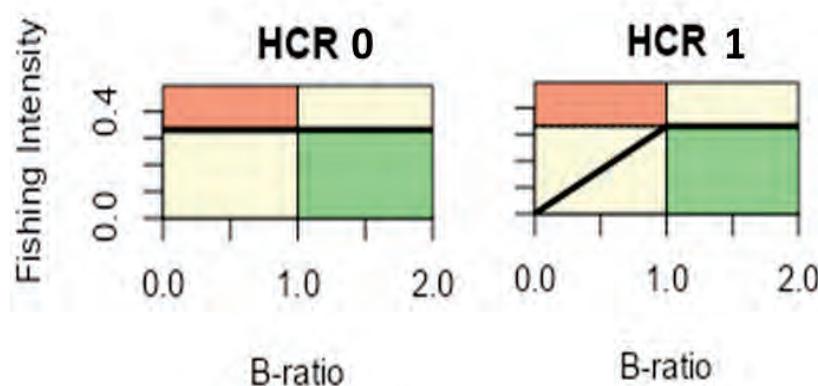
4.3 Candidate interim HCRs and constraints therein

18. The SWG MSE PS tested two candidate interim HCRs as follows:

- **HCR0:** $TAC_y = F_{MSY} * B_{y-1}$; and,
- **HCR1:** $TAC_y = \alpha_{y-1} * F_{MSY} * B_{y-1}$, where $\alpha_{y-1} = \min(1, B_{y-1} / B_{MSY})$.

HCR0 is a traditional approach that sets TAC to a constant fraction of stock biomass. It has been replaced by HCR1 in many fisheries because TAC tends to be too high for stock rebuilding when biomass is low. HCR1 reduces TAC at biomass levels below B_{MSY} . However, TAC from HCR0 and HCR1 are the same once biomass increases to B_{MSY} (Figure 1).

Figure 1: Illustration of HCR0 and HCR1



19. The SWG MSE PS evaluated two types of additional adjustments to HCR0 and HCR1 by simulation as described below (Table 2). Both are intended to help protect the stock and fishery from uncertainty in true biomass. The first approach uses the average of the two most recent biomass estimates $(B_{y-2} + B_{y-1})/2$ instead of B_{y-1} to calculate TAC for year y . It has the advantage of potentially protecting the fishery and stock by reducing errors and uncertainty in the biomass

value used to calculate TAC. However, it has the disadvantage of biasing the biomass value towards the previous level and delaying any increases or decreases in TAC. The second approach is a maximum allowable change (MAC) that limits the amount of change in TAC that can occur from one year to the next. For example, managers could decide to limit changes in TAC from one year to the next to +/- 20%. This approach is also meant to protect the stock and the fishery from errors and uncertainty in biomass that might lead to wide swings in TAC. The disadvantage is a delay in decreasing or increasing TAC if stock size declines or increases.

Table 2: Additional adjustments to HCR0 and HCR1

| Item | Options |
|--|--|
| Biomass B in HCR used to calculate TAC | 1) previous single year (B_{y-1}) 2) average of previous two years $[(B_{y-2} + B_{y-1})/2]$ |
| Maximum allowable change (MAC) in TAC over two consecutive years | A) 20, 30, 40% + no constraint for option 1) above B) 20, 25% and + no constraint for option 2) above |

20. In initial runs prior to the meeting (NPFC-2024-SWG MSE PS05-WP01), the SWG MSE PS analyzed both types of adjustments in combination (e.g. B_{y-1} with MAC 20%). The performance of HCR0 was expected to be relatively poor, based on previous studies. To save time and simplify results, HCR0 was simulated only with single year biomass and MAC 40%. In total, there were 7 simulation scenarios with HCR1 (single year biomass with 4 MAC options plus average biomass with 3 MAC options), along with one scenario for HCR0, as shown below (Table 3).

Table 3: Candidate interim HCRs evaluated in initial simulations

| Name | HCR type | B input | MAC |
|------------|----------|------------------|------|
| HCR0_01_40 | 0 | Single year | 40% |
| HCR1_01_20 | 1 | Single year | 20% |
| HCR1_01_30 | 1 | Single year | 30% |
| HCR1_01_40 | 1 | Single year | 40% |
| HCR1_01_No | 1 | Single year | None |
| HCR1_02_20 | 1 | Two year average | 20% |
| HCR1_02_25 | 1 | Two year average | 25% |
| HCR1_02_No | 1 | Two year average | None |

4.4 Performance indicators

21. The SWG MSE PS used the following performance indicators agreed to at SWG MSE PS04 to measure and compare the performance of the candidate HCRs in the simulation testing:

- Time series plots for Biomass, B-ratio, F-ratio, TAC, catch rate and probabilities of Kobe quadrants.

- (b) Box and violin plots of Biomass (in 2029 and 2034), B-ratio (in 2029 and 2034), F-ratio (in 2028 and 2033), and average TAC (2024–2028 and 2029–2033).
- (c) Trade-off plots 1: Median time trajectories of B- and F-ratios for HCR0 and HCR1 from 2024 to 2033.
- (d) Trade-off plots 2: Median trajectories of the B-ratio and TAC for HCR0 and HCR1 from 2024 to 2033.
- (e) Tables for $\Pr(B > B_{tar})$, $\Pr(B < B_{lim})$ and $\Pr(F > F_{lim})$ relevant to the objectives (a) and (b) with the default reference points ($B_{tar}=B_{MSY}$, $B_{lim}=0.35B_{MSY}$, and $F_{lim}=1.35F_{MSY}$).

4.5 Simulation outcomes

22. The SWG MSE PS reviewed the initial simulation results in NPFC-2024-SWG MSE PS05-WP01 and noted the following:

- (a) Performance in the Reference Scenarios (based screened MCMC samples)
 - i. HCR0 performed poorly in the single simulation test (HCR0_01_40) relative to HCR1 options. Median stock biomass was below but near B_{MSY} in 2028 and remained there until at least 2034. Median TAC levels were always less than MSY.
 - ii. Biomass trend results for HCR1 were generally similar for reference cases R1 (no auto-correlation in the process errors) and R2 (with auto-correlation in the process errors) at all MAC levels. Median stock biomass reached B_{MSY} in HCR1 scenarios by about 2028. Based on this result, it is expected that the stock would rebuild if any of the reference HCR1 options is adopted.
 - iii. Median TAC never reached MSY in HCR1_01_20 (one year biomass with 20% MAC) and did not reach MSY in HCR1_01_30 or HCR1_01_40 (30 or 40% MAC) until about 2031. In contrast, TAC reached MSY in 2029 (two years after median biomass reached B_{MSY}) in HCR1_01_No with no constraint on year-to-year variation in TAC. Results were similar in scenarios where two biomass estimates were averaged for the TAC calculation. These results show the trade-offs between TAC, rebuilding speed and MAC constraints in HCRs for Pacific saury.
 - iv. HCR1_01_40, employing a single-year biomass estimate and a 40% MAC and HCR1_02_25, employing a two-year average biomass estimate and a 25% MAC had similar performance. This result indicates that the two-year average biomass and MAC have similar effects on stock trajectory and involve similar trade-offs.
- (b) Performance in the initial Sensitivity Scenarios (based screened MCMC samples)
 - i. The F_{MSY} , B_{MSY} , MSY and related quantities shown as straight lines provide useful information but are approximate in the figures from initial runs in the R1 and R2 scenarios. The incorporation of negative process error into the S1 scenario and positive process error into the S2 scenario would have shifted the reference points away from the reference case scenarios. In particular, the true B_{MSY} and MSY under climate

change are likely lower in the S1 scenario with reduced productivity and higher in the S2 scenario with higher productivity.

- ii. Under the S1 scenario with reduced productivity, HCR0_01_40 performs poorly and does not lead to substantial resource recovery. In contrast, simulation results indicate that the stock may recover higher and relatively stable levels under HCR1. All HCRs exhibit an immediate increase in biomass in less than 5 years under the S2 scenario with positive process errors. However, HCR1 approaches reach higher biomass and TAC levels compared to HCR0. These results indicate that HCR1 approaches perform relatively well under both positive and negative climate change effects.

23. After the SWG MSE PS reviewed the initial HCR simulation results, it reviewed HCR simulation analyses focusing on the HCR1 approach (NPFC-2024-SWG MSE PS05-WP01, Appendix 4) based on the median of the entire MCMC samples for the Reference Scenario 1. The following is a summary of the key characteristics of the settings for the updated simulation analyses:

- (a) HCR0 approaches with constant F at all biomass levels were rejected from further analysis. HCR0 performance was relatively poor in preliminary runs.
- (b) HCR1 is a hockey stick function for F and TAC based on biomass in the previous year.
- (c) HCR1 approaches based on the average biomass during the previous two years (originally designated HCR1_02_xx) were eliminated from consideration because the median BSSPM biomass estimates from the last stock assessment and a two-year average were very similar, indicating little or no effect or benefit in averaging. Preliminary simulations confirmed that the performance of HCR1_01 and HCR1_02 approaches was similar. Finally, the HCR1_02 approach appears biologically unreasonable given that Pacific saury is very short lived (i.e., lifespan of up to 2 years), meaning that use of data from year y-2 would relate to biomass no longer available to the fishery.
- (d) Updated reference simulations assumed random variability in process errors which are a proxy for environmental effects. Simulations with autocorrelated process errors were not updated because results for autocorrelated and random process errors were similar.
- (e) The updated simulations utilized the median of entire MCMC runs as well as F_{MSY} and B_{MSY} reference points from the last stock assessment. The screening process was meant to focus work on the most probable assumptions. However, it changed the distributions of model parameters and reference points such as median B_{MSY} and F_{MSY} complicating interpretation of results. Median F_{MSY} and B_{MSY} in the updated runs are the same as in the last assessment and the same in all of the updated simulation analyses.
- (f) Six HCR options, using year y-1 biomass estimates, were considered in updated simulations. The options are designated HCR1_01_xx% where xx% designates the MAC in TAC from one year to the next. For example, HCR1_01_40 has MAC of 40%, meaning

that TAC could increase or decrease by no more than 40% each year. Options with MAC values of 10%, 20%, 30% and 40% (four options) and with no MAC constraint were all considered.

- (g) The options with a MAC constraint were meant to promote varying levels of stability in TAC from year to year. These provide the additional benefit of diminishing socio-economic impacts in the short term. However, it is very important to note that interim HCRs applying MAC approaches are less responsive to biomass changes, potentially limiting catch while the stock grows and allowing catch above sustainable levels when biomass decreases.
- (h) A sixth option (HCR1_01_No_HCR0), that does not constrain interannual TAC changes but applies the HCR0 approach only in 2024 to diminish the socio-economic impacts from the initial projected TAC, was also included for consideration. Without the application of HCR0 in 2024 (i.e., applying HCR1_01_No), the 2024 TAC was projected to be 74,000 mt, which would be significantly less than historically low catch levels in 2023 of approximately 100,000 mt. With the application of HCR1_01_No_HCR0, the 2024 TAC is projected to be 172,500 mt. Some Members felt that this adjustment could be more acceptable to the Commission while still meeting management objectives. In all other aspects, the HCR1_01_No and HCR1_01_No_HCR0 are identical.

24. The SWG MSE PS reviewed the updated simulation results (NPFC-2024-SWG MSE PS05-WP02) and noted the following:

- (a) Updated simulation results for each of the six HCR1_01 reference options and one sensitivity case showed clear and consistent patterns.
- (b) In summary, the updated results for HCR_01 options showed contrast between runs with highly constrained changes in TAC (e.g. 10% MAC), higher median biomass ($> B_{MSY}$ in 2034), lower F ($< F_{MSY}$ in 2034), and lower cumulative TAC on one extreme. On the other extreme are options with reduced constraints on changes in catch (e.g. MAC 40% and HCR1_01_No) with B closer to or at B_{MSY} , higher F near F_{MSY} and higher cumulative TAC levels.
- (c) The management objectives agreed to at SWG MSE PS04 were generally met for all six reference cases with some tradeoffs between F and harvest goals. In particular:
 - i. Median simulated stock biomass reached B_{MSY} in all six reference cases by 2029 (after 5 years of application of an HCR, starting from 2024). The probability that stock biomass was maintained above B_{MSY} after 2029 was at least 50% in all cases. The probability that stock biomass declined to B_{lim} was less than 10% in all cases.
 - ii. F reached F_{lim} in some years of the simulation period for options with MAC 30%, 40% and no constraint. These options also provided the highest catch levels, illustrating trade-offs between the $F < F_{lim}$ and high harvest level goals. However, the SWG MSE

PS noted this disadvantage is not a serious problem because the primary objective of rebuilding the stock was met relatively quickly (see footnote 2 under Table 5 below).

- iii. Options with relatively low MAC levels resulted in biomass well above B_{MSY} but with substantially reduced TAC levels for 2024-2033.
- (d) Median biomass for the sensitivity case with negative environmental effects on productivity (under S1) increased over time but did not rebuild to B_{MSY} by 2034 for all HCR options. Results from the sensitivity analyses with negative environmental effects illustrate how stock rebuilding might be affected by a poor environment in the near term and how rebuilding might be delayed.

Agenda Item 5. Selection of an HCR and implementation schedule

5.1 Selection of an Interim HCR

- 25. The SWG MSE PS reaffirmed that simulations are a useful tool for choosing appropriate harvest control rules for a fishery with particular characteristics under a narrow range of environmental conditions. They are not meant to and should not be interpreted as explicit predictions about the time required to rebuild the stock. Such predictions are an important topic for analysis in connection with each stock assessment when progress towards rebuilding can be evaluated and relationships between environmental data and productivity can be considered.
- 26. The SWG MSE PS further noted that when reviewing the results, it is important to pay attention not only to the central tendency for median results from the simulation, but also the variance therein. For example, future TAC may not follow the thick line in the middle but will fluctuate within the confidence interval.
- 27. When discussing the selection of an interim HCR, the SWG MSE PS agreed that it would be more appropriate to refer to the scenarios that were described as the “reference case” and the “sensitivity cases” in the simulation analyses as the “base case” and the “robustness case”, respectively.
- 28. After extensive discussions, the SWG MSE PS recommends four interim HCR options for further consideration by the Commission. The following represents a summary of the key observations of the SWG. This is followed by a table of key outputs from the simulations for each option (Table 4) and a table summarizing the advantages and disadvantages of each option (Table 5). The simulation trajectories of biomass and TAC under the Base Case are shown in Figure 2 below. The simulation trajectories of biomass and TAC under the Robustness Case are shown in Figure 3 below.
 - (a) All of the options use a hockey stick shaped control function, which is a common approach used in many other fisheries, with biomass target B_{MSY} , target $F=F_{MSY}$ at $biomass \geq B_{MSY}$

and a linear decline in target F between biomass zero and B_{MSY} . MAC is the maximum allowable change in TAC from one year to the next.

- (b) The differences between options are the MAC levels which range from 10% to 40% in addition to an option with no MAC constraint. The SWG MSE PS considered that the option with no MAC constraint could receive more support at the Commission if the TAC for 2024 was replaced with a higher value. One option (HCR1_No_HCR0) provides a transitional TAC for 2024 of 172,500 mt by HCR0_01 for 2024 before applying HCR1_01_No for the remainder of the simulation period.
- (c) All of the options are projected to achieve the primary management objective related to stock recovery under the base case scenario.
- (d) Any option with a MAC constraint will be less responsive and will not perform as well as the unconstrained option in a situation where biomass is declining and will limit the amount of catch that can be realized at higher biomass levels. Such a tendency becomes stronger as the MAC percentage becomes smaller.
- (e) The set of candidate interim HCRs that has been recommended was also tested under robustness scenarios, one of which assumed negative effects on productivity caused by climate trends. Under this robustness scenario, the primary management objective related to stock recovery was not achieved for any of the options.
- (f) The interim HCR is expected to be replaced by a management procedure that should consider a wider range of uncertainties in the population and fishery dynamics.

Table 4: Summary of key outputs from the simulations for each option in the set of candidate interim HCRs that has been recommended

| Scenario | Year | HCR1_10% | HCR1_20% | HCR1_40% | HCR1_No_HCR0 |
|-----------------|----------------------------|----------|----------|----------|--------------|
| Base case | Pr(B2029 > Btar) | 0.767 | 0.824 | 0.845 | 0.630 |
| | TAC 2023 (actual) | 250.0 | 250.0 | 250.0 | 250.0 |
| | TAC 2024 (fixed) | 225.0 | 200.0 | 150.0 | 172.5 |
| | TAC 2025* | 202.5 | 160.0 | 139.7 | 139.7 |
| | TAC 2026* | 203.5 | 192.0 | 156.2 | 202.9 |
| | TAC 2027* | 200.5 | 208.8 | 196.5 | 314.5 |
| | TAC 2028* | 220.5 | 232.7 | 251.9 | 415.6 |
| | Average TAC for 2024-2028* | 210.4 | 198.7 | 178.8 | 249.0 |
| | Average TAC for 2029-2033* | 296.2 | 348.9 | 430.9 | 426.0 |
| Robustness case | Average TAC for 2029-2033* | 253.3 | 273.8 | 304.9 | 337.5 |
| | Pr(B2029 > Btar) | 0.118 | 0.188 | 0.279 | 0.173 |

*Median results from simulations for relative comparisons among options only. Units for TAC figures: thousand mt.

Table 5: Advantages and disadvantages of each option in the set of candidate interim HCRs that has been recommended¹

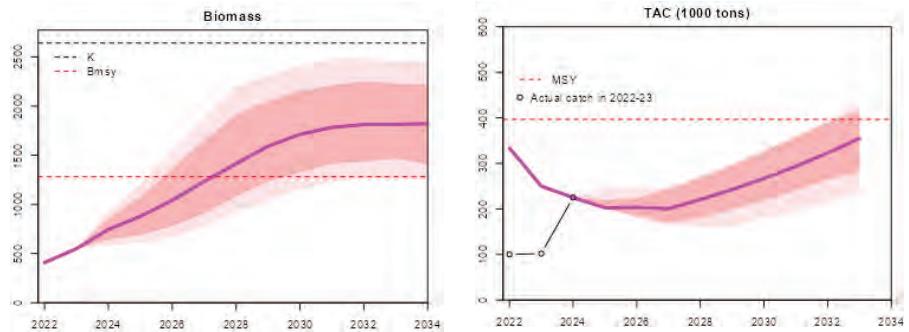
| Option | Advantages | Disadvantages |
|--------------|---|---|
| HCR1_10% | <ul style="list-style-type: none"> Most stable TAC during 2024-2033. High stock biomass ($> B_{MSY}$) after stock rebuilds if environmental conditions are good. $F < F_{lim}$ in the simulations. | <ul style="list-style-type: none"> Lowest ability to reduce/increase quota in response to lower/higher biomass or environmental change. Slowest rate and lowest probability of recovery if the underlying stock productivity declines or stays low (robustness case). Lowest average TAC levels (2024-2033). One year delay in reaching B_{MSY} relative to other options. |
| HCR1_20% | <ul style="list-style-type: none"> Stable TAC during 2024-2033. High stock biomass ($> B_{MSY}$) after stock rebuilds if environmental conditions are good. $F < F_{lim}$ in the simulations. | <ul style="list-style-type: none"> Low ability to reduce/increase quota in response to lower/higher biomass or environmental change. Slow rate and low probability of recovery if the underlying stock productivity declines or stays low (robustness case). Low average TAC levels (2024-2033). |
| HCR1_40% | <ul style="list-style-type: none"> Improved ability to reduce/increase quota in response to lower/higher biomass or environmental change. High average TAC levels (2024-2033). Highest probability of achieving B_{tar} if the underlying stock productivity declines or stays low (robustness case). | <ul style="list-style-type: none"> Less stability in TAC. High risk of F exceeding F_{lim}.² |
| HCR1_No_HCR0 | <ul style="list-style-type: none"> Greatest ability for reducing/increasing quota in response to lower/higher biomass or environmental change. Highest average TAC levels (2024-2033). Nearest F to F_{MSY}. | <ul style="list-style-type: none"> Least stability in TAC. Lowest biomass (near B_{MSY}) after stock rebuilds. Highest risk of F exceeding F_{lim}.² |

¹ TAC and biomass in the table refer to median results from simulations.

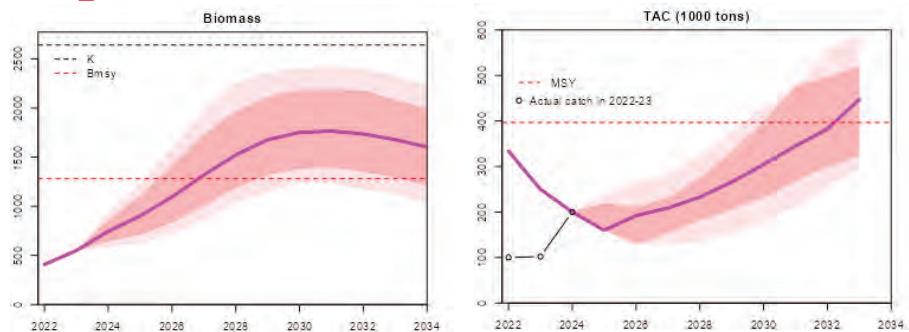
² The secondary management objectives include “*The annual probability in each of years 6-10 that fishing mortality is above F_{lim} should not exceed 10%*” where $F_{lim} = 1.35 F_{MSY}$. In simulations, median F exceeds F_{lim} with a greater than 10% probability after 2028 in three years for option HCR1_40% and five years for option HCR1_No_HCR0. However, the SWG MSE PS noted this disadvantage is not a serious problem because the primary objective of rebuilding the stock was met relatively quickly. Such events are a natural consequence of random variation when managing for TAC levels near MSY by keeping biomass near B_{MSY} and F near F_{MSY} .

Figure 2. Simulation trajectories of biomass and TAC under the **Base Case**

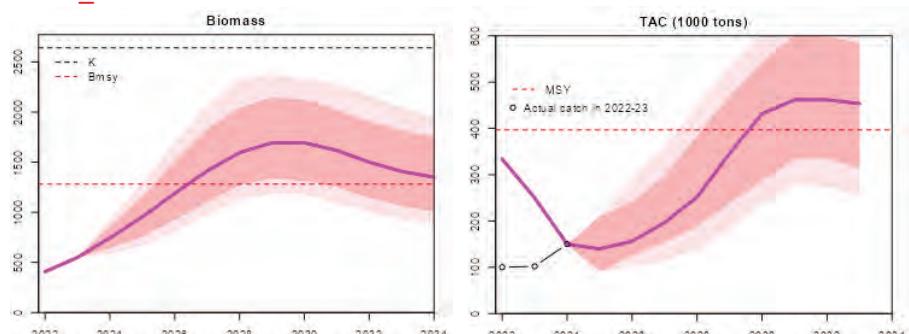
HCR1_10%



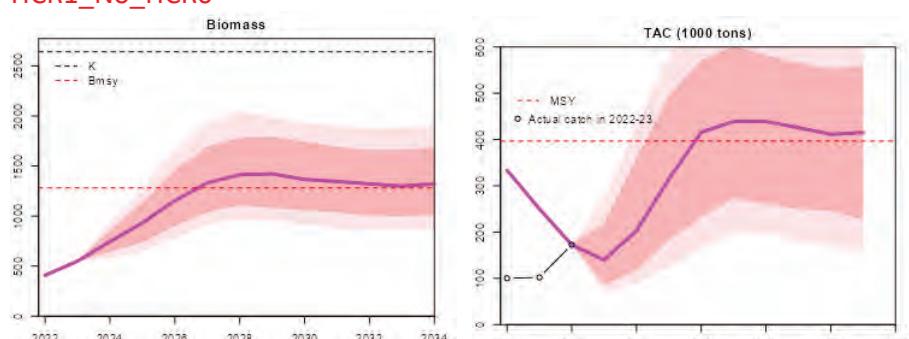
HCR1_20%



HCR1_40%



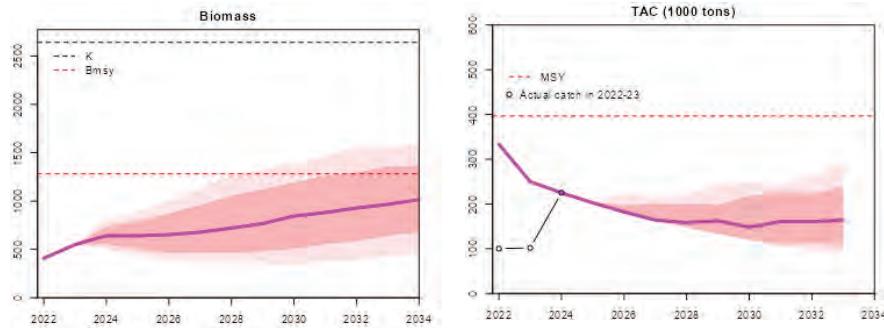
HCR1_No_HCR0



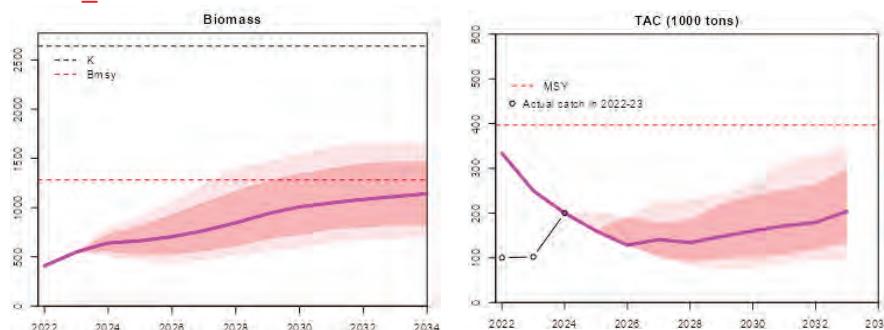
The solid pink line illustrates the median trajectory. The dark and light shaded areas correspond to the 60% and 80% intervals, respectively.

Figure 3. Simulation trajectories of biomass and TAC under the **Robustness Case**

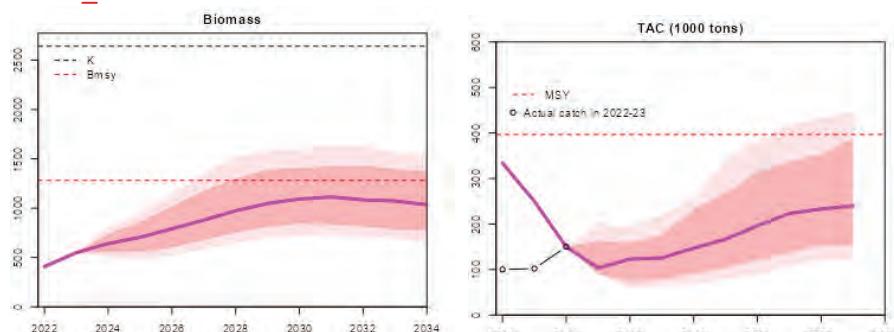
HCR1_10%



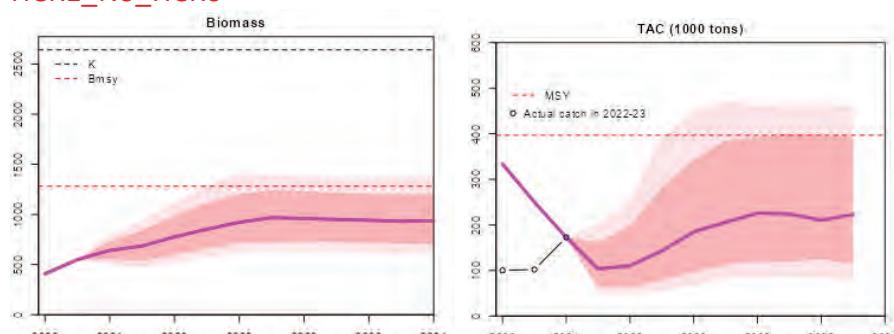
HCR1_20%



HCR1_40%



HCR1_No_HCR0



The solid pink line illustrates the median trajectory. The dark and light shaded areas correspond to the 60% and 80% intervals, respectively.

5.2 Implementation schedule

29. The SWG MSE PS anticipates the Commission will adopt an interim HCR at the eighth Commission meeting and it will be implemented in 2024. It will be reviewed regularly in accordance with paragraph 37 below. The SWG MSE PS noted that the Commission has agreed to establish a management procedure under a full MSE as the next step. The interim HCR could be used until said management procedure is established.

Agenda Item 6. Discussion toward development of management procedures (MPs) as a mid-term goal

6.1 Management objectives and some constraint conditions for the regulation of fishery

6.2 Technical matters on operating models, MPs, performance indicators and simulation

30. The SWG MSE PS focused its efforts in its fifth meeting on the short-term goal, which is the development of an interim HCR. The work on its mid-term goal, which is the development of a full MSE, can be done after the Commission's discussion of the future schedule. Work on the mid-term goal will also be facilitated by the development of an age-structured model by the SSC PS.

Agenda Item 7. Other matters

31. Vanuatu proposed the inclusion of an exceptional condition in the HCR to balance sustainable resource management and its development aspirations as a small island developing State, in accordance with the principles outlined in paragraph 18 of CMM 2023-08. Specifically, Vanuatu proposed that it be allowed to be exempted from the TAC and to maintain its Pacific saury catch at its highest catch level, in 2018, of 8,231 mt. Some Members noted that Vanuatu's request related to issues of allocation outside the mandate of the SWG MSE PS and would need to be considered by the Commission. As the proposed request was not accepted for discussion at this SWG, Vanuatu recommended that the SWG further assess the impact of its proposal on the achievement of the management objectives in a future meeting and requested guidance from the Commission on the development aspirations of small island developing States.

Agenda Item 8. Timeline and future process

8.1 Timeline

8.2 Future process with assistance of SSC PS (e.g. conditioning of age-structured dynamics models)

32. The SWG MSE PS anticipates that the Commission will adopt an interim HCR, at which point the SWG can shift its focus to the mid-term goal of developing a full MSE. This work will also be facilitated by the development of an age-structured model by the SSC PS.
33. The SWG MSE PS agreed to focus on at least two topics implicitly related to improving scientific advice for harvest management. These topics are: 1) development of improved stock

assessment models, and 2) progress towards a one-year stock assessment and management cycle. Improved models would be used as operating models for MSE and HCR analysis. A one-year stock assessment and management cycle would be used to set a TAC for the current year based on assessment modeling and data from the fisheries and survey during the same year (as has been discussed as HCR3 in the previous meetings). Progress on the on-year management cycle, in particular, and assessment models will directly impact management effectiveness.

8.3 Workplan till SSC PS13 and SWG MSE PS06 meetings

34. See paragraph 36 below.

Agenda Item 9. Recommendations to the Commission

35. The SWG MSE PS recommends four candidate interim HCRs: HCR1_10%, HCR1_20%, HCR1_40%, HCR1_No_HCR0 (as explained in greater detail in paragraph 28) for further consideration by the Commission.
36. The SWG MSE PS recommends that the Commission endorse the holding of SWG MSE PS06 for one or two days between SC09 and COM09 in a virtual format for the primary purpose of conducting an operational review of events in the first fishing season following the anticipated adoption of an interim HCR.
37. The SWG MSE PS recommends that such a review be conducted annually and that the Commission consider the results of the SWG's annual review.
38. The SWG MSE PS noted that MSE procedures may include defined circumstances under which the default management procedures can be reconsidered on a short-term basis in response to unforeseen events, such as the catch exceeding the TAC or experiencing an unusually large decline. Given its interim nature, the SWG MSE PS noted that no such definitions for exceptional circumstances have been developed for Pacific saury in developing an interim HCR. However, such unforeseen circumstances may be identified through the annual review of the performance of the adopted HCR and the Commission may consider appropriate management response. The SWG MSE PS recommends that the Commission note that such a situation could arise when applying an HCR to the Pacific saury fishery and that further work in this area may be warranted.
39. The SWG MSE PS recommends that the invited expert, Dr. Larry Jacobson, be invited to the next SWG MSE PS meeting.
40. The SWG MSE PS recommends that the Commission reaffirm the importance of including

scientists, managers and stakeholders at future meetings to facilitate communication and completion of this important work.

Agenda Item 10. Adoption of report

41. The SWG MSE PS05 Report was adopted by consensus.

Agenda Item 11. Close of the meeting

42. Mr. Mahoney thanked the Secretariat and Japan for organizing the meeting and their ongoing support, the Rapporteur for his able work, the invited expert for his dedication and expertise, and Dr. Kitakado for his hard work and leadership. He also expressed his hope that the work done by the SWG MSE PS would put the Commission in a position to hold fruitful discussions.

43. The meeting closed at 16:45 on 20 January 2024, Niigata time.

Annexes:

Annex A – Agenda

Annex B – List of Documents

Annex C – List of Participants

Please refer to the NPFC website for the complete annexes.

8th Meeting of the Technical Working Group on Chub Mackerel Stock Assessment

22–25 January 2024
Niigata, Japan (Hybrid)
Meeting Report



Agenda

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Agenda Item 2. Adoption of Agenda

Agenda Item 3. Overview of the recommendations and outcomes of previous NPFC meetings relevant to chub mackerel

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- 3.3 SC08

Agenda Item 4. Members fishery status and research activities, *inter alia* in 2023

Agenda Item 5. Biological information

- 5.1 Length-weight relationships
- 5.2 Natural mortalities
- 5.3 Maturity-at-age
- 5.4 Finalization of biological parameters for stock assessment in TWG CMSA09

Agenda Item 6. Fishery and biological data for stock assessment

- 6.1 Catch-at-age
 - 6.1.1 Length frequency, catch-at-length/size and age-length key
 - 6.1.2 Calculation of catch-at-age
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- 6.3 Finalization of fishery and biological data for stock assessment in TWG CMSA09

Agenda Item 7. Abundance indices

- 7.1 Finalization of CPUE document template
- 7.2 Update of abundance indices submitted by Members
- 7.3 Finalization of abundance indices for stock assessment in TWG CMSA09

Agenda Item 8. Settings and specifications of SAM

- 8.1 Review of current settings and specifications
- 8.2 Review of preliminary results from SAM
- 8.3 Discussion towards finalization of settings and specifications

Agenda Item 9. Biological reference points

9.1 Methods to calculate biological reference points

Agenda Item 10. Future projection of chub mackerel

10.1 Methods to conduct future projection

Agenda Item 11. Review of the Work Plan of the TWG CMSA

Agenda Item 12. Other matters

12.1 Timeline and intersessional activities before TWG CMSA09

12.2 Observer Program

12.2.1 Review data or data description on fisheries bycatch in the chub mackerel fisheries

12.3 Species summary

12.4 Space and methods to share data and codes

12.5 Other issues

Agenda Item 13. Recommendations to the Scientific Committee

Agenda Item 14. Adoption of Report

Agenda Item 15. Close of the Meeting

MEETING REPORT

Agenda Item 1. Opening of the Meeting

1. The 8th Meeting of the Technical Working Group on Chub Mackerel Stock Assessment (TWG CMSA) was held in a hybrid format, with participants attending in-person in Niigata, Japan, or online via WebEx on 22–25 January 2024. The meeting was attended by Members from Canada, China, the European Union (EU), Japan, the Russian Federation, and the United States of America. An invited expert, Dr. Joel Rice, participated in the meeting.
2. The meeting was opened by Dr. Kazuhiro Oshima (Japan), the TWG CMSA Chair, who welcomed the participants.
3. Dr. Hiroshi Nishida, Director, Fisheries Stock Assessment Center, Fisheries Resources Institute, Japan Fisheries Research and Education Agency, Japan, welcomed the participants and expressed his appreciation to them for travelling all the way to Niigata. He noted that the TWG CMSA is expected to continue to tackle important challenges and make significant progress towards conducting its first chub mackerel stock assessment, which will require continued international collaborative efforts. Dr. Nishida hoped that the participants would engage in forward-looking discussions leveraging their wealth of experience and knowledge, and wished them a fruitful meeting and pleasant stay in Niigata.
4. The Science Manager, Dr. Aleksandr Zavolokin, outlined the procedures for the meeting. He also thanked China for providing a voluntary contribution for purchasing the Secretariat's hybrid meeting equipment and the United States for providing a voluntary contribution to facilitate scientific analyses on the NPFC priority species, in particular chub mackerel and Pacific saury.
5. Mr. Alex Meyer was selected as rapporteur.

Agenda Item 2. Adoption of Agenda

6. The TWG CMSA agreed to change the name of Agenda Item 5.1 from “Weight-length relationships” to “Length-weight relationships.” The revised agenda was adopted (Annex A). The List of Documents and List of Participants are attached (Annexes B, C).

Agenda Item 3. Overview of the recommendations and outcomes of previous NPFC meetings relevant to chub mackerel

3.1 TWG CMSA07

7. The Chair provided an overview of the outcomes and recommendations of the 7th TWG CMSA meeting (TWG CMSA07).

3.2 Intersessional meetings of TWG CMSA

8. The Chair provided an overview of the 3rd intersessional meeting of the TWG CMSA held in November 2023 (NPFC-2024-TWG CMSA08-RP01).

3.3 SC08

9. The Science Manager presented the outcomes from the 8th Meeting of the Scientific Committee (SC08) of relevance to chub mackerel.

Agenda Item 4. Members fishery status and research activities, *inter alia* in 2023

10. China presented a review of its chub mackerel fishery and research activities (NPFC-2024-TWG CMSA08-IP04). In 2023, China operated about 95 purse seine and trawl vessels in the Convention Area. The estimated catch in 2023 of chub mackerel and blue mackerel was about 50,000–71,000 MT. The distribution of chub mackerel in 2023 was similar to that in 2022. Catch per unit of effort (CPUE) has been decreasing in recent years. The average length of caught individuals was 231 mm, slightly larger than in 2022 (approximately 221 mm). The main ages at catch in 2022 were from 1 to 3. China collects and analyzes fishing logbooks every year, sends specialist research staff to fishing vessels or ports to collect sample data, monitors the monthly ratio of chub mackerel and blue mackerel in catch, and conducts monitoring of biological features. From 2023, China has increased sample collection for large pelagic trawl nets in the North Pacific and found that the fork length frequency in trawl nets is similar to that in the purse seine fishery. Chub mackerel and Japanese sardine are caught in high proportions in China’s fisheries without any change in gear setting, but fishermen prefer catching chub mackerel because of its slightly higher price.
11. Japan presented a review of the recent fishery and stock status of chub mackerel (NPFC-2024-TWG CMSA08-IP05). Japan’s catch comes from large-scale purse seine vessels, small-scale

purse seine vessels, set nets, and dip nets and other gears. The majority of the catch is from large-scale purse seine vessels. Catch declined substantially in fishing year (FY) 2022 (July 2022 to June 2023) to approximately 98,500 MT. In FY2023, the catch has been 31,200 MT up to November, which is very low compared to past years. There is usually substantial catch between November and spring months, with catch in November tending to be high, but that was not the case in FY2023. Japan's 2023 summer surface trawl survey showed broad distribution of age-0 and age-1 fish. Japan's 2023 autumn surface trawl survey was data-limited but showed that the distribution of the chub mackerel is offshore. The egg survey shows that the main spawning ground exists near the Izu Islands and coastal Japan. The strong northward insertion of the Kuroshio extension might play a key role in the declining catch by shifting the distribution of chub mackerel.

12. Russia presented a review of its chub mackerel fishery and research activities in 2023 (NPFC-2024-TWG CMSA08-IP02). In 2023, the main fishing grounds were in the Japanese exclusive economic zone (EEZ) from January to February, before shifting to the Russian EEZ in May through to the end of the fishing season. Average CPUE (catch per vessel per day) was high during the winter, but was well below 2022 levels. Monthly catches were also highest during the winter in 2023. In the summer, catches were minimal and increased in the fall as the number of fishing vessels increased. However, the 2023 catch is significantly lower than the 2022 catch. The Russian targeted mackerel fishery was started in 2016 when 6,700 MT of mackerel were caught. In 2018, the maximum catch was reached (98,800 MT) and catch started to decrease thereafter. In 2023, the catch was 15,500 MT. In terms of research activities, Russian vessels carry out surveys of the Northwest Pacific Ocean, covering both the Russian EEZ and open waters to the east of the Kuril Islands. Surveys are carried out in June-July annually, and in some years a second survey is carried out in August-September. Surveys are carried out in two ways: pelagic trawls and hydroacoustic surveys. In the survey in the first half of summer 2023, the biomass of mackerel in Pacific waters was estimated as 116,800 MT by trawl survey and 439,000 MT by hydroacoustic survey data.
13. China presented estimates of abundance and distribution for chub mackerel and blue mackerel in the Northwest Pacific based on scientific research surveys that it conducted during 2021–2023 (NPFC-2024-TWG CMSA08-IP03). There are obvious temporal and spatial variations for the catch and abundance of mackerels. The catch, density and relative biomass estimates were much lower in 2022 and 2023 than those in 2021. Generally, blue mackerel accounted for about 17% of China's mackerel catch in 2023.
14. The TWG CMSA encouraged China to continue to collect and analyze data from its scientific research surveys and to continue its ongoing age determination work.

Agenda Item 5. Biological information

15. The Science Manager presented draft biological data provision templates for age, age-length keys (ALKs), length, and maturity at age that were prepared by the EU and Canada and presented at SC08 (NPFC-2023-SC08-IP13). He explained that the SC requested Members to test the templates when submitting data to the SC's subsidiary bodies, including the TWG CMSA, to evaluate the templates and present feedback to SC09, and discuss the appropriateness of having a standardized approach for sharing data and present the outcomes of their discussions to SC09. The TWG CMSA requested the Chair and the Secretariat to evaluate the data provision templates intersessionally and provide feedback at the next TWG CMSA meeting.

5.1 Length-weight relationships

16. Japan presented a comparison of the chub mackerel length-weight relationships based on Chinese catch data, Japanese catch data for eastern Japan, and Japanese catch data for western Japan (NPFC-2024-TWG CMSA08-WP13). The relationships were found to be similar, and Japan concluded that further comparative studies for the three regions would be feasible.

5.2 Natural mortalities

17. Japan presented updated age-common and age-specific natural mortality (M) estimators obtained from life-history parameters for chub mackerel in the Northwest Pacific Ocean (NPFC-2024-TWG CMSA08-IP06). Japan explained that it first presented such estimators at TWG CMSA04 (NPFC-2021-TWG CMSA04-WP05) and has updated those estimators based on more recent data (up to 2016). Many M estimators exhibited higher values than previously due to a higher growth coefficient of fork length. Based on its analysis, Japan concluded that there is little impact in incorporating the difference of year classes as random effects on the M estimators and recommended using the results with no random effect as the base case in the next benchmark stock assessment, specifically: the median of various updated estimators as the age-common M (0.53) and the mean between Gislason1 and Gislason2 as the age-specific M (0.80 for age 0, 0.60 for age 1, 0.51 for age 2, 0.46 for age 3, 0.43 for age 4, 0.41 for age 5, and 0.40 for age 6+).
18. The TWG CMSA suggested that, as future work, Japan could update the estimates further using as up to date data as possible, and that it could also estimate the natural mortality for each extent of time and compare the yearly estimates to evaluate their robustness.
19. China presented growth and mortality estimates based on the data from the Chinese survey and fishery in the Convention Area (NPFC-2024-TWG CMSA08-WP12). The parameters in the

length-weight relationship of 2021-2023 were estimated to be $1.886\sim9.441\times10^{-6}$ for the condition factor a , and 3.03~3.32 for the growth parameter b , with significant temporal variations. Von Bertalanffy growth parameters were estimated to be $K=0.33\sim0.78$, $L_{\infty}=31\sim34$ cm, and $t_0= -0.82 \sim -0.34$. Both constant and age-specific natural mortality were calculated based on several empirical methods, while the M estimates ranged from 0.26 to 0.62 in different years, with a geometrical mean of 0.47. The results show that chub mackerel has tended to grow faster with smaller size in recent years and in the high seas. They suggest obvious variations among different regions and years, indicating the non-stationarity of chub mackerel's life history traits. Therefore, China recommended that the stock assessment for chub mackerel use time-varying growth and mortality considering spatial heterogeneity.

20. The TWG CMSA considered and compared the M estimates presented by Japan and China. The TWG CMSA agreed to explore two scenarios for M for the forthcoming chub mackerel stock assessment:
 - (a) The TWG CMSA noted the similarity between the Chinese and Japanese age-common M estimates, which were 0.47 and 0.53 respectively, and agreed to explore the use of an age-common M estimate of 0.5 (the mean of the Chinese and Japanese estimates).
 - (b) The TWG CMSA noted that M varied across different age-classes and that there is potential value in applying age-specific M estimates. The TWG CMSA noted that the Chinese and Japanese estimates were similar for ages 2 to 4, but slightly different for age 1. Because of the larger number of samples used in the Japanese estimates, the TWG CMSA agreed to use the Japanese age-specific estimates in NPFC-2024-TWG CMSA08-IP06.
21. The TWG CMSA noted that there is temporal variation in chub mackerel growth and mortality and that there is potential value of using time-varying estimates of M . However, it also noted that doing so would be complex and time-consuming, both in terms of data collection/preparation and model configuration. The TWG CMSA agreed to explore time-varying estimation of M as future work. The TWG CMSA also recommended conducting likelihood profiles and sensitivity analyses on natural mortality.

5.3 Maturity-at-age

22. Japan presented a comparison of Chinese and Japanese maturity-at-age data (NPFC-2024-TWG CMSA08-WP14). For 1970–2016, only Japanese maturity-at-age data are available. For 2017 onwards, both Chinese and Japanese data showed age-0 fish to be fully immature and age-4+ to be fully mature, but they differed on the maturity determination for age-1 to age-3 fish. Japan noted that China's estimates of maturity-at-age, which were based on samples from offshore areas, were significantly higher than Japanese estimates of maturity-at-age, which

were based on samples from the spawning ground, which seemed implausible.

23. The TWG CMSA suggested that Japan should investigate the consistency of the methodology used to determine the maturity and derive the maturity ogive from 1970 to 2023, and report its findings at the TWG CMSA meeting.
24. The TWG CMSA noted that China's maturity determination method differed slightly from the method applied in Japan (NPFC-2024-TWG CMSA08-IP07) and may be resulting in an over-estimation of maturity-at-age. The TWG CMSA requested China to review the data and resubmit them by 10 February 2024.
25. The TWG CMSA agreed to use Japanese maturity-at-age data from 1970 to 2023 as an input for the base case of the stock assessment. The TWG CMSA also agreed to consider other options when China resubmits its data.

5.4 Finalization of biological parameters for stock assessment in TWG CMSA09

26. The TWG CMSA discussed biological parameters for the stock assessment of chub mackerel under Agenda Item 8.

Agenda Item 6. Fishery and biological data for stock assessment

27. Russia presented calculations of quarterly catches and average weights by age group for the period 2016 through 2023 (NPFC-2024-TWG CMSA08-WP11). Russia used mackerel catch data from the Russian Center of Fisheries Monitoring, and the Russian Federal Research Institute of Fisheries and Oceanography (VNIRO) surveys and fishery observers catch-at-length data and Japanese age-length keys for the Northwest Pacific Ocean.

6.1 Catch-at-age

6.1.1 Length frequency, catch-at-length/size and age-length key

6.1.2 Calculation of catch-at-age

28. Japan presented a comparison of Chinese, Japanese, and Russian catch-at-length/size data, age determination methods, ALKs, and catch-at-age data (NPFC-2024-TWG CMSA08-WP15). The three Members prepare catch-at-age data using adjusted age and fishing year. The three Members use three ALKs. Japan uses Eastern and Western ALKs and Russia, which catches chub mackerel in coastal areas, uses the Eastern Japanese ALK, while China, which catches chub mackerel in offshore areas, use the Chinese ALK. There is similarity between the Chinese and Eastern Japanese ALKs, and the two age determination methods may be comparable by adjusting the date of age incrementation as 1 July. Comparison of Members' annual catch-at-age data showed that the Japanese and Russian catch number has declined from 2020 to 2022,

while the Chinese catch number has remained at above 450 million. The Chinese catch is mainly composed of smaller and younger fish, while the Japanese catch and Russian catch are mainly composed of older fish.

29. Japan presented an analysis of possible methods for calculating the missing catch-at-age data, which are Chinese catch-at-age and ALK data in 2015; Chinese ALK data in 2016 and 2017; and Russian catch-at-length data in 2014 and 2015 (NPFC-2024-TWG CMSA08-WP15). Japan provided three scenarios for calculating the missing catch-at-age data and recommended the following scenario. For the Chinese 2015–2017 estimates, Japan recommended using the Eastern Japanese ALK from the equivalent quarter/year. For the Russian 2014 and 2015 estimates, Japan recommended using the Eastern Japanese ALK from the equivalent quarter/year. For the years where the catch-at-length (2015 for China, 2014–2015 for Russia) data were missing, Japan recommended using mean catch-at-length from 2016 to 2018.
30. The TWG CMSA agreed to use the Eastern Japanese ALK from the equivalent quarter/year for the missing Chinese data in 2015–2017, and the mean catch-at-length from 2016 to 2018 for the missing Chinese data in 2015 and the missing Russian data in 2014 and 2015. The TWG CMSA agreed to use Japanese catch-at-length and the Eastern Japanese ALK to substitute the missing Russian data in 2022 Q1/Q2 and 2023 Q1/Q2.
31. The TWG CMSA suggested that, as future work, Members could investigate developing a calibration co-efficient between the Eastern Japanese ALK and the Chinese ALK to further improve the estimation of the missing Chinese data in 2016 and 2017.
32. The TWG CMSA discussed a sensitivity scenario in which the estimates of the missing Chinese catch-at-age data in 2015 are not included and the other two scenarios for catch-at-age data for China in 2015 under Agenda Item 8.

6.2 Weight-at-age

33. Japan presented a comparison of Chinese, Japanese, and Russian weight-at-age data (NPFC-2024-TWG CMSA08-WP13). A single weight value for each age is needed to convert stock number into biomass. Comparison showed that Chinese, Eastern Japanese, and Russian weight-at-age data were similar, while Western Japanese data showed heavier and outlying values. Therefore, Japan calculated and compared the arithmetic means of weight-at-age for all weight-at-age data, and all except the Western Japanese weight-at-age data. Japan found that Western Japanese weight-at age, ALK, and catch-at-length data differ from Chinese, Eastern Japanese, and Russian data. Therefore, Japan recommended using the arithmetic average of only the Chinese, Eastern Japanese, and Russian data for the forthcoming stock assessment.

- 34. The TWG CMSA considered Japan's recommendation and held further discussions. The TWG CMSA tested a number of options for calculating a single weight value for each age for converting stock number into biomass in the forthcoming stock assessment and compared the results. Specifically, it tested the arithmetic average with or without Western Japanese data, the average weighted by catch weight, and the age-specific average weighted by the catch number. Based on the results, the TWG CMSA agreed to use the average, weighted by age-specific catch number with the same ratio across all years (FY2014–FY2022) by Member, of the Chinese, Eastern Japanese, Western Japanese and Russian weight-at-age data.
- 35. The TWG CMSA agreed to document the methodology for the aforementioned calculation of the average weight-at-age weighted by age-specific catch by Member.

6.3 Finalization of fishery and biological data for stock assessment in TWG CMSA09

- 36. The TWG CMSA discussed the fishery and biological data to be used for the chub mackerel stock assessment and their specification under Agenda Item 8.

Agenda Item 7. Abundance indices

7.1 Finalization of CPUE document template

- 37. The TWG CMSA reviewed the Document Template for Presenting Standardized CPUE of Chub Mackerel (NPFC-2024-TWG CMSA08-WP04).
- 38. The TWG CMSA agreed that Members must present at least one of Table 4 and Table 5 when presenting their CPUE standardization results, but it is not obligatory to present both. The TWG CMSA updated the Document Template for Presenting Standardized CPUE of Chub Mackerel accordingly, which is annexed to the CPUE Standardization Protocol for Chub mackerel.

7.2 Update of abundance indices submitted by Members

- 39. Japan presented a standardization of CPUE data from surface trawl surveys in summer for Pacific chub mackerel using the vector-autoregressive spatio-temporal (VAST) model (NPFC-2024-TWG CMSA08-WP06 (Rev. 1)). The survey covers a broad area in the Northwest Pacific Ocean. Japan estimated local densities of young-of-the-year fish in the Northwest Pacific from 2002 to 2023 with consideration for environmental factors of sea surface temperature (SST) and 50m-depth temperature as well as spatial autocorrelation. The analysis showed high levels of recruitment index have frequently occurred since 2013. This standardized index covers a long time series from periods of poor recruitment to high recruitment. Model diagnostics found no serious problems in residual patterns and showed favorable results. Japan recommended using this standardized recruitment index as the abundance index of age-0 fish in the

forthcoming chub mackerel stock assessment.

40. The TWG CMSA agreed to use Japan's standardized recruitment index as the abundance index of age-0 fish in the stock assessment.
41. Japan presented a standardization of CPUE data from surface trawl surveys in autumn for Pacific chub mackerel using the VAST model (NPFC-2024-TWG CMSA08-WP08 (Rev. 1)). The survey covers a moderately broad area in the Northwest Pacific Ocean. Japan estimated local densities of 0-year-old fish and 1-year-old fish in the Northwest Pacific from 2005 to 2023 with consideration for environmental factors of SST and 30m-depth temperature as well as spatial autocorrelation. The analysis showed high levels of abundances frequently occurred since 2013. This standardized index covers a long time series from periods of poor recruitment to high recruitment. Model diagnostics found no serious problems in residual patterns and showed favorable results. Japan recommended using these standardized abundance indices as the abundance indices for age-0 fish and age-1 in the forthcoming chub mackerel stock assessment.
42. The TWG CMSA agreed to use Japan's standardized abundance indices for age-0 fish and age-1 fish as inputs for the stock assessment.
43. The TWG CMSA noted that there was a lower level of sampling in 2023 compared to previous years and abundances of lower age-0 and age-1 fish. The TWG CMSA noted that the 2023 autumn survey data was outside the temporal scope of the forthcoming chub mackerel stock assessment but suggested that it would nevertheless be worthwhile, as future work, for Japan to investigate what impact, if any, the lower level of sampling may have had.
44. The TWG CMSA suggested that, as future work, Japan could compare the effect of assuming an autoregressive process or an independent and identically distributed process in the CPUE standardization for its autumn survey.
45. Japan presented a standardization of egg abundances from monthly egg density data obtained by research surveys for the Pacific stock of chub mackerel (NPFC-2024-TWG CMSA08-WP05 (Rev. 1)). Japan applied the VAST model to the monthly egg survey data from 2005 to 2023 off the Pacific coast of Japan to cover the spawning ground of chub mackerel. The standardized CPUE reached its peak in 2019, but has been on a downward trend since then, reaching its lowest level in 2023 since 2005. Japan found no serious problems in the diagnostics of the spatio-temporal model. Japan recommended using the estimated index as a spawning stock biomass (SSB) abundance index for the forthcoming chub mackerel stock assessment.

46. Japan explained that it will update its CPUE standardization with the latest available egg density data (July 2023).
47. The TWG CMSA agreed to use Japan's standardized chub mackerel egg abundance index, updated with the July 2023 data, as an input for the stock assessment.
48. Japan presented a standardization of CPUE data for Pacific chub mackerel from 2003 to 2023 from its commercial dip-net fishery using a generalized linear mixed-effect model (NPFC-2024-TWG CMSA08-WP03). The analysis showed that the dip-net fishery CPUE was affected by month, area, sea surface temperature, and ship as well as year. The abundance index standardizing these influential variables except for year showed a great decline in 2022-2023 after a high-level decade from 2011 to 2021. Model diagnostics suggested some areas in which the model could be improved. Nevertheless, the CPUE of the dip-net fishery targeting the spawners represents valuable information regarding the abundance of spawning fish of chub mackerel because it is believed that the majority of spawning chub mackerel migrate around the Izu Islands. Japan recommended using the standardized CPUE derived from a generalized linear mixed-effect model as an input for the forthcoming chub mackerel stock assessment.
49. The TWG CMSA agreed to use Japan's standardized CPUE derived from a generalized linear mixed-effect model as an input for the stock assessment.
50. China presented a standardization of CPUE data for chub mackerel caught by the China's lighting purse seine fishery from 2014 to 2022 using a generalized additive model (GAM) (NPFC-2024-TWG CMSA08-WP07 (Rev. 1)). Four groups of independent variables were considered in the CPUE standardization: spatial variables (latitude and longitude), temporal variables (year and month), fishery variables (vessel length and proportion of chub mackerel) and environmental variables (SST and chlorophyll-a concentration (Chla)). China recommended using the standardized CPUE derived from GAM as an input for the forthcoming chub mackerel stock assessment.
51. China explained that it had received technical suggestions from Japan for further improving the CPUE standardization and that it is in the process of incorporating these suggestions.
52. The TWG CMSA noted China's CPUE standardization had included the proportion of chub mackerel in the catch as an explanatory variable, but that Chinese vessels do not in fact change their targeting based on the proportion of chub mackerel in the catch. Therefore, the TWG CMSA suggested that China not include this variable in its CPUE standardization.

53. The TWG CMSA agreed to review China's standardized CPUE data derived from GAM again intersessionally once they have been updated based on the suggested improvements and to consider their inclusion as an input for the stock assessment.
54. Russia presented chub mackerel abundance indices in the Northwest Pacific Ocean based on the results of stock surveys carried out by Russian research vessels from 2014 to 2023 (NPFC-2024-TWG CMSA08-WP09). The Russian research vessels have been conducting multipurpose trawl surveys of the upper epipelagic zone of the Northwest Pacific Ocean annually. Surveys are carried out according to the standard scheme of trawl stations which covers a large area to the east of the Kuril Islands but the number of stations in each survey varies from year to year. According to survey data, mackerel was found sporadically and in small quantities before 2014, but large schools of mackerel have migrated to Kuril waters and adjacent open water areas since 2014.
55. The TWG CMSA encouraged Russia to continue to develop its CPUE standardization work and to present further explanation of the details in future, including the method by which it estimates the chub mackerel biomass from its survey data.
56. The TWG CMSA recalled that Russia had presented a standardization of CPUE data for chub mackerel caught by its trawl fishery at TWG CMSA07 (NPFC-2023-TWG CMSA07-WP04) and that the TWG CMSA had requested Russia to make a number of improvements (TWG CMSA07 Report, paragraph 45). Russia explained that it had not yet been able to make the requested improvements. The TWG CMSA noted that because Russia had not submitted a revised CPUE standardization, it could not review this work and agreed that it could not include this abundance index as an input for the base case of the forthcoming chub mackerel stock assessment. The TWG CMSA requested Russia to submit its revised CPUE standardization as soon as possible in the intersessional period. The TWG CMSA agreed to review the revised CPUE standardization when it is submitted and to consider including it in a sensitivity analysis for the forthcoming chub mackerel assessment if the necessary improvements have been made and if the CPUE Standardization Protocol has been followed.

7.3 Finalization of abundance indices for stock assessment in TWG CMSA09

57. The TWG CMSA discussed the abundance indices to be used and their specification under Agenda Item 8.

Agenda Item 8. Settings and specifications of SAM

8.1 Review of current settings and specifications

58. The TWG CMSA agreed that the assessment period will be FY1970–FY2022 (from 1 July 1970 to 30 June 2023). In addition, preliminary analysis using the five abundance indices of FY2023 will be conducted to check the sensitivity of the most recent data.
59. The TWG CMSA compiled a table of age-specific data to be used in the stock assessment and their specification (Annex D).
60. The TWG CMSA compiled a table of abundance indices to be used in the stock assessment and their specification (Annex E).
61. The TWG CMSA discussed the treatment of selectivity for the standardized CPUE data for the Chinese lighting purse seine fishery. The TWG CMSA agreed to compute selectivity based on the catch-at-age from China. The Chinese standardized CPUE could be used as an abundance index for younger ages. The TWG CMSA agreed that, as a future task, it would be worthwhile exploring the feasibility of estimating the selectivity for this fishery in SAM.
62. The TWG CMSA considered a single fleet configuration for the forthcoming stock assessment and suggested the exploration of calculation of F by fleet.
63. The TWG CMSA agreed that, as a future task, it would be worthwhile exploring a multiple-fleet configuration with estimation of F by fleet.

8.2 Review of preliminary results from SAM

64. Japan presented preliminary results from the use of SAM in the supplementary material of its most recent domestic chub mackerel stock assessment to illustrate the effects of different stock-recruitment relationship assumptions.
65. The TWG CMSA considered the preliminary results and discussed a range of stock-recruitment relationship options for configuring SAM for the NPFCC's chub mackerel stock assessment. The TWG CMSA agreed to explore the following two options for the forthcoming chub mackerel stock assessment:
 - (a) Parameterized Beverton-Holt stock-recruitment relationship with α and β estimated in the model
 - (b) Beverton-Holt stock-recruitment relationship with fixed parameters such as α and β or steepness parameter h , exploring the fit of the model to a range of values that would give low, intermediate, and high steepnesses that seem plausible
66. The TWG CMSA encouraged Japan to continue to explore the use of a bent hockey stick stock-

recruitment relationship as future work.

8.3 Discussion towards finalization of settings and specifications

67. The TWG CMSA reviewed and updated the draft table of settings and specification of SAM (Annex F). The TWG CMSA agreed to use this table for the forthcoming chub mackerel stock assessment.

Agenda Item 9. Biological reference points

9.1 Methods to calculate biological reference points

68. The TWG CMSA reviewed the detailed configurations for calculating performance measures that were discussed at TWG CMSA05 (NPFC-2022-TWG CMSA05-WP01, Annex D). The TWG CMSA agreed to generally follow those configurations, while giving Japan, which will conduct the modeling work, a level of flexibility. The TWG CMSA noted a number of outstanding matters that needed to be addressed and agreed to the following:
 - (a) Reference year:
 - i. Average of three years or more
 - ii. Inclusion or exclusion of terminal year to be determined
 - (b) Yield per recruit:
 - i. Use calculated partial F for each Member and weight-at-age for each Member to calculate yield per recruit
 - ii. Refine details intersessionally
 - (c) F_{MSY} : Deterministic

69. The TWG CMSA agreed that, as future work, it could be worthwhile exploring dynamic reference points, such as time-varying F_{MSY} , in light of the changing chub mackerel biological parameters, and encouraged Members to conduct and share research in this area.

Agenda Item 10. Future projection of chub mackerel

10.1 Review of the table of options for the basic specifications of conducting future projections for chub mackerel

70. The TWG CMSA reviewed and updated the table of possible options for the basic specifications for conducting future projections for chub mackerel (Annex G). The TWG CMSA agreed to continue to discuss and develop the table and determine provisional specification and setting towards TWG CMSA09.
71. The TWG CMSA requested Japan to share the code which is used for conducting the future projections for chub mackerel in its domestic stock assessment with the invited expert. The TWG CMSA requested the invited expert to work with Japan to develop the code further for

conducting the NPFC's future projections.

Agenda Item 11. Review of the Work Plan of the TWG CMSA

72. The TWG CMSA reviewed and updated the Work Plan of the TWG CMSA (NPFC-2024-TWG CMSA08-WP01 (Rev. 1)). The TWG CMSA reaffirmed its intention to complete the first chub mackerel assessment in 2024.
73. The TWG CMSA reviewed the NPFC Performance Review recommendations that concern chub mackerel and the summary of comments made by the SC at SC08 (NPFC-2023-SC08-WP04 (Rev. 1)). The TWG CMSA updated the document with further comments (NPFC-2023-SC08-WP04 (Rev. 2)).

Agenda Item 12. Other matters

12.1 Timeline and intersessional activities before TWG CMSA09

74. The TWG CMSA drafted a timeline and activities from the conclusion of TWG CMSA08 to the next TWG CMSA meeting in mid-July (Annex H).
75. The TWG CMSA agreed to hold its next meeting on 17-20 July 2024.

12.2 Observer Program

76. The Science Manager reminded the TWG CMSA of background information regarding the establishment of a regional observer program. He also summarized the relevant discussions from SC08. In particular, the SC tasked its subsidiary bodies to review summaries of any historical information that Members may have about species captured in surveys and/or discarded bycatch from their fisheries in the Convention Area and report any potential impacts on species belonging to same ecosystem or dependent/associated with target stocks during SC09, as well as to review and update data needs and gaps that could be filled by a regional observer program. However, the SC also agreed that this latter task is a lower priority for the TWG CMSA, which is working on the high priority task of the chub mackerel assessment.
77. The EU suggested that the sampling coverage for chub mackerel fisheries in the Convention Area could be increased and that the sampling quality could be improved. A template for data reporting from existing national programmes similar to the one in Annex 4 of Conservation and Management Measure 2023-05 For Bottom Fisheries and Protection of VMEs in the NW Pacific Ocean could be implemented for chub mackerel.

12.2.1 Review data or data description on fisheries bycatch in the chub mackerel fisheries

78. Russia had prepared a description of bycatch data from the mackerel fisheries in the Northwest

Pacific, which was provided as an information paper (NPFC-2024-TWG CMSA08-IP08). The TWG CMSA requested Russia and other Members to present any historical information about species captured in surveys and/or discarded bycatch from their fisheries in the Convention Area at TWG CMSA09 for summarizing and reporting to SC09.

12.3 Species summary

79. The TWG CMSA reviewed the species summary of chub mackerel (NPFC-2024-TWG CMSA08-WP02) and agreed to continue to update it as appropriate in the future.

12.4 Space and methods to share data and codes

80. The Data Coordinator, Mr. Sungkuk Kang, reported on the GIT repository plan for the TWG CMSA (NPFC-2024-TWG CMSA08-IP01). He explained that at SC08, the SC expressed its preference to use the GitHub Team plan, that the Secretariat is in ongoing communication with GitHub to assess the NPFC's eligibility for a non-profit organization account and preparing the application for the complimentary GitHub Team plan as requested by the SC, and that upon acquiring the GitHub Free Team Plan, the Secretariat will promptly set up the GIT repository and inform Members. The Data Coordinator also presented a timeline with the respective tasks/responsibilities of the Secretariat and Members, as well as contingency plans for if the NPFC is unsuccessful in applying for the complimentary GitHub Team plan.
81. Japan expressed its intention to share the code for its SAM model on the GIT repository. Japan explained that China has agreed to double-check the code and encouraged any other interested Members to do so as well.
82. The TWG CMSA noted that the NPFC collaboration site will continue to be used for the sharing of data, and model inputs.

12.5 Other issues

83. The TWG CMSA agreed that Members should share information on the ratio of chub mackerel to blue mackerel in their mackerel catch, for inclusion in the species summary documents for chub mackerel and blue mackerel.

Agenda Item 13. Recommendations to the Scientific Committee

84. The TWG CMSA agreed to:
 - (a) continue to work intersessionally in accordance with the agreed timeline (Annex H).
 - (b) complete the first chub mackerel stock assessment in 2024.
85. The TWG CMSA recommended that the SC:

- (a) adopt the Work Plan of the TWG CMSA (NPFC-2024-TWG CMSA08-WP01 (Rev. 1)).
- (b) consider the TWG CMSA's comments on the NPFC Performance Review recommendations that concern chub mackerel (NPFC-2023-SC08-WP04 (Rev. 2)).

Agenda Item 14. Adoption of Report

86. The report was adopted by consensus.

Agenda Item 15. Close of the Meeting

87. The Chair expressed his appreciation to the participants for their constructive and fruitful discussions and their collaborative spirit.

88. The meeting closed at 13:20 on 25 January 2024, Niigata time.

Annexes:

Annex A – Agenda

Annex B – List of Documents

Annex C – List of Participants

Annex D – Age-specific data to be used in the stock assessment and their specification

Annex E – Abundance indices to be used in the stock assessment and their specification

Annex F – Settings and specification of SAM

Annex G – Options for the basic specifications for conducting future projections for chub mackerel

Annex H – Timeline and activities for intersessional work from the conclusion of TWG CMSA08 to the next TWG CMSA meeting in mid-July

Please refer to the NPFC website for the complete annexes.

7th Meeting of the Technical and Compliance Committee

9-12 April 2024
Osaka, Japan (Hybrid)
Meeting Report



Agenda

1. Opening of the Meeting
 - a. Welcome to Participants
 - b. Appointment of Rapporteur
 - c. Introduction of Observers
 - d. Adoption of Agenda
 - e. Meeting Arrangements
2. Report from Secretariat
 - a. Fisheries Overview
 - b. Data Management System Update and Initiatives for 2024
3. Review of MCS related issues from SC
4. SWG Reports on Progress, Priorities and Recommendations
 - a. SWG Planning and Development - Report and Recommendations
 - b. SWG Operations - Report and Recommendations
5. Conservation and Management Measures – Amendments or new CMMs
6. IUU Vessel List
 - a. General Discussion
 - b. Recommendation for Provisional IUU Vessel List to the Commission
 - c. Recommendations for amendments to current NPFC IUU Vessel List to Commission
7. Transshipment
 - a. Report on 2023 activity
 - b. Review on implementation
8. Vessel Monitoring System
 - a. Secretariat report on review of implementation (para 24 of CMM 2023-12)

- b. VMS Data Security Protocol

9. High Seas Boarding and Inspection

- a. Secretariat Report
- b. Members Reports

10. Review of Applications for CNCP Status

11. Compliance Monitoring Scheme

- a. Provisional Compliance Monitoring Reports for 2023
- b. List of obligations for consideration for the Compliance Monitoring Scheme in 2024

12. Climate Change

13. Cooperation with Other Organizations

- a. MoU with SPRFMO
- b. MoU with WCPFC
- c. Update on IMCS Network Activities

14. NPFC Rules for Transparency Pertinent to TCC

15. Performance Review- Recommendations relevant to TCC

16. Other Matters

17. Review and Endorsement of TCC Work Plan for 2024/2025

18. Recommendations to the Commission

19. Next Meeting

20. Adoption of the Report

21. Close of the Meeting

MEETING REPORT

Agenda Item 1. Opening of Meeting

1a. Welcome to Participants

1. The 7th Meeting of the Technical and Compliance Committee (TCC) was held in a hybrid format, with participants attending in-person in Osaka, Japan, or online via WebEx, on 9-12 April 2024, and was attended by Members from Canada, China, the European Union (EU), Japan, the Republic of Korea, the Russian Federation, Chinese Taipei, the United States of America (USA), and Vanuatu. Panama attended as a Cooperating Non-Contracting Party (CNCP). The meeting was opened by Ms. Alisha Falberg (USA), who served as the TCC Chair.

2. Ms. Mana Kumagai, President of the Japan Konamon Association, welcomed the participants to Osaka and introduced Osaka's food culture, particularly *konamon*, which are flour-based foods such as *okonomiyaki* and *takoyaki*, and the importance of *dashi* or seafood-based soup stocks to *konamon* and other Japanese cuisine.

1b. Appointment of Rapporteur

3. Mr. Alexander Meyer was appointed as the Rapporteur.

1c. Introduction of Observers

4. The Chair introduced approved observers permitted to be present. The meeting was attended by the Australian National Centre for Ocean Resources and Security (ANCORS), the Deep Sea Conservation Coalition (DSCC), Global Fishing Watch, the IMCS Network, the Pew Charitable Trusts (Pew), and the Ocean Foundation. The observers were admitted without objection.

1d. Adoption of Agenda

5. The provisional agenda was adopted (Annex A). The List of Documents and List of Participants are attached (Annexes B, C).

1e. Meeting Arrangements

6. The Compliance Manager, Ms. Judy Dwyer, outlined the meeting arrangements.

Agenda Item 2. Report from Secretariat

2a. Fisheries Overview

7. The Compliance Manager presented the overview of NPFC fisheries from 2018 to 2023 (NPFC-2024-TCC07-IP03). The Secretariat intends to review the annual reporting format to enable easier reporting, clearer reporting requirements, and more accurate data reporting.
8. The TCC thanked the Secretariat for preparing the new fisheries overview format and noted that this was more informative than previous versions.
9. The TCC noted several uncertainties and inaccuracies in the figures presented in NPFC-2024-TCC07-IP03, particularly the numbers for authorized vessels and active vessels. The TCC noted that some figures require further verification and reconciliation and some Members insisted that they must not be cited in any way. The TCC requested that the Secretariat, after consultation with Members, add a disclaimer to that effect at the beginning of the paper before making it public. Some Members were of the view that this is a fundamental document and should be made publicly available, as is the practice at other regional fisheries management organizations (RFMOs). Other Members expressed concern about the risks of publishing a document that contains inaccurate and misleading information, but agreed that the fisheries overview could be made publicly available with the inclusion of an appropriate disclaimer.
10. The TCC also requested Members to work with the Secretariat to revise the document intersessionally and to improve the accuracy of the reported figures to the extent possible, by correcting faulty data in the Vessel registry, and updating the Annual Report template to align the reporting of authorized and active vessels within their respective fisheries.
11. The TCC agreed that there are underlying issues with the data reporting process and format, and the information in the NPFC Vessel Registry, that need to be corrected to enable the Secretariat to compile more accurate information. The TCC encouraged Members to work intersessionally with the Secretariat to identify these issues and potential solutions.
12. The EU noted that the information presented in the overview of fisheries raised some concerns about the effectiveness of some of the NPFC's Conservation and Management Measures (CMMs). For example, the TAC for Pacific saury seems to be much higher than the actual catch. In addition, CMM 2023-07 for Chub Mackerel requires Members to refrain from

increasing the number of fishing vessels authorized to fish for chub mackerel, but this number appears to have increased steeply.

13. Japan pointed out that there are significant discrepancies in Pacific saury CPUEs among Members. The TCC agreed to seek views from the SC on potential reasons for these discrepancies.
14. The TCC suggested that the presentation of effort information in the overview of fisheries could be further improved by breaking down effort by size/type of vessel and requested that the Secretariat include this information in next year's overview.

2b. Data Management System Update and Initiatives for 2024

15. The Data Coordinator, Mr. Sungkuk Kang, presented a summary of the status of all TCC-related data management systems update and new initiatives for further development in 2024 by the Secretariat (NPFC-2024-TC07-IP02). Updates have been made to the Transshipment, Annual Reports, Vessel Registry, HSBI Events, e-IUU, Pacific Saury Weekly Report, Collaboration, Members Home, and Significant dates/Events sections. In 2024, the Secretariat intends to advance the following key initiatives: transition from a PDF High Seas Boarding and Inspection (HSBI) boarding form to an electronic high seas boarding and inspection (HSBI) boarding form, make various improvements to the transshipment reporting system, and update e-Annual Report submission forms to align with the latest CMM revisions.
16. The TCC thanked the Secretariat for continuing to develop the NPFC data management system and improve its functionality and usability.
17. The TCC suggested potential further improvements to the data management system, including:
 - (a) The consideration of enabling batch uploading of information for transshipment and vessel registration;
 - (b) Enabling Member administrators to approve annual reports themselves, rather than requiring the Secretariat to do so;
 - (c) Enabling Members to update and revise annual reports after submission;
 - (d) Enabling users or Member administrators to create their own user ID names and passwords.
18. The TCC requested that the Secretariat also include a section with the Secretariat's recommendations for improvements to the NPFC website and data management system in next year's summary.

19. The TCC noted the convenience and value of the newly established NPFC Transshipment Reporting System. The TCC noted that its increased use would reduce the administrative burden of the Secretariat and encouraged Members to promote the use of the system by its vessels, while noting that such a transition to a new technology often takes time. The TCC noted that the transition could be facilitated by translating the relevant information about the new system into Members' respective languages and encouraged Members to accelerate such efforts, as was previously requested by the Secretariat. The TCC also noted that workshops and other educational opportunities would support the increased uptake of the new system, encouraged Members to conduct such efforts, and requested that the Secretariat provide support for those efforts.
20. The TCC requested the Secretariat to create a summary document that sets out which data need to be submitted by Members for each stock/species, with the corresponding purposes and submission deadlines.
21. China and Chinese Taipei explained that they each have internal systems for managing information related to transshipment activities. They suggested that it could reduce their administrative burden, as well as that of the Secretariat, if their systems could be integrated with the NPFC system, and requested the Secretariat to explore the feasibility of doing so.

Agenda Item 3. Review of MCS related Issues from SC

22. The Science Manager, Dr. Aleksandr Zavolokin, provided a summary of monitoring, control and surveillance (MCS) matters for coordination between the Scientific Committee (SC) and the TCC (NPFC-2024-TCC07-IP01). These included support and coordination for addressing the ambiguity around the referenced effort limits in CMM 2023-05 for Bottom Fisheries and Protection of Vulnerable Marine Ecosystems in the Northwestern Pacific Ocean, CMM 2023-06 for Bottom Fisheries and Protection of Vulnerable Marine Ecosystems in the Northeastern Pacific Ocean, and CMM 2023-11 for Japanese Sardine, Neon Flying Squid and Japanese Flying Squid; ongoing discussions about data needs and data gaps that could be filled by a regional observer program; plans to develop a key for shark identification with assistance from the United Nations Food and Agriculture Organization (FAO); and the proposed holding of periodic meetings between the SC Chair and the TCC Chair, including, as appropriate, the Science Manager, the Compliance Manager, and the Chairs and leads of the subsidiary bodies of the SC and the TCC.

23. The TCC noted the information provided by the Science Manager and welcomed the continued coordination and collaboration between the TCC and the SC.
24. Several Members emphasized the importance of clarifying the effort limits in CMM 2023-05, CMM 2023-06, CMM 2023-07, CMM 2023-08, and CMM 2023-11, and the TCC held further discussions of this issue under Agenda Item 5.
25. The TCC noted and supported the ongoing discussions by the SC of the scientific aspects of a regional observer program. The TCC agreed that it would be valuable to receive clear guidance on what level of observer coverage would be needed on fishing vessels and what kinds of data would need to be collected to achieve the scientific objectives of an observer program, and requested that the SC continue its discussions towards providing such guidance to the TCC.
26. The TCC expressed support for the SC's plans to develop a key for shark identification with assistance from the FAO.
27. The TCC expressed support for the holding of periodic meetings between the SC Chair and the TCC Chair, including, as appropriate, the Science Manager, the Compliance Manager, and the Chairs and leads of the subsidiary bodies of the SC and the TCC.
28. The EU reminded the TCC that it had presented templates for the collection of standardized biological data to the SC and that the SC has tasked working groups to review these templates and provide feedback. The EU hoped that, following the SC's review, the TCC would also review these templates with the aim of adopting them or encouraging broader use of them individually or under any future regional observer program.

Agenda Item 4. SWG Reports on Progress, Priorities and Recommendations

4a. SWG Planning and Development Report - Report and Recommendations

29. Ms. Amber Lindstedt (Canada), Co-Lead of the SWG on Planning and Development (SWG PD), presented a summary of the work conducted by the SWG PD in 2023-2024. This work focused mainly on developing a proposal to improve CMM 2023-13 For the Compliance Monitoring Scheme as tasked by COM07 and developing a proposal for the establishment of a regional observer program for transshipment. The SWG developed language to incorporate the observer program into the transshipment measure, but later decided it should be developed as a standalone measure. Preliminary costing estimates and design elements were considered. Several uncompleted tasks included reviewing the recommendations from the NPFC

Performance Review, reviewing the draft memorandums of understanding (MoUs) with South Pacific Regional Fisheries Management Organisation (SPRFMO) and Western and Central Pacific Fisheries Commission (WCPFC), and developing minimum standards for port State measures.

4b. SWG Operations Report - Report and Recommendations

30. Ms. Megan Willmann (USA), Co-Lead of the SWG on Operations (SWG Ops) presented a summary of the work conducted by the SWG Ops in 2023-2024. This work mainly focused on developing a proposal to clearly include aerial surveillance in CMM 2023-12 On the Vessel Monitoring System (VMS), developing a proposal to require the provision of safe boarding ladders and to reflect the adoption of an NPFC inspection flag in CMM 2023-09 For High Seas Boarding and Inspection Procedures for the NPFC, reviewing Annex II of CMM 2023-13 For the Compliance Monitoring Scheme and prioritizing the obligations to be assessed, and continued work on coordination of a comprehensive list of serious violations.

Agenda Item 5. Conservation and Management Measures – Amendments or new CMMs

31. Japan presented a proposed amendment to CMM 2023-12 On the Vessel Monitoring System (VMS) to remove the expiry provision for research vessels to report positional data through AIS instead of VMS (NPFC-2024-TCC07-WP01).
32. The TCC reviewed and updated the proposal, and endorsed a revised proposal to extend the expiry date of the provision to the end of the 9th Commission meeting.

Recommendation: That the Commission adopt the proposed amendments to CMM 2023-12 .

33. The Co-Lead of the SWG Ops, Ms. Willmann, presented proposed amendments to CMM 2023-12 On VMS to include aerial surveillance in the definition of inspection presence and amend paragraph 14(b) of Annex 2 (NPFC-2024-TCC07-WP15).

34. The TCC reviewed and endorsed the proposed amendments.

Recommendation: That the Commission adopt the proposed amendments to CMM 2023-12 .

35. The two proposals to amend the VMS CMM were merged into one paper, which also included the deletion of paragraph 14(c) of the VMS Data Sharing and Data Security Protocol described under Agenda Item 8b, paragraph 80.

36. Japan presented proposed amendments to CMM 2023-03 On Transshipment to add a clarifying footnote concerning the definition of “fishing vessel,” and clarification of the definition of transshipment records (NPFC-2024-TCC07-WP02).
37. Chinese Taipei presented proposed amendments to CMM 2023-03 On Transshipment to expand the timeframe and acceptable area for fishing vessels to engage in transshipment and other transfer activities related to advance notification requirements (NPFC-2024-TCC07-WP03).
38. Korea presented proposed amendments to CMM 2023-03 On Transshipment that are aimed at alleviating administrative burdens related to advance notification while upholding the integrity and effectiveness of the CMM (NPFC-2024-TCC07-WP07).
39. The TCC considered the three proposals that concern CMM 2023-03 On Transshipment together (NPFC-2024-TCC07-WP02, NPFC-2024-TCC07-WP03 and NPFC-2024-TCC07-WP07) and combined them into one proposal (NPFC-2024-TCC07-WP02 Rev.1). The TCC reviewed the combined proposal but was unable to resolve some sections that remain in square brackets concerning the timeframe within which, and the distance from the estimated start location within which, Members shall modify submitted advance notifications of transshipments and other transfer activities. Some Members preferred longer timeframes and larger distances in light of practical difficulties resulting from the Convention Area’s harsh and unpredictable weather and sea conditions. Other Members preferred shorter timeframes and shorter distances from an MCS standpoint.

Recommendation: That the Commission further consider the proposed amendments to CMM 2023-03 in NPFC-2024-TCC07-WP02 Rev.1, recognizing that some sections remain in square brackets.
40. The Co-Lead of the SWG PD, Ms. Lindstedt, presented a proposal for the establishment of a regional observer program for transshipment (NPFC-2024-TCC07-WP05).
41. The TCC discussed the proposal, noting that many sections remain in square brackets, and agreed that these would require further discussion in the intersessional period. The TCC further noted that paragraph 26 of CMM 2023-03 stipulates that the Commission shall establish a regional observer and/or electronic monitoring program no later than its 9th Commission meeting. China suggested a regional observer program should include national observer programs and may table an amendment proposal at the 9th Commission meeting.

Japan suggested that observers should be sourced from an independent observer provider to monitor transshipment activities.

Recommendation: That the Commission task the TCC to continue to work intersessionally to develop a proposal for the establishment of a regional observer program for transshipment and present it to the Commission for consideration at COM09.

42. The TCC agreed to prioritize the development of the regional observer program for transshipment and noted that work to develop the broader regional observer program could be conducted in parallel, through a step-wise approach, including developing the scientific aspects of the regional observer program based on the advice of the SC regarding types of data that should be collected and appropriate coverage rates.

Recommendation: That the Commission task the SC to provide data on what information scientific observers need to collect to help inform development of a regional observer program for NPFC.

43. The Co-Lead of the SWG PD, Ms. Lindstedt, presented proposed amendments to CMM 2023-13 For the Compliance Monitoring Scheme to lay out a more comprehensive CMS process to assess Member compliance with Commission obligations (NPFC- 2024-TCC07-WP04).

44. The TCC considered and updated the proposal, and endorsed the proposed amendments. The TCC noted that one section, concerning the Implementation Questionnaire, remained in square brackets, as some Members wished to review the actual Implementation Questionnaire before agreeing to this section, although they were generally supportive of the concept. The TCC noted that Members were working in the margins to prepare a draft Implementation Questionnaire and would present it at COM09, which would facilitate the Commission's consideration of the proposed amendments to the CMM.

Recommendation: That the Commission adopt the proposed amendments to CMM 2023-13 (Annex D).

45. The USA presented proposed amendments to CMM 2019-02 To Establish a List of Vessels Presumed to Have Carried Out IUU Activities in the NPFC Convention Area aimed primarily at clarifying the process for technical updates to the NPFC IUU Vessel List to be made intersessionally by the Executive Secretary when information is provided by Members and can be verified by the Secretariat (NPFC-2024-TCC07-WP06).

46. The TCC reviewed and endorsed the proposed amendments.

Recommendation: That the Commission adopt the proposed amendments to CMM 2019-02.

47. Korea presented proposed amendments to CMM 2023-15 on the Prevention, Reduction and Elimination of Marine Pollution to propose that vessels maintain a voluntary record of waste/garbage management and treatment and to include a force majeure clause concerning the implementation of paragraph 8 on the release of plastics (NPFC- 2024-TCC07-WP08 Rev5).
48. The TCC reviewed and updated the proposal, and endorsed the proposed amendments.
Recommendation: That the Commission adopt the proposed amendments to CMM 2023-15 (Annex E).
49. The EU presented proposed amendments to CMM 2023-07 For Chub Mackerel that are aimed at clarifying some key obligations, in particular those related to the effort management requirements established by the CMM, as well as their application to relevant NPFC Members (NPFC-2024-TCC07-WP10).
50. The TCC held a preliminary review of the proposal but was unable to make substantial progress during the meeting.
Recommendation: That the Commission further consider the proposed amendments to CMM 2023-07 in NPFC-2024-TCC07-WP10, recognizing that no consensus was reached at the TCC.
51. The EU presented proposed amendments to CMM 2023-11 For Japanese Sardine, Neon Flying Squid and Japanese Flying Squid that are aimed at clarifying some key obligations, in particular those related to the effort management requirements established by the CMM, as well as their application to relevant NPFC Members (NPFC-2024-TCC07-WP12).
52. The TCC held a preliminary review of the proposal but was unable to make substantial progress during the meeting.
Recommendation: That the Commission further consider the proposed amendments to CMM 2023-11 in NPFC-2024-TCC07-WP12, recognizing that no consensus was reached at the TCC.
53. The Co-Lead of the SWG Ops, Ms. Patricia DeMille (Canada), presented proposed amendments to CMM 2023-09 For High Seas Boarding and Inspection Procedures for the NPFC to require the provision of safe boarding ladders and to reflect the adoption of an NPFC inspection flag (NPFC-2024-TCC07-WP14).

54. The EU expressed its preference that certain minimum standards be established to ensure that boarding ladders are effectively safe, noting that in the absence of clear minimum requirements the safety of inspectors boarding fishing vessels would not be ensured, but indicated that it would not block consensus. Some Members expressed support for holding future discussions on the potential establishment of such minimum standards.
55. The TCC endorsed the proposed amendments.

Recommendation: That the Commission adopt the proposed amendments to CMM 2023-09.

Agenda Item 6. IUU Vessel List

6a. General Discussion

56. The Compliance Manager presented the draft IUU Vessel List (NPFC-2024-TCC07-WP17). The draft list contained one vessel, which was found to have misreported 1.4 MT of transshipped salmon.
57. The Compliance Manager read out the update provided by China regarding the four vessels that were not included in the Provisional IUU Vessel List at COM07 on the condition that China would report intersessionally as well as at TCC07 on the follow-up investigations (NPFC-2024-TCC07-IP07). This information was first provided to Members on 20 February 2024 via NPFC Circular #014 /2024.
58. China provided additional explanations in response to further requests for clarification from the TCC on the four vessels and the TCC considered China's follow-up actions to be satisfactory and the matter to be resolved.
59. The Compliance Manager presented the current IUU Vessel List (NPFC-2024-TCC07-WP18) and noted where Members and CNCP had proposed updating information regarding several vessels on the current IUU Vessel List (NPFC-2024-TCC07-IP08).

6b. Recommendation for Provisional IUU Vessel List to the Commission

60. Japan explained that it had inspected a Chinese-flagged vessel that failed to describe 1.4 MT of salmon in its transshipment declaration, which Japan considers to be a violation of paragraph 9 of CMM 2023-03 On Transshipment. It had therefore proposed the vessel for inclusion on the draft IUU Vessel List. However, Japan subsequently held bilateral meetings with relevant Members, including China. During these meetings, China explained that the vessel recorded 1.4 MT of salmon in its logbook and under the “Others” item in the

transshipment declaration and that in China's interpretation, the identification of non-NPFC species is not required in the transshipment declaration. Japan also found that some Members agreed that there was ambiguity in the language of the CMM. In light of this, Japan wished to withdraw its nomination of the vessel, while maintaining its original interpretation of paragraph 9 of CMM 2023-03.

61. China provided further explanation. The fishing vessel owner reported the 1.4 MT of salmon through China's internal transshipment application platform system, which, at that time, did not have a column or line to record the species as salmon. Following the flagging of this matter by Japan and subsequent discussions, China updated its internal transshipment application platform system to enable the recording of salmon and other non-NPFC species.
62. The TCC discussed this issue from a procedural standpoint and agreed that as the vessel had already been included on the draft IUU Vessel List, Japan could not remove it from the list by withdrawing its proposal. Rather, the correct procedure would be for the TCC to consider the draft IUU Vessel List and decide whether or not to include the vessel on the provisional IUU Vessel List. Furthermore, the TCC noted that although China has explained the background and details to Japan in bilateral discussions, China should have submitted suitably documented information to the Executive Secretary, in accordance with paragraph 11 of CMM 2019-02 To Establish a List of Vessels Presumed to Have Carried Out IUU Activities in the NPFC Convention Area. The TCC requested that China provide this explanation to the TCC in writing.
63. In response to the above request, China submitted a written explanation to the TCC (NPFC-2024-TCC07-IP09). The TCC thanked China for providing the explanation and reminded Members that if their vessels were included on the draft IUU Vessel List in future, they should provide any explanations they have in writing in advance of the TCC meeting.
64. Canada and the USA expressed their continued concern about the use of the term "other" to describe a known fish species in the transshipment declaration, pointing out that in the future, this could be considered misreporting of catch or catch-related data under paragraph 38(b) of CMM 2023-09 For High Seas Boarding and Inspection Procedures for the NPFC. They further noted that species caught and reported for transshipment require accurate reporting using the appropriate FAO code. Canada and the USA also expressed disagreement with China's interpretation that the obligation described in paragraph 9 of CMM 2023-03 On Transshipment only applies to Members and not also to fishing vessels. Nevertheless, they

expressed understanding for the explanation provided by China and appreciation for the subsequent steps it has taken to enhance its internal reporting system.

65. Noting that the reporting of salmon under “other” by the vessel was due to an issue of interpretation and limitations in China’s internal reporting system, and that China has taken steps to improve its reporting system and thereby demonstrated its commitment to improving future reporting by its flagged vessels, the TCC agreed not to include the vessel listed on the draft IUU vessel list on the Provisional NPFC IUU Vessel List.
66. Several Members noted that the above issue involving the transshipment of salmon highlighted the importance of the proposal submitted by Canada, Korea, and the USA to the Commission for the establishment of a measure to protect anadromous fish in the Convention Area.
67. The TCC agreed that the provisions in CMM 2023-03 On Transshipment could be improved to make it clearer that the transshipped catch should be reported by species.
Recommendation: That the Commission task the TCC to work intersessionally to propose amendments to CMM 2023-03 On Transshipment, including the Annex, to more clearly require the reporting of transshipped catch by species.
68. Based on its review of the draft NPFC IUU Vessel List, the TCC did not propose any vessels for inclusion on the Provisional NPFC IUU Vessel List.
Recommendation: That the Commission note that the TCC did not propose any vessels for inclusion on the Provisional NPFC IUU Vessel List.

6c. Recommendations for amendments to current NPFC IUU Vessel List to Commission

69. The TCC considered the updates proposed by two Members in NPFC-2024-TCC07-IP08. The USA addressed the IUU vessel information updates provided intersessionally to the Secretariat and Commission prior to TCC07. The USA noted the Secretariat’s analysis that information for vessels 5, 6, 7, 9, 10, 11, 12, and 14 on the IUU vessel list was based on AIS and MMSI data and will require further research to inform potential updates to the IUU vessel list. The USA noted that they met on the margins of TCC with China regarding vessels 17-23 on the IUU vessel list. The USA expressed the need for continued intersessional work with Members and the Secretariat to determine if any of the other updates provided by the USA should be included in future edits to the IUU vessel list, as well as to ensure all Members are effectively cooperating and implementing their obligations under CMM 2019-02. The TCC agreed to amend the details associated with WAN TONG (ZHONG FU HAO 111), RIWA

(GLORIWAVE), QIAN YUAN, and HAN (SHUN HANG (VILA MOOSUN)) on the current NPFC IUU Vessel List.

Recommendation: That the Commission note that the TCC did not propose removing any vessels from the current NPFC IUU Vessel List.

Recommendation: That the Commission adopt the proposed updates to the information in the current NPFC IUU Vessel List described in (NPFC-2024-TCC07-WP18 Rev.1).

70. The EU referred to the Circular 04/2024 through which it informed NPFC Members about the location of the vessel WAN TONG in a Member's port and inquired about how this was addressed under the requirements of paragraph 24 of CMM 2019-02. In reply to the EU's request, China informed the TCC that the vessel entered into Chinese port for investigation in relation to labor issues. In addition, the USA informed the TCC that it had identified suspected interactions between Chinese-flagged vessels and WAN TONG in the Indian Ocean and had shared this information with China. China thanked the USA for sharing this information and informed the TCC that it would conduct a follow-up investigation in the intersessional period and share the findings in writing with Members. The EU pointed out that Members should be duly informed of any relevant activities concerning vessels on the NPFC IUU Vessel List and encouraged the USA and China to share information about the suspected interactions between Chinese-flagged vessels and WAN TONG in the Indian Ocean at the upcoming Commission meeting.

Agenda Item 7. Transshipment

7a. Report on 2023 activity

71. The Compliance Manager presented a summary of transshipment activities in 2023, as reported by Members/CNPC through the submission of their annual reports for 2023, and data extracted from the online database to identify the amounts of NPFC species transshipped by Member in the Convention Area in 2023 (NPFC-2024-TCC07-IP05 Rev.1). With more than 70% of NPFC priority species harvest being transshipped annually, transshipment is an important issue for the Commission. The enhanced reporting requirements introduced through CMM 2023-03 have generated a large dataset with many details on NPFC transshipments. However, the Secretariat is challenged to find time to conduct analyses on the data as so much time is required to manage the manual input of data into the system. It is hoped that 2024 will see an increase in online reporting directly into the database to allow the Secretariat to focus on the analysis of this growing dataset.
72. The TCC noted several uncertainties and inaccuracies in the figures presented in NPFC-2024-TCC07-IP04 Rev.1. The TCC noted that some figures require further verification and

reconciliation and some Members insisted that they must not be cited in any way. The TCC requested that the Secretariat, after consultation with Members, add a disclaimer to that effect at the beginning of the paper before making it public. The TCC also requested Members to work with the Secretariat to revise the document and to improve the accuracy of the reported figures to the extent possible.

73. The TCC reaffirmed the value of the NPFC Transshipment Reporting System web application, agreed that its increased uptake would reduce the administrative burden on the Secretariat and its ability to provide meaningful and accurate data analysis, and encouraged the holding of workshops and other educational opportunities to promote the further use of the system.
74. The Ocean Foundation and Pew welcomed the establishment of the NPFC Transshipment Reporting System web application and urged the TCC to recommend a clear series of steps to enable a more seamless provision of transshipment data and support more in-depth analyses of these data by the Secretariat.

7b. Review on implementation

75. The TCC considered and proposed amendments to CMM 2023-03 On Transshipment under Agenda Item 5, under paragraph 39, some of which were based on Members' review of the implementation of the CMM, and agreed to forward the proposed amendments to the Commission for further consideration.

Agenda Item 8. Vessel Monitoring System

8a. Secretariat report on review of implementation (para 24 of CMM 2023-12)

76. The Fisheries and Data Science Consultant, Dr. Jihwan Kim, presented an overview of the VMS over the 2-year period for 2022 and 2023 (NPFC-2024-TCC07-IP04 Rev.1), including a summary, by Member/CNCP, of monthly activity and data gaps experienced in 2023, challenges associated with the lack of consistent zone entry and exit as well as duplicate reports, and a comparison of 2023 transshipment locations against the data reported through VMS. The dataset generated by the NPFC VMS has provided the Secretariat with a wealth of information on a near real time basis. It has taken the Secretariat some time to understand the full capability of the system and to address some of the challenges of developing a new dataset. The Secretariat is continuing to adapt analytical strategies as new information is understood, with support from the service providers, CLS and Cubic-I. The operation of the VMS and analysis of the data generated could be further improved by providing at least one position report from outside the Convention Area or AIS to assist with data gap analysis, and mandatory declarations of entry into and exit from the Convention Area. It would also help

the Secretariat if there were an agreed format that should be used for manual reporting in the event of an equipment failure.

77. The TCC discussed the data gaps and issue of duplicate reporting identified by the Secretariat. Members shared the findings from their follow-up investigations and identified various potential causes. For data gaps, these were mostly due to technical issues, such as slight delays in transmitting position data, data reporting interruptions, and issues with the program for relaying data from the Member's Fisheries Monitoring Center to the Secretariat, as well as fishing patterns whereby vessels frequently move between exclusive economic zones (where VMS reporting to the NPFC is not required) and the Convention Area. For duplicate reporting, these were due to vessels being equipped with two VMS units as a measure to ensure continuous reporting in case one fails and both units simultaneously generating position report, or errors resulting from domestic regulations requiring reporting at more frequent intervals than CMM 2023-12 On the VMS.
78. The TCC noted that entry/exit reporting would assist the Secretariat in more accurately identifying instances of entry or exit from the Convention Area. The TCC further noted that Article 13, paragraph 4b) of the Convention stipulates that Members shall require fishing vessels that are entitled to fly its flag and that are engaged in fishing activities in the Convention Area to notify the Commission of their intention to enter and exit the Convention Area in accordance with procedures developed by the Commission. There was a suggestion of creating those procedures at this time. One Member expressed the view that it was not yet the time to activate this requirement, pointing out that presence in the Convention Area can be detected with the VMS.

Recommendation: That the Commission consider establishing procedures for reporting of entry into and exit from the Convention Area, including alternative measures such as the possibility of establishing buffer zones similar to SPRFMO.

79. The TCC discussed the potential use of AIS data by the Secretariat. Some Members expressed support for the Secretariat accessing and using these data to assist with analyzing gaps in VMS data. Other Members expressed doubts about the quality and usefulness of AIS data but indicated that they would not be opposed to the Secretariat using them. One Member stated that it would not support the use of AIS data if the Secretariat's access to these data would incur financial costs.

Recommendation: That the Commission task the Secretariat with exploring options for accessing AIS data that would not incur financial costs, such as accessing AIS data held by

Members or collaborating with non-governmental organizations, for use in analyzing gaps in VMS data, and to explore paid options as necessary and appropriate in the future.

8b. VMS Data Security Protocol

80. The TCC noted that paragraph 14(c) of Annex 2 of CMM 2023-12 On the Vessel Monitoring System (VMS) will expire at the end of COM08. The TCC agreed that, in light of the other provisions of paragraph 14, the expiration of subparagraph (c) would not substantively change the CMM's Annex 2: VMS Data Sharing and Data Security Protocol.

Recommendation: That the Commission delete paragraph 14(c) from the CMM's Annex 2: VMS Data Sharing and Data Security Protocol.

81. The Secretariat combined the above proposed deletion of paragraph 14(c) of Annex 2 of CMM 2023-12 On the VMS with the other amendments to the CMM that were endorsed by the TCC under Agenda Item 5 into one document (NPFC-2024-TCC07-WP20) for easier consideration by the Commission.

Agenda Item 9. High Seas Boarding and Inspection

9a. Secretariat Report

82. The Compliance Analyst and Secondee to the NPFC, Ms. Natsuki Hosokawa, presented a summary of the high seas boarding activities in the NPFC Convention Area in 2023 (NPFC-2024-TCC07-IP06 Rev.1). In 2023, the number of inspection vessels increased by nine vessels from 2022, and five vessels conducted inspections in the Convention Area. 24 high seas inspections were reported by the three active Members and 19 out of 24 events were uploaded to the HSBI Events page. In 2023, HSBI operations noted 9 violations, but no serious violations were identified. Following bilateral communication, almost all violations were reconciled as "no violation" following explanations/clarifications provided. Of the 24 vessels inspected, 14 were either carrier vessels, jigger vessels or purse seiners. Since 2018, 109 inspection activities have been conducted in the NPFC Convention Area. 51 of those inspections did not identify any violations. The majority of violations identified were related to vessel markings. China pointed out most of its vessel marking issues were caused by technical reasons, rather than falsification or concealing. In the intersessional period, the need to update the HSBI implementation plan was identified, and the Secretariat has been working with SWG Ops to that end. The Secretariat also intends to consider ways to encourage greater use of the online transshipment reporting system, which was designed to assist HSBI by enabling access to near real-time data on planned transshipment activity. In addition, the Secretariat encouraged Members to submit inspection reports using the HSBI Events page.

83. The TCC requested that for future summaries of HSBI activities, the Secretariat include a column with total number of authorized/active vessels in the table showing the total number of inspected vessels 2023, to enable ease of comparison.
84. The TCC noted that paragraph 42 of CMM 2023-09 For High Seas Boarding and Inspection Procedures for the NPFC stipulates that Members shall include in their annual statement of compliance within their Annual Report action that they have taken in response to boarding and inspections of their fishing vessels that resulted in observation of alleged violations. The TCC requested that the Secretariat include such information in future summaries of HSBI activities.
85. The TCC requested that the Secretariat establish a mechanism for reporting aerial surveillance results on the HSBI Events page if the proposed amendment to CMM 2023-12 On the VMS to clearly include aerial surveillance is adopted by the Commission.
86. The TCC noted instances where activities were recorded as “violations” in the Secretariat’s summary, whereas these could be considered “serious violations” according to the definitions in the NPFC CMMs. The Secretariat explained that its summary had deferred to the violations classification used in the HSBI reports.
87. The TCC discussed whether the Secretariat should present the determination of “violations” or “serious violations” as it is recorded in the HSBI report or based on the Secretariat’s own judgment. The TCC agreed that the responsibility to determine “violations” or “serious violations” lies with Members, particularly Members’ at-sea inspectors, not the Secretariat. The TCC requested that the Secretariat include more detailed information in future summaries of HSBI activities to facilitate the TCC’s discussions and determination of whether each particular activity constitutes a “violation” or “serious violation.”
88. The TCC noted that there may also be instances where follow-up may be needed when HSBI reports identify “violations” that could be “serious violations.” The TCC requested that the Secretariat follow up with the inspecting authority if there appears to be a clear discrepancy between the determination in the HSBI report and the definition of “violations” or “serious violations” in the CMMs to ensure that a mis-recording has not occurred.

9b. Members Reports

89. Noting that more information on HSBI is provided in Member’s Annual Reports, Canada, China, Japan, and the USA presented brief reports of their HSBI activities for 2023.

Agenda Item 10. Review of Applications for CNCP Status

90. The TCC noted that no applications for CNCP status have been received.
91. The TCC noted that as Panama has not applied to renew its CNCP status, Panama's CNCP status will expire following the end of COM08 on April 18 and that subsequently, vessels flagged to Panama will no longer be authorized to be used for fishing and fishing-related activities in the Convention Area.
92. The TCC requested that the Secretariat identify any non-Contracting Parties that may have an interest in engaging in fishing activities in the Convention Area and potentially should become CNCPs, and invite them to consider applying for CNCP status.

Agenda Item 11. Compliance Monitoring Scheme

11a. Provisional Compliance Monitoring Reports for 2023

93. The Compliance Manager presented the NPFC Draft Compliance Monitoring Report(CMR) – 23 (NPFC-2024-TCC07-WP16). The Secretariat assessed ten Members/CNCP against forty-four obligations based on the data available. Of those combined 440 elements, 328 were identified as “Not Assessed,” largely due to the inability to collect data needed to assess the obligation to the Member/CNCP. Four non-compliant statuses were assigned: two identified during at-sea inspections relating to non-compliant vessel markings and boarding ladders, one identified by the Secretariat in checking whether vessels in the Vessel Registry had IMO numbers identified, and one identified by the Secretariat in checking that all vessels reporting on VMS had authorizations to operate in the Convention Area. The Secretariat noted that it faced challenges in assessing compliance for many obligations.
94. The TCC discussed issues with the draft CMR (NPFC-2024-TCC07-WP16) and the compliance monitoring scheme and ways in which these could be improved. Members raised the following points:
 - (a) The draft CMR process and format still did not allow the assessment of Members' compliance with key obligations adopted by the NPFC.
 - (b) The draft CMR format should not only contain statistics but should identify instances of potential non-compliance and provide further details about the nature of the potential non-compliance, and subsequent interactions and responses from the relevant Member. The role of the Secretariat should not be to assign compliance status but to facilitate the TCC's assessment of Members compliance with obligations by identifying potential compliance

issues and presenting all the relevant information to the TCC, which, based on this information, would determine the compliance status.

- (c) The practices of other RFMOs may serve as a useful reference.
- (d) The Secretariat should notify Members if any information is lacking for their vessels on the NPFC Vessel Registry and give Members the opportunity to provide the missing information before assigning a non-compliance status. Under the current vessel registration system, it is not possible to register a vessel without providing all the requisite information, but for vessels that were registered in the past, there has not been a mechanism to alert Members that required information is missing.
- (e) Most VMS-related issues that were identified in the draft CMR were data interruptions resulting from technical issues and should not be treated as instances of non-compliance.
- (f) “Not Assessed” and “Not Applicable” have distinct meanings and should not be conflated.

95. The TCC noted the draft CMR but did not adopt it as the Provisional Compliance Monitoring Report as the current process and format of the draft CMR did not enable adequate discussion and assessment of Members’ compliance with the obligations under the NPFC CMMs.

Recommendation: That the Commission develop and adopt amendments for improving CMM 2023-13 For the Compliance Monitoring Scheme as soon as possible based on the discussions of the TCC and its SWGs.

96. Some Members expressed their concern that once again the TCC has not been able to assess compliance of Members with obligations under the NPFC Convention and CMMs and that the adoption of a revised CMS CMM should be a priority issue for consideration at COM08.

11b. List of obligations for consideration for the Compliance Monitoring Scheme in 2024

97. The TCC reviewed the initial prioritization (NPFC-2024-TCC07-WP04) conducted by the SWG PD and the SWG Ops of the obligations for the CMR process in Annex II of CMM 2023-13 For the Compliance Monitoring Scheme. The TCC further updated and endorsed the proposed prioritization of obligations (Annex D).

Recommendation: That the Commission adopt the proposed list of obligations to be assessed as part of the CMR for 2024 (Annex D).

98. The TCC agreed that the list of obligations for the CMR process should be reviewed annually and updated as necessary. The TCC agreed that, to facilitate this review, the list should be reviewed as a standalone document separate from CMM 2023-13 going forward.

99. The TCC noted that the list of obligations may need to be further amended based on the outcomes of COM08, which could potentially include the adoption of amendments to multiple CMMs.
100. The TCC noted that the list contains a large number of obligations and that it could continue to grow with the adoption of new CMMs and amendments to existing CMMs. The TCC noted the need to hold further discussions in the future on how to manage the process of assessing these obligations, including consideration for the Secretariat's workload.

Agenda Item 12. Climate Change

101. The TCC noted that following the adoption of the Resolution on Climate Change at COM07, Climate Change is now a standing agenda item for the Commission and its subsidiary bodies, including the TCC. The TCC noted that this is the first year that this has been on the TCC agenda and that no specific topics of discussion have been tabled. The TCC reaffirmed the importance of considering climate change in the context of the NPFC and its readiness to play any relevant roles required of it, such as considering how climate changes affects the NPFC's CMMs or incorporating climate change-related advice from the SC into proposed measures for the consideration of the Commission.

Agenda Item 13. Cooperation with Other Organizations

13a. MoU with SPRFMO

102. The Secretariat informed the TCC that the NPFC and SPRFMO have concluded an MoU. The Compliance Managers of the two RFMOs have initiated correspondence but have yet to develop a concrete work plan. It is anticipated that the MoU will serve as a governance framework that enables the sharing of information regarding common issues and best practices.

13b. MoU with WCPFC

103. The Secretariat informed the TCC that the NPFC has submitted a draft MoU to the WCPFC, that the WCPFC has returned it with proposed revisions that are editorial in nature, and that COM08 will consider the draft MoU with the proposed revisions for adoption. The Secretariat further informed the TCC that the NPFC has similarly submitted a draft MoU to the International Scientific Committee for Tuna and Tuna-Like Species in the North Pacific Ocean (ISC), which supports the scientific work of the WCPFC, that the ISC has returned the draft MoU with proposed revisions that are editorial in nature, and that COM08 will consider the draft MoU with the proposed revisions for adoption.

13c. Update on IMCS Network Activities

104. The IMCS Network provided an update on collaborative activities with the NPFC. These activities included verification of data and information related to the IUU Vessel List, and providing points of contact for information-gathering on IUU vessels and suspected IUU vessels. The IMCS Network also provided indirect support through the Joint Analytical Cell by creating an intelligence report on a vessel on an IUU Vessel. Furthermore, it has also provided indirect support through the Pan-Pacific Fisheries Compliance Network for VMS data information management and use, as well as the management of transshipment information. In addition, the IMCS Network is working to strengthen information-sharing between RFMOs on IUU vessels, including by compiling a consolidated list of vessels authorized by all RFMOs based only on publicly available information.

Agenda Item 14. NPFC Rules for Transparency Pertinent to TCC

105. The TCC noted discrepancy in the Interim NPFC Rules of Transparency for TCC regarding the expiration date of the interim rules, resulting in ambiguity over whether the interim rules expire at the end of COM08 or COM09. In any case, the TCC agreed that the interim rules should be maintained until the end of COM09 as the TCC continues its work to develop updated rules, including how to incorporate the CMS process endorsed in paragraph 44.

Recommendation: That the Commission maintain the Interim NPFC Rules of Transparency for TCC until the end of COM09 and task the TCC to continue to work intersessionally to develop updated NPFC Rules of Transparency for TCC that also include the CMS process.

Agenda Item 15. Performance Review- Recommendations relevant to TCC

106. The Secretariat presented a table with the NPFC Performance Review recommendations that concern the TCC and its subsidiary bodies and suggested TCC comments drafted by the Secretariat and the TCC Chair for each recommendation (NPFC-2024-COM08-WP11).

107. The TCC noted the table presented by the Secretariat and agreed to use it to inform its discussions on the TCC Work Plan. At the same time, the TCC agreed that it would need to conduct an in-depth review of the suggested comments, which would not be possible at TCC07 due to time constraints. Members indicated their intention to keep this as an information paper, to use it for tracking purposes and update as necessary, and to provide further comment on TCC-related recommendations through the discussions at the Commission and the intersessional meetings of the TCC SWGs.

Recommendation: That the Commission task the TCC with any work arising from the NPFC Performance Review recommendations as necessary.

Agenda Item 16. Other Matters

108. Korea presented a proposal for the NPFC to appoint an independent legal advisor (NPFC-2024-TCC07-WP09). Korea expressed its view that there are distinct advantages to the Commission having an independent legal advisor and that the Commission can receive better support from the Secretariat if the Secretariat is able to seek independent advice on legally sensitive matters, particularly since much of the Commission's work is initially processed by the Secretariat before being considered by the Members. Korea invited the TCC to consider and revise, as appropriate, the draft Terms of Reference for the NPFC legal advisory consultant presented in Annex 1 of the paper.
109. The Executive Secretary provided supplementary comments, explaining that independent legal advice supports the Secretariat in its efforts to represent Members' interests to the best of its ability, without making legal missteps, and that to date, it has been seeking such advice on an ad-hoc basis, particularly with respect to engagement regarding IUU listed vessels.
110. Some Members expressed doubt about the usefulness of appointing an independent legal advisor for NPFC, noting that Members have their own legal advisors and would naturally tend to place more weight on the advice of their own legal advisors in instances where they disagree with the independent legal advisor, but acknowledged that an independent legal advisor could be more useful for the Secretariat than for Members. Japan suggested that, in light of the size of the NPFC, the number of Members, and the number of CMMs, the Secretariat did not need to have a long-term arrangement with an independent legal advisor and could continue to seek legal advice on an ad-hoc basis. Another Member stated that in its experience, having an independent legal advisor can be useful in certain contexts. The TCC noted the divergent views among Members and noted that there is a need to hold further discussions on this matter.
Recommendation: That the Commission continue to discuss whether there is a need to appoint an independent legal advisor for NPFC and consider Korea's proposal (NPFC-2024-TCC07-WP09) in its discussions.
111. Several Members expressed concern about the potential financial implications of hiring an independent legal advisor. The TCC noted these concerns and agreed that there is a need to hold further discussions on the financial implications and the prioritization of hiring an independent legal advisor against other budget items.
Recommendation: That the FAC consider the financial implications of hiring an independent legal advisor and its priority compared to other budget items.

112. The EU presented the latest version of its Fishing Operation Plan (FOP), which sets out in more detail the EU's proposed plan to fish for Chub mackerel in the NPFC Convention Area and the accompanying Impact Assessment (NPFC-2024-TCC07-WP11). The EU also explained the background to its submission of previous versions of the FOP and subsequent revisions. The EU explained that it submitted the current version of the FOP to the SC07, TCC06, and COM07, and in the absence of a successful outcome at COM7, despite its longstanding and continuous efforts to accommodate the concerns expressed by some NPFC Members, the EU has re-submitted this FOP to TCC07 and COM08. The EU invited the TCC to provide comment on the MCS aspects of its FOP.
113. The EU also reiterated its commitment to promoting the long-term and sustainable conservation of fisheries resources in the Convention Area, fully implementing the CMMs adopted by the NPFC, ensuring that its fishing vessel and nationals comply with the provisions of the Convention and CMMs, and accepting HSBIs. Furthermore, the EU highlighted its excellent record of compliance in other RFMOs, which demonstrates the effectiveness of the EU's MCS framework and its control over EU-flagged vessels.
114. The TCC reviewed the EU's proposed FOP. The TCC noted that there are no substantive changes from the version presented to TCC06 and did not identify any technical or compliance concerns for the consideration of COM08.
115. Some Members expressed concern about how to accommodate the EU's FOP given the recent condition of the chub mackerel stock and the significant decline in catch. They also noted that Japan will present a proposal to COM08 for amending CMM 2023-07 For Chub Mackerel to introduce a total allowable catch for chub mackerel and that the Commission would likely need to consider the EU's FOP in conjunction with Japan's proposal.
116. The USA presented a proposal for the establishment of a Resolution on Core Principles on Labor Standards in NPFC Fisheries (NPFC-2024-TCC07-WP13 Rev.1). The proposal was co-sponsored by Korea and Canada. The USA highlighted the importance of RFMOs in comprehensively addressing labor and safety-related concerns in the fishing sector, and that an increasing number of RFMOs are taking action. The USA explained that it is submitting this Resolution to underscore the importance of standards for safe, fair, and decent working conditions for crew onboard fishing vessels engaged in NPFC fisheries.
117. The TCC reviewed the proposal, noting there will be continued work to refine the Resolution in the margins between TCC07 and COM08.

Recommendation: That the Commission further consider the proposed Resolution on Core Principles on Labor Standards in NPFC Fisheries in NPFC-2024-TCC07-WP13 Rev.1.

Agenda Item 17. Review and Endorsement of TCC Work Plan for 2024/2025

118. The TCC reviewed the TCC/SWG Work Plan for 2024/2025 (NPFC-2024-TCC07-WP19) against the progress made to date and in consideration of new items of work arising from TCC07.

Recommendation: That the Commission task TCC with the activities contained in the Work Plan (Annex F).

119. The TCC noted the concerns expressed by some Members regarding the large number of SWG PD and SWG Ops meetings held in the previous year and the workload associated with this. The TCC suggested that it may be efficient to hold meetings of the SWG PD and SWG Ops on the same day where possible, which would help to reduce the number of meeting days. The TCC also encouraged Members to actively share information electronically, which could help to reduce the number of meetings needed.

Agenda Item 18. Recommendations to the Commission.

120. The TCC recommended the following to the Commission:

(Agenda Item 5)

- (a) That the Commission adopt the proposed amendments to CMM 2023-12.
- (b) That the Commission further consider the proposed amendments to CMM 2023-03 in NPFC-2024-TCC07-WP02 Rev.1, recognizing that some sections remain in square brackets.
- (c) That the Commission task the TCC to continue to work intersessionally to develop a proposal for the establishment of a regional observer program for transshipment and present it to the Commission for consideration at COM09.
- (d) That the Commission task the SC to provide data on what information scientific observers need to collect to help inform development of a regional observer program for NPFC.
- (e) That the Commission adopt the proposed amendments to CMM 2023-13 (Annex D).
- (f) That the Commission adopt the proposed amendments to CMM 2019-02.
- (g) That the Commission adopt the proposed amendments to CMM 2023-15 (Annex E).
- (h) That the Commission further consider the proposed amendments to CMM 2023-07 in NPFC-2024-TCC07-WP10, recognizing that no consensus was reached at the TCC.
- (i) That the Commission further consider the proposed amendments to CMM 2023-11 in NPFC-2024-TCC07-WP12, recognizing that no consensus was reached at the TCC.
- (j) That the Commission adopt the proposed amendments to CMM 2023-09.

(Agenda Item 6)

- (k) That the Commission task the TCC to work intersessionally to propose amendments to CMM 2023-03 On Transshipment, including the Annex, to more clearly require the reporting of transshipped catch by species.
- (l) That the Commission note that the TCC did not propose any vessels for inclusion on the Provisional NPFC IUU Vessel List.
- (m) That the Commission note that the TCC did not propose removing any vessels from the current NPFC IUU Vessel List.
- (n) That the Commission adopt the proposed updates to the information in the current NPFC IUU Vessel List described in (NPFC-2024-TCC07-WP18 Rev.1).

(Agenda Item 8)

- (o) That the Commission consider establishing procedures for reporting of entry into and exit from the Convention Area, including alternative measures such as the possibility of establishing buffer zones similar to SPRFMO.
- (p) That the Commission task the Secretariat with exploring options for accessing AIS data that would not incur financial costs, such as accessing AIS data held by Members or collaborating with non-governmental organizations, for use in analyzing gaps in VMS data, and to explore paid options as necessary and appropriate in the future.
- (q) That the Commission delete paragraph 14(c) from the CMM's Annex 2: VMS Data Sharing and Data Security Protocol.

(Agenda Item 11)

- (r) That the Commission develop and adopt amendments for improving CMM 2023-13 For the Compliance Monitoring Scheme as soon as possible based on the discussions of the TCC and its SWGs.
- (s) That the Commission adopt the proposed list of obligations to be assessed as part of the CMR for 2024 (Annex D).

(Agenda Item 14)

- (t) That the Commission maintain the Interim NPFC Rules of Transparency for TCC until the end of COM09 and task the TCC to continue to work intersessionally to develop updated NPFC Rules of Transparency for TCC that also include the CMS process.

(Agenda Item 15)

- (u) That the Commission task the TCC with any work arising from the NPFC Performance Review recommendations as necessary.

(Agenda Item 16)

- (v) That the Commission continue to discuss whether there is a need to appoint an independent legal advisor for NPFC and to consider Korea's proposal (NPFC-2024-TCC07-WP09) in its discussions.

- (w) That the FAC consider the financial implications of hiring an independent legal advisor and its priority compared to other budget items.
- (x) That the Commission further consider the proposed Resolution on Core Principles on Labor Standards in NPFC Fisheries in NPFC-2024-TCC07-WP13 Rev.1.

(Agenda Item 17)

- (y) That the Commission task TCC with the activities contained in the Work Plan (Annex F).

Agenda Item 19. Next Meeting

- 121. **Recommendation:** That the Commission hold the next TCC meeting in conjunction with the next Commission meeting.

Agenda Item 20. Adoption of the Report

- 122. The report was adopted by consensus.

Agenda Item 21. Close of the Meeting

- 123. The TCC meeting closed at 16:10, Osaka time, on 12 April 2024.

Annexes:

Annex A – Agenda

Annex B – List of Documents

Annex C – List of Participants

Annex D – CMM 2024-13 For the Compliance Monitoring Scheme

Annex E – CMM 2024-15 On the Prevention, Reduction, and Elimination of Marine Pollution

Annex F – TCC 2024/25 Work Plan

Please refer to the NPFC website for the complete annexes.

6th Meeting of the Finance and Administration Committee

13 April 2024
Osaka, Japan (Hybrid)
Meeting Report



Agenda (as amended from the floor)

1. Opening of the Meeting
2. Appointment of Rapporteur
3. Adoption of Agenda
4. Financial Statement
 - a. Audit Report for the 2022/2023 fiscal year
 - b. Secretariat financial update for 2023/2024 fiscal year
 - c. Status of Member Contributions
 - d. Status of Other Funds as of January 31, 2024
 - i. Working Capital Fund
 - ii. Voluntary Contribution Funds
 - iii. Special Project Fund
 - iv. Repatriation Fund
 - v. Pension Fund
5. Administration Matters
 - a. Contracted staffing level report
 - b. Contracted administrative report
 - c. 2024 Internship and Secondment programs P
 - d. Performance Review and items of relevance to FAC
6. Secretariat's Work Plan: Budget Estimates for 2024/2025 to 2026/2027
 - a. Secretariat Work Plan 2024/2025 to 2026/2027
 - b. Budget for 2024/2025
 - i. Special project funding proposal
 - ii. Independent legal advisor proposal
 - c. Budget estimates for 2024/2025 and 2025/2026 and indicative budget estimates for 2026/2027 and 2027/2028
7. Other matters

8. Next meeting
9. Recommendations to the Commission
10. Adoption of the Report
11. Close of the Meeting

MEETING REPORT

Agenda Item 1. Opening of the Meeting

1. The 6th Meeting of the Finance and Administration Committee (FAC) was held in a hybrid format, with participants attending in-person in Osaka, Japan, or online via WebEx, on 13 April 2024, and was attended by Members from Canada, China, the European Union (EU), Japan, the Republic of Korea, the Russian Federation, Chinese Taipei, the United States of America (USA), and Vanuatu. Panama attended as a Cooperating Non-Contracting Party (CNCP). The Ocean Foundation attended as an observer. The meeting was opened by Mr. Dan Hull (USA), who served as the FAC Chair.

Agenda Item 2. Appointment of Rapporteur

2. Mr. Alexander Meyer was appointed as the Rapporteur.

Agenda Item 3. Adoption of Agenda

3. The FAC agreed to consider the proposal for a special project for hiring an expert to assist the SWG NPA-SA to conduct an assessment for splendid alfonsino and North Pacific armorhead (NPFC-2024-FAC06-WP02) and the proposal for the NPFC to appoint an independent legal advisor (NPFC-2024-TCC07-WP09) under Agenda Item 6b, Budget for 2024/2025.
4. The agenda was adopted (Annex A). The List of Documents and List of Participants are attached (Annexes B, C).
5. The Executive Secretary, Dr. Robert Day, outlined the logistical arrangements for the meeting.

Agenda Item 4. Financial Statement

4a. Audit Report for the 2022/2023 fiscal year

6. The NPFC Auditor's Report for the 2022/2023 Financial Year (NPFC-2024-FAC06-IP01) was taken as read, with supplementary comments from the Executive Secretary regarding the

pension liability, the establishment of separate bank accounts for the separate funds, and the reduction in the stated surplus in the audit.

Recommendation: That the Commission adopt the NPFC Auditor's Report for the 2022/2023 Financial Year.

4b. Secretariat financial update for 2023/2024 fiscal year

7. The Executive Secretary presented the Statement of Income and Expenditure for the year ending 31 March 2023 (2022/2023 fiscal year) and unaudited values for 2023/2024 (NPFC-2024-FAC06-WP01 Rev.2).

Recommendation: That the Commission adopt the financial update for the 2023/2024 fiscal year.

4c. Status of Member Contributions

8. The Executive Secretary reported on the status of Member contributions for 2023/2024 (NPFC-2024-FAC06-WP01 Rev.2).

9. The Secretariat reported that Russian contributions had not been received and further noted that previous Russian attempts to pay its contribution were unsuccessful due to the intermediary banks refusing to process the transfers. Russia indicated it will make further attempts to complete the payment of its contribution.

10. The FAC noted that an overpayment of Panama's voluntary contribution as a CNCP has accumulated and held further discussions of how to handle this under the review of the status of the Voluntary Contribution under Agenda Item 4d.

4d. Status of Other Funds

i. Working Capital Fund

ii. Voluntary Contribution

iii. Special Project Fund

iv. Repatriation Fund

v. Pension Fund

11. The Executive Secretary reported on the status of the other funds, including the Working Capital Fund, the Voluntary Contributions, the Special Project Fund, the Repatriation Fund, and the Pension Fund (NPFC-2024-FAC06-WP01 Rev.2).

12. The FAC thanked Canada, China, the United States, and Panama for their voluntary contributions.

13. The FAC welcomed the suggestion from Panama that Panama's overpayment of its voluntary contributions, resulting from exchange rate fluctuations, could be held in reserve by the NPFC in anticipation of the possibility that Panama could apply for and successfully receive CNCP status again in the future.
14. The FAC requested that the Secretariat specify by fiscal year when individual expenses were incurred when presenting future reports on the status of other funds.
15. The FAC noted the status of other funds.

Agenda Item 5. Administration Matters

5a. Contracted staffing level report

16. The Executive Secretary presented a report assessing the NPFC's staffing, capabilities and needs (NPFC-2024-FAC06-WP04). He reminded the FAC that FAC05 recommended that COM07 task the Secretariat to review its staffing levels, including the Data Coordinator position, in line with recommendations in the NPFC Performance Review, for review at FAC06. An independent review was therefore commissioned from Dr. Penelope Ridings and Dr. Joji Morishita. The Executive Secretary suggested that the Secretariat could present a paper to FAC07 or the FAC SWG with potential options for staffing levels and investment of resources aimed at enhancing the efficiency and functionality of the Secretariat so that it can better meet the needs of Members.
17. Some Members stated that the commissioning of an independent assessment and report was beyond what they had expected when making the original recommendation at FAC05, but welcomed the report nevertheless, appreciating its independent and comprehensive nature. As a matter of process, they requested that in the future, the Secretariat should indicate to the FAC when it is considering seeking outside assistance and expertise on FAC-related matters, so that the FAC can understand whether the advice it will receive will come from the Secretariat or independent experts, and also that the FAC can discuss the budgetary implications. They also pointed out that it would be useful to receive the views of the Secretariat, especially the Executive Secretary, on matters such as areas where additional resources may be required or where Member guidance is needed on prioritizing tasks in light of budgetary constraints, and welcomed the Secretariat's proposal to present a paper related to this at FAC07.

18. The FAC noted the report assessing the NPFC's staffing, capabilities and needs, and requested that the Secretariat present a follow-up paper with potential options for staffing levels and investment of resources at FAC07.

Recommendation: That the Commission task the Secretariat with presenting a follow-up paper with potential options for staffing levels and investment of resources at FAC07.

5b. Contracted administrative report

19. Discussions under Agenda Item 5b were conducted in closed session due to the confidential nature of personnel matters.
20. The Executive Secretary provided a progress report on issues related to GS staff pay, and insurance coverage for international staff in response to the tasking from FAC05 and COM07.
21. The FAC thanked the Executive Secretary for providing the progress report. The FAC acknowledged the challenges of addressing these issues, as outlined in the Executive Secretary's report. The FAC recognized the importance of the Secretariat having competitive and equitable pay scales and remuneration to support the work of the Commission. The FAC recognized that further work is needed on this issue, including further discussions at FAC07, and noted that the goals presented by the Executive Secretary would facilitate such discussions.

Recommendation: That the Commission task the Secretariat to continue to work on issues related to GS staff pay, and insurance coverage for international staff using the goals presented by the Executive Secretary at FAC06 as a basis and to provide a working paper at FAC07, in order to enable the FAC to discuss this issue further and make potential recommendations to the Commission at COM09.

5c. 2024 Internship and Secondment programs

22. The Executive Secretary reported on the outcomes of the 2023/2024 Intern and Secondment Program and presented applications for the 2024/2025 fiscal year for the consideration of the FAC (NPFC-2024-FAC06-WP03). The FAC recognized the contributions of the 2023/2024 intern and secondee noted the benefits of the NPFC Intern and Secondment Program for interns and secondees and for the Secretariat. The FAC reviewed the proposed candidates for the 2024/2025 Intern and Secondment Program.

Recommendation: That the Commission accept the secondment application from Mr. Jumpei Hinata (Japan) for a 12-month period commencing in June 2024.

Recommendation: That the Commission accept the applications from Mr. Jiyu Wang (China) and Mr. Shinnosuke Kato (Japan) for six-month internships, and to stagger their start times.

23. The FAC noted the concerns expressed by some Members over the lack of flexibility in the procedural aspects of the NPFC's Intern and Secondment Program and their preference that greater decision-making discretion be given to the Executive Secretary over matters such as which candidates to hire, and the duration and timing.

Recommendation: That the Commission task the Secretariat to present a proposal to FAC07 on potential updates to the procedural aspects of the NPFC's Intern and Secondment Program.

5d. Performance Review and items of relevance to FAC

24. The FAC reviewed the NPFC Performance Review recommendations that concern the FAC and suggested FAC comments drafted by the Secretariat and the FAC Chair for each recommendation (NPFC-2024-COM08-WP11).

Recommendation: That the Commission task the FAC and the Secretariat with continuing to work to address the recommendations from the Performance Review Panel as a standing agenda item, with a focus on reviewing projects from the Special Project Fund through the FAC SWG, reviewing staffing levels, and developing a corporate plan.

Agenda Item 6. Secretariat's Work Plan: Budget Estimates for 2024/2025 to 2026/2027

6a. Secretariat Work Plan 2024/2025 to 2026/2027

25. The Executive Secretary presented the Secretariat's Work Plan for 2024/2025 to 2026/2027 (NPFC-2024-FAC06-WP05). The FAC endorsed the work plan.

Recommendation: That the Commission adopt the Secretariat's Work Plan for 2024/2025 (Annex D).

6b. Budget for 2024/2025

26. The Executive Secretary presented the proposed budget for 2024/2025 (NPFC-2024-FAC06-WP01 Rev.2) for the review of the FAC. He highlighted the financial pressures of the devaluation of the yen, inflation, and growing database management costs.

27. Japan agreed that Japan's annual contribution for 2024/2025 is 51,304,000 (JPY) although Japan's fixed annual contribution will remain at 44,000,000 (JPY) from 2025/2026 onward. Japan's annual contribution for 2024/2025 was absorbed into the budget table in Annex E.

28. The Science Manager, Dr. Aleksandr Zavolokin, introduced the proposal for a special project for hiring an expert to assist the SWG NPA-SA to conduct an assessment for splendid alfonsino and North Pacific armorhead (NPFC-2024-FAC06-WP02), which has already been reviewed by the FAC SWG. The FAC endorsed the proposal and included it in the proposed

budget for 2024/2025.

29. Korea introduced the proposal for the NPFC to appoint an independent legal advisor (NPFC-2024-TCC07-WP09) and the discussions at TCC. Korea explained that, based on the discussions at TCC, it intends to revise the scope of its proposal to appointing an independent legal advisor that would advise the Secretariat, not Members. Korea also explained that, based on its discussions with the Executive Secretary, the associated costs could be limited by keeping legal consultations electronic/virtual and that these could be included within the amount allotted to the budget item “Contractual Services” in the proposed budget for 2024/2025.
30. Members expressed support for limiting the scope to appointing an independent legal advisor that would advise the Secretariat, not Members. One Member insisted that the independent legal advisor must not be asked by Members for advice on the interpretation of the provisions of the Convention and NPFC CMMs at meetings of the Commission or its subsidiary bodies.
31. Several Members expressed their preference that the legal advisor should not be contracted on a full-time basis and should only be consulted on a case-by-case basis. The Executive Secretary explained that the intention would not be to hire a legal advisor on a full-time basis, but to have a retainer arrangement with them, and consult them as necessary.
32. The FAC requested that Korea and the Executive Secretary develop draft terms of reference (TOR) for the proposed services of an independent legal advisor(s) based on the discussions of the FAC and the legal advice the Secretariat has sought to date on an ad hoc basis and present the TOR at COM08 for further consideration. The Executive Secretary explained that so far, the Secretariat has not sought legal advice on interpretations of the Convention and NPFC CMMs, and that it has sought legal advice mainly in three areas: international law in relation to the Secretariat’s interactions with third-parties, general domestic Japanese law, Japanese social and labor law. The FAC agreed that the scope of the advice of the independent legal advisor(s) should be limited to that in the TOR.

Recommendation: That Korea and the Executive Secretary develop draft TOR for the proposed services of an independent legal advisor(s) based on the discussions of the FAC and the legal advice the Secretariat has sought to date on an ad hoc basis and present the TOR at COM08 for further consideration.
33. The FAC requested that in future meetings of the FAC, the Secretariat report on what kinds of contractual services it engaged in the previous year and what output it received from those

services.

34. The FAC endorsed the proposed budget for 2024/2025.

Recommendation: That the Commission adopt the proposed budget for 2024/2025 (Annex E).

Recommendation: That the Commission adopt the proposed Member contributions for 2024/2025 as shown in Annex E. This would include the additional 7.304 million (JPY) contribution of Japan, of which the FAC recommends 3.5 million (JPY) is used to offset Members' contributions in fiscal 2024/2025, while the other 3.804 million (JPY) is transferred into the Working Capital Fund.

6c. Budget estimates for 2025/2026 and indicative budget estimates for 2026/2027 and 2027/2028

35. The FAC noted the budget estimates for 2025/2026 and the indicative budget estimates for 2026/2027 and 2027/2028.

Agenda Item 7. Other matters

36. No other matters were discussed.

Agenda Item 8. Next Meeting

37. **Recommendation:** That the Commission consider holding the next FAC meeting in conjunction with the next Commission meeting.

Agenda Item 9. Recommendations to the Commission

38. The FAC recommended the following to the Commission:

(Agenda Item 4)

- (a) That the Commission adopt the NPFC Auditor's Report for the 2022/2023 Financial Year.
- (b) That the Commission adopt the financial update for the 2023/2024 fiscal year.

(Agenda Item 5)

- (c) That the Commission task the Secretariat with presenting a follow-up paper with potential options for staffing levels and investment of resources at FAC07.
- (d) That the Commission task the Secretariat to continue to work on issues related to GS staff pay, and insurance coverage for international staff using the goals presented by the Executive Secretary at FAC06 as a basis and to provide a working paper at FAC07, in order to enable the FAC to discuss this issue further and make potential recommendations to the Commission at COM09.
- (e) That the Commission accept the secondment application from Mr. Jumpei Hinata (Japan) for a 12-month period commencing in June 2024.
- (f) That the Commission accept the applications from Mr. Jiyu Wang (China) and Mr.

Shinnosuke Kato (Japan) for six-month internships, and to stagger their start times.

- (g) That the Commission task the Secretariat to present a proposal to FAC07 on potential updates to the procedural aspects of the NPFC's Intern and Secondment Program.
- (h) That the Commission task the FAC and the Secretariat with continuing to work to address the recommendations from the Performance Review Panel as a standing agenda item, with a focus on reviewing projects from the Special Project Fund through the FAC SWG, reviewing staffing levels, and developing a corporate plan.

(Agenda Item 6)

- (i) That the Commission adopt the Secretariat's Work Plan for 2024/2025 (Annex D).
- (j) That Korea and the Executive Secretary develop draft TOR for the proposed services of an independent legal advisor(s) based on the discussions of the FAC and the legal advice the Secretariat has sought to date on an ad hoc basis and present the TOR at COM08 for further consideration.
- (k) That the Commission adopt the proposed budget for 2024/2025 (Annex E).
- (l) That the Commission adopt the Member contributions for 2024/2025 as shown in Annex E. This would include the additional 7.304 million (JPY) contribution of Japan, of which the FAC recommends 3.5 million (JPY) is used to offset Members' contributions in fiscal 2024/2025, while the other 3.804 million (JPY) is transferred into the Working Capital Fund.

(Agenda Item 8)

- (m) That the Commission consider holding the next FAC meeting in conjunction with the next Commission meeting.

Agenda Item 10. Adoption of the Report

39. The report was adopted by consensus.

Agenda Item 11. Close of the Meeting

40. The FAC meeting closed at 19:25, Osaka time, on 13 April 2024.

Annexes:

Annex A – Agenda

Annex B – List of Documents

Annex C – List of Participants

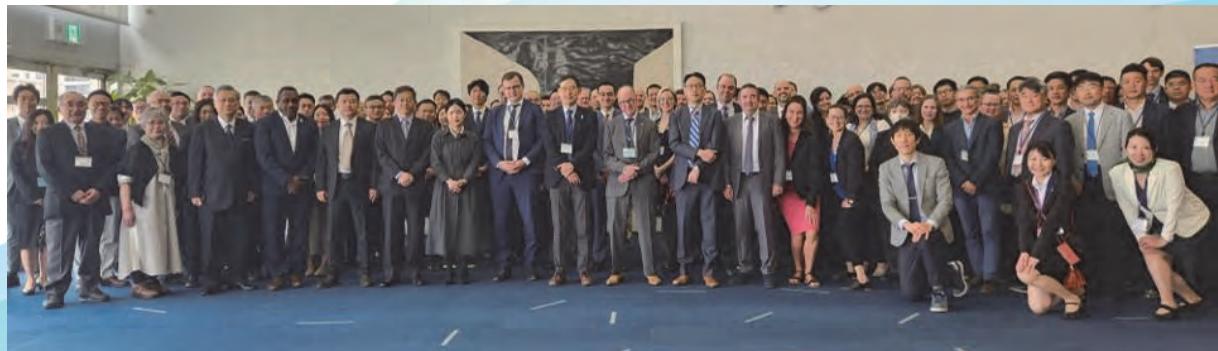
Annex D – Secretariat work plan

Annex E – Budgets and assessed contribution

Please refer to the NPFC website for the complete annexes.

8th Commission Meeting

15-18 April 2024
Osaka, Japan (Hybrid)
Meeting Report



Agenda (as amended on the floor)

1. Opening of the Meeting
 - a. Welcome Address
 - b. Appointment of Rapporteur
 - c. Adoption of Agenda
 - d. Meeting Arrangements
2. Membership of the Commission
 - a. Status of the Membership
 - b. CNCP status and any other applications
3. Report from the Secretariat
4. Report of the 8th Scientific Committee meeting
 - a. Review of the SC08 Report and response to COM07 taskings
 - b. Adoption of the SC Report and Recommendations
5. Report of the 7th Technical and Compliance Committee meeting
 - a. Review of TCC07 Report and response to COM07 taskings
 - b. Adoption of IUU Vessel List for 2024
 - c. Adoption of Final Compliance Monitoring Report
 - d. Adoption of the TCC07 Report and Recommendations
 - e. Consideration of other TCC issues identified during TCC07 or by COM08 meeting
6. Report of the 6th Finance and Administration Committee meeting
 - a. Review of FAC Report
 - b. Adoption of the proposed budget for 2024/2025 and 2025/2026
 - c. Adoption of the FAC06 Report and Recommendations

7. Report of the 4th and 5th Meetings of the joint SC-TCC-COM Small Working Group on Management Strategy Evaluation for Pacific Saury (SWG MSE PS)
8. Conservation and Management Measures (to be introduced on Day 1)
 - a. Review of the amendments to existing CMM's and any new CMMs
 - b. EU fishing plan
9. Performance Review of the Commission – considerations for the Commission
10. NPFC Data Sharing and Data Security Protocols update
11. Climate change
12. Cooperation with Other Organizations
 - a. PICES
 - b. NPAFC
 - c. FAO: Deep Sea Fisheries project and FIRMS
 - d. WCPFC
 - e. SPRFMO
 - f. ISC
 - g. IMCS Network
 - h. UN BBNJ
 - i. WTO: Agreement on Fisheries Subsidies
 - j. Other Organizations
13. Other matters
 - a. Secondment and Intern for 2024
 - b. Selection of SC Chair and Vice-chair (based on SC08 recommendation)
 - i. Selection of SC Chair and Vice-chair (based on SC08 recommendation)
 - ii. Selection of the science co-chair of SWG MSE PS
 - c. Other business
 - d. Press Release
14. Date and Place of next meeting of the Commission and its Committees
15. Adoption of the report
16. Close of the Meeting

MEETING REPORT

Agenda Item 1. Opening of the Meeting

1. The 8th Meeting of the North Pacific Fisheries Commission (NPFC) was held in a hybrid format, with participants attending in-person in Osaka, Japan, or online via WebEx, on 15-18 April 2024, and was attended by Members from Canada, China, the European Union (EU), Japan, the Republic of Korea, the Russian Federation, Chinese Taipei, the United States of America (USA), and Vanuatu. Panama attended as a Cooperating Non-Contracting Party (CNCP). The United Nations Food and Agriculture Organization (FAO), the North Pacific Marine Science Organization (PICES), the North Pacific Anadromous Fish Commission (NPAFC), the International Monitoring Control and Surveillance (IMCS) Network, the Australian National Centre for Ocean Resources and Security (ANCORS), the Deep Sea Conservation Coalition (DSCC), the Pew Charitable Trusts, the Ocean Foundation, World Wildlife Fund (WWF), and Greenpeace International attended as observers. The meeting was opened by Mr. Shingo Ota (Japan), who served as the Commission Chair.

1a. Welcome Address

2. The Chair welcomed the participants to Osaka, noting that, coincidentally, this is his home region, and thanked the Secretariat for its dedicated efforts to organize the meeting. The Chair noted that next year will mark the 10th anniversary of the NPFC and reflected on the history of the organization, including the negotiations for its establishment and scope. He also noted the continued progress of the Commission in advancing its work, including intersessional work facilitated by online and hybrid meetings. The Chair highlighted the work done by the Joint SC-TCC-COM Small Working Group on Management Strategy Evaluation for Pacific Saury (SWG MSE PS) to develop a management procedure and an interim harvest control rule (HCR). He urged Members to adopt one of the candidate HCRs proposed by the SWG MSE PS, pointing out that this will help to balance the sustainable use of Pacific saury and socio-economic concerns, and enable swifter responses to trends in the stock. The Chair also highlighted the ongoing work to develop a unified stock assessment approach for chub

mackerel and the anticipated completion of the NPFC's first chub mackerel stock assessment in 2024. With regard to bottom fisheries, the Chair noted the proposals to revise the Conservation and Management Measures (CMMs) for bottom fisheries and protection of vulnerable marine ecosystems (VMEs) and expressed his hope that Members would be able to find consensus on these proposals. Lastly, the Chair wished the participants a fruitful meeting.

1b. Appointment of Rapporteur

3. Mr. Alexander Meyer was appointed as the Rapporteur.

1c. Adoption of Agenda

4. The Commission agreed to add "Adoption of the FAC06 Report and Recommendations" as Agenda Item 6c.
5. The Commission agreed to add "Selection of a Science co-chair of the joint SC-TCC-COM Small Working Group on Management Strategy Evaluation for Pacific Saury (SWG MSE PS)" as Agenda Item 13b. bis.
6. With the above revisions, the Commission adopted its agenda (Annex A). The List of Documents and List of Participants are attached (Annexes B, C).

1d. Meeting Arrangements

7. The Executive Secretary, Dr. Robert Day, outlined the meeting arrangements.

Agenda Item 2. Membership of the Commission

2a. Status of the Membership

8. The report on the status of the Convention by the Republic of Korea, the Depositary of the NPFC, was taken as read (NPPC-2024-COM08-IP01). Since the previous Commission meeting, the total number of Members remains at nine.

2b. CNCP status and any other applications

9. The Commission noted that no applications for CNCP status have been received.
10. The Commission noted that as Panama has not applied to renew its CNCP status, Panama's CNCP status will expire following the end of COM08 on April 18.

11. Panama explained that it has recently introduced a new domestic fisheries regime and regulations and that as it works to implement these regulations and manage the transition for its domestic and international fishing fleets, it has decided to pause its participation in the NPFC as a CNCP and has not applied for renewal of its CNCP status. Panama emphasized its continued commitment to cooperating with the NPFC, both now and in the future, and stated that it will provide all data for all activities conducted by its vessels in 2024 and any relevant data for the next assessment period. Finally, Panama expressed its interest in applying once again for CNCP status at the next Commission meeting.

Agenda Item 3. Report from the Secretariat

12. The Executive Secretary presented a summary of the annual report on the Commission's activities for the intersessional period between the 7th Commission Meeting of March 2023 and this current Commission meeting (NPFC-2024-SR).

Agenda Item 4. Report of the 8th Scientific Committee meeting

4a. Review of the SC08 Report and response to COM07 taskings

13. The Chair of the SC, Dr. Janelle Curtis (Canada), summarized the outcomes of the 8th SC meeting and the meetings of its subsidiary bodies (NPFC-2023-SC08-Final Report & NPFC-2024-COM08-IP05) for discussion by the Commission.
14. Several Members expressed concern about the recent dramatic decline in chub mackerel catch and CPUE. Some of these Members highlighted, in particular, such declines in domestic waters. The Commission noted these concerns, as well as the ongoing stock assessment work, and welcomed the expected completion of the NPFC's first chub mackerel stock assessment this year.
15. Several Members expressed concern about the continued historically low levels of Pacific saury over the past four years and noted the need to adopt an interim HCR for Pacific saury at this meeting. However, some Members also expressed difficulty implementing an interim HCR to calculate a new total allowable catch (TAC) to be applied from this fishing season, noting that CMM 2023-08 for Pacific Saury, which was adopted last year, had set a TAC for a period of two fishing seasons and the change in TAC for 2024 would cause difficulties to the fishing industry.
16. Korea noted that the SC had noted the value of regular reporting of Pacific saury bycatch from Members' other fisheries and hoped this point would be taken up by the Commission

when reviewing the proposed amendments to CMM 2023-08 For Pacific Saury under Agenda Item 8.

17. Regarding the collection of scientific data and the establishment of a regional observer program, the Commission agreed on the importance of further improving the quantity and quality of data collected, as data form the basis of the Commission's decisions. To aid with the development of scientific aspects of a regional observer program in a step-wise manner, the Commission requested that the SC provide guidance to the TCC on what level of observer coverage would be needed on fishing vessels and what kinds of data would need to be collected to achieve the scientific objectives of a regional observer program. China suggested that data collection by a regional observer program could be complemented by port sampling programs and e-monitoring.
18. The EU expressed its continued concern that stock assessments have not been completed for most NPFC key species and considered this to be a fundamental priority for the Commission. The EU encouraged Members to share all relevant data with the SC for the development of future stock assessments. The EU also noted that domestic stock assessments for several priority species have been presented at NPFC meetings, including SC08, and encouraged Members that are developing domestic stock assessments to provide them in a timely manner ahead of SC meetings. The EU suggested that the Commission task the SC and the Small Working Group (SWG) on Milestones to define a process for reviewing and possibly adopting these assessments for priority species that could serve as interim advice for the stock, until an NPFC stock assessment for that particular species is completed. The EU further suggested that whenever stock assessment work is initiated, an estimation of the timeframe for the completion of the stock assessment should be provided. In addition, the EU emphasized that robust stock assessments require well-designed, comprehensive, and consistent data collection schemes and suggested that the SC prioritize the development of a document outlining the types of data that should be collected by gear and the required frequency of the collection of such data, towards establishing an effective data collection scheme for the NPFC.
19. The USA shared the EU's concern over the trends in some stocks, and the lack of stock assessments and management advice on several priority species. The USA also echoed the EU's view regarding the need for the development of a more comprehensive and consistent data collection scheme.
20. Japan explained that its scientists have been providing the SC and its subsidiary bodies with Japanese domestic stock assessments for several pelagic species, including chub mackerel,

sardine, Japanese flying squid, and blue mackerel, some of which are straddling stocks between the Japanese EEZ and the NPFC Convention Area. Japan believed that these stock assessments represent the best available scientific information available at this point. Japan hoped that this information would inform and enhance the stock assessment work of the NPFC. It also requested that other Members share their biological data with Japan to further enhance Japan's domestic stock assessment work.

21. Russia emphasized the importance of the Japanese domestic chub mackerel stock assessment work for informing the work of the NPFC's chub mackerel stock assessment and that the SC's work has been based on the best available scientific information.
22. The EU emphasized the importance of ensuring that the current CMMs are effectively implemented and possibly further strengthened and noted with concern the SC's concern over the lack of definition of historical levels in CMMs for several priority species, including chub mackerel. The EU believed that this undermines some of the intended conservation benefits of the NPFC's CMMs. The EU urged Members to provide information for clearly defining historical levels for ensuring effectiveness of chub mackerel and other species and hoped that Members would consider the proposals from the EU aimed at addressing this outstanding gap.
23. The EU expressed concern about the increase in the number of vessels fishing for chub mackerel since the entry into effect of CMM 2023-07 For Chub Mackerel and which seems to go against the CMM's spirit. China pointed out that the EU's statement was based on the overview of NPFC fisheries and was inappropriate because the TCC07 had noted that the overview contained several uncertainties and inaccuracies, and that it should not be cited.
24. Korea noted that the SC had raised several concerns in regard to CMM 2023-05 For Bottom Fisheries and Protection of VMEs in the Northwestern Pacific Ocean and hoped that all of these concerns would be taken up by the Commission when reviewing the proposed amendments to this CMM under Agenda Item 8. The USA echoed the view expressed by Korea and stated that the Commission should do more to meet its mandate to apply precautionary and ecosystem approaches, referencing its own proposal to amend CMM 2023-05.
25. The DSCC welcomed the SC's discussions on the protection of VMEs and the proposal presented by the USA and Canada on enhancing measures for their protection in the Northwestern Pacific Ocean, and encouraged the Commission to give serious consideration to the proposal.

26. The Commission noted the SC's proposed amendments to three CMMs and considered them further under Agenda Item 8.
27. In response to the recommendation from the SC that the Commission develop a clear definition of "bycatch," the Commission requested that the SC provide additional reference information, such as current catch status and the definitions applied in other regional fisheries management organizations (RFMOs), and draft potential options for defining bycatch for the Commission's consideration.
28. The Commission noted the SC's request to consider the SC's actions to address the NPFC Resolution on Climate Change and held further discussions on this matter under Agenda Item 11.
29. The Commission noted the SC's request to consider defining the reference levels/historical catches in a number of CMMs and held further discussions on this matter under Agenda Item 8.

4b. Adoption of the SC Report and Recommendations

30. The Commission adopted the reports and the recommendations of the SC (Annex D) with the understanding that the proposed amendments to the three CMMs would be discussed under Agenda Item 8.

Agenda Item 5. Report of the 7th Technical and Compliance Committee meeting

5a. Review of TCC07 Report and response to COM07 taskings

31. The Chair of the TCC, Ms. Alisha Falberg (USA), summarized the outcomes of the 7th TCC meeting (NPFC-2024-TCC07-Final Report) for discussion by the Commission.
32. Several Members remarked that TCC07 had noted the uncertainties and inaccuracies in the figures presented in the overview of NPFC fisheries and the summary of transshipment activities, and they highlighted the importance of Members and the Secretariat working to improve the quality of the information in the Secretariat's data holdings to produce more informative reports, particularly the overview of fisheries, which is a fundamental source of information about the NPFC. Japan suggested that it would be useful to implement a mechanism for Members to cross-check the information in future versions of these papers, rather than relying solely on the Secretariat to identify the necessary information. Several Members noted that, despite the inaccuracies, the new fisheries overview contained more

comprehensive information than previous years and they welcomed the progress made in this regard.

33. China reminded Members that at TCC07, it had agreed to have the overview of fisheries be published, despite the many inaccuracies, with the disclaimer that the information should not be cited. China expressed concern that, despite this, the EU has since made a statement based on the information in the paper, which suggests that others will as well. It reiterated its position that Members should not use information in the paper as the basis of their positions. Other Members pointed out that while the fisheries overview included some inaccuracies, it should be made public and used with the appropriate caveats, that not all the data were inaccurate, and that it is still possible for Members to draw conclusions and identify trends from the paper.
34. The Commission reviewed and finalized the texts of the disclaimers and agreed to add them to the respective documents.
35. The EU highlighted the discussions relating to transparency at TCC07, and emphasized the importance of ensuring the participation of all stakeholders in meetings of the Commission, including the TCC and SWGs. The EU recognized that efforts are being made to ensure a high level of transparency and openness and hoped that these efforts would continue. In this relation, the EU noted that documents posted for NPFC meetings are not publicly available, contrary to the practice of many other RFMOs, and suggested that the NPFC should also make its meeting papers publicly available. The Commission noted that the publishing of meeting papers is a cross-cutting issue and agreed to therefore discuss this matter further under Agenda Item 13c.
36. Japan highlighted the discussions at TCC07 regarding defining the historical level of authorized fishing vessels and the need for Members and the Secretariat to work to eliminate the uncertainty around this ahead of TCC08 and COM09.
37. Japan highlighted the discussions on the deployment of observers for transshipment and the need to establish a regional observer program for at-sea transshipment at the next Commission meeting, which is a commitment that the Commission has made previously. China stated that while China is committed to the previous decision of the Commission, it has already established a good domestic observer scheme to monitor at-sea transshipment and such human resources would be wasted if all the domestic observers have to be replaced by

regional observers and that the Commission should consider this problem when discussing the regional observer program for at-sea transshipment.

5b. Adoption of IUU Vessel List for 2024

38. Noting that the TCC did not propose any vessels for inclusion on, or removal from, the current NPFC IUU Vessel List, the Commission did not include or remove any vessels on the NPFC IUU Vessel List.
39. The Commission adopted the updates to the details of four vessels in the current NPFC IUU Vessel List as proposed by the TCC (NPFC-2024-TCC07-WP18 Rev.1), and adopted the NPFC IUU Vessel List for 2024 (Annex E).
40. The Commission noted that the current format of the NPFC IUU Vessel List does not include all the details stipulated in Annex B of CMM 2019-02 To Establish a List of Vessels Presumed to Have Carried Out IUU Activities in the NPFC Convention Area and requested that the Secretariat update the format intersessionally to include these details.
41. China suggested that the NPFC IUU Vessel List should also include information on which Member originally nominated the IUU vessel for inclusion on the list, as that Member may have an obligation to notify the Commission of any additional information it becomes aware of in relation to the vessel. The Commission noted the suggestion.
42. The EU encouraged Members to duly notify the Commission of any information that enables the tracking of IUU vessels. The EU also reminded Members of the need to comply with paragraph 24 of CMM 2019-02 and to inform the Commission if any of their vessels have interactions with IUU-listed vessels.

5c. Adoption of Final Compliance Monitoring Report

43. The TCC Chair explained that the TCC did not adopt a Compliance Monitoring Report (CMR) again this year as the current process and format of the draft CMR did not enable adequate discussion and assessment of Members' compliance with the obligations under the NPFC CMMs.
44. Several Members expressed concern that the TCC was once again unable to adopt a CMR and highlighted the establishment of a compliance monitoring scheme (CMS) and adoption of a CMR as a matter of priority. At the same time, they welcomed the progress made at TCC to develop potential amendments to CMM 2023-13 For the Compliance Monitoring Scheme

to lay out a more comprehensive CMS process and hoped that the Commission would be able to adopt an updated CMM at this meeting and adopt a CMR next year.

5d. Adoption of the TCC07 Report and Recommendations

45. The Commission adopted the report and the recommendations of the TCC (Annex F) with the understanding that the draft CMMs discussed at the TCC07 would be discussed under Agenda Item 8.

5e. Consideration of other TCC issues identified during TCC07 or by COM08 meeting

46. The Commission agreed to change the name of the Sustainable Use and Conservation Handbook to the “Compendium of NPFC Conservation and Management Measures.” The Commission also agreed that ease of use of the compendium could be improved by rearranging it by the chronological order of CMMs, removing “Enhancements and Clarifications from the Commission,” and adding clearer references to the number of each CMM. The Commission tasked the Secretariat to make the above changes in the next version.

Agenda Item 6. Report of the 6th Finance and Administration Committee meeting

6a. Review of FAC Report

47. The Chair of the Finance and Administration Committee (FAC), Mr. Dan Hull (USA), summarized the outcomes of the 6th FAC meeting (NPFC-2024-FAC06-Final Report) for discussion by the Commission.

6b. Adoption of the proposed budget for 2024/2025 and 2025/2026

48. The Commission adopted the proposed budgets for 2024/2025 and 2025/2026 as submitted by the FAC06 (NPFC-2024-COM08-WP12) along with the associated assessed contributions, noting that the assessed contribution amounts for 2025/2026 would be updated based on GDP and catch history at that time (Annex G).

6c. Adoption of the FAC06 Report and Recommendations

49. The Commission adopted the report and the recommendations of the FAC06 (Annex H).

Agenda Item 7. Report of the 4th and 5th Meetings of the joint SC-TCC-COM Small Working Group on Management Strategy Evaluation for Pacific Saury (SWG MSE PS)

50. The Science Co-Chair of the joint SC-TCC-COM Small Working Group on Management Strategy Evaluation for Pacific Saury (SWG MSE PS), Dr. Toshihide Kitakado (Japan), summarized the outcomes of the 4th and 5th SWG MSE PS meetings (NPFC-2023-MSE PS04 Final Report (Annex I); NPFC-2024-SWG MSE PS05 Final Report (Annex J)).

51. The Commission held further discussions on the adoption of an interim HCR during its discussions on the proposed amendments to CMM 2023-08 For Pacific Saury under Agenda Item 8.
52. Pew Charitable Trusts and the Ocean Foundation welcomed the significant progress to develop an interim HCR for Pacific saury and urged the Commission to adopt an interim HCR at this meeting. They urged the Commission to give strong consideration to adopting the HCR with a 40% constraint on the maximum allowable change (MAC) in TAC from year to year, as it performs well in the short term to rebuild the stock quickly, meets other management objectives, and provides the stock with greater resiliency to potential environmental change or unforeseen circumstances. They also emphasized the importance of developing a full management procedure as the best means of maintaining a long-term sustainable saury fishery and accounting for key uncertainties in the fishery and environmental conditions.

Agenda Item 8. Conservation and Management Measures

8a. Review of the amendments to existing CMMs and any new CMMs

Review of CMM 2023-08 For Pacific Saury

53. Japan presented proposed amendments to CMM 2023-08 For Pacific Saury for the inclusion of an interim Harvest Control Rule (NPFC-2024-COM08-WP06 Rev.2).
54. The Commission reviewed the proposed amendments and, in conjunction, considered the candidate HCRs developed by the SWG MSE PS.
55. The Commission adopted an interim HCR as follows:
 - (a) Based on the latest base-case results of stock assessment of Pacific saury, annual catch level in the entire area shall be calculated as $y = a_{y-1} * F_{MSY} * \hat{B}_{y-1}$, where $a_{y-1} = \min(1, \hat{B}_{y-1} / \hat{B}_{MSY})$.
 - (b) Fishing intensity is reduced at biomass levels below B_{MSY} .
 - (c) The maximum allowable change of the annual catch level in the entire area is restricted to 10%.
 - (d) The interim HCR shall be applied from 15 May 2024 until the establishment of a management procedure to be recommended through a MSE process by the SWG MSE PS, or unless otherwise decided by the Commission.

56. The Commission tasked the Secretariat to work closely with Members to keep the Commission informed of the status of Members' Pacific saury catches.
57. The Commission adopted the proposed amendments to CMM 2023-08 For Pacific Saury with the inclusion of the above interim HCR (Annex K).
58. Vanuatu made a statement expressing its disappointment with Members' disregard for Vanuatu's request for special requirements as a Small Island Developing State. Vanuatu's full statement is attached as Annex L.
59. The Science Co-Chair of the SWG MSE PS expressed his appreciation to the Commission for selecting an interim HCR, noting the different trade-offs and factors that the Commission needed to consider. He also expressed his commitment to leading the work of the SWG MSE PS to complete its next task of developing a management procedure through the MSE process. Furthermore, he emphasized that the involvement of scientists, managers and stakeholders is critical to the MSE process and encouraged greater involvement from managers and stakeholders.

Review of CMM 2023-07 For Chub Mackerel

60. Japan presented proposed amendments to CMM 2023-07 For Chub Mackerel to set a catch limit in the Convention Area as an interim measure until the TWG-CMSA concludes its stock assessment (NPFC-2024-COM08-WP07 Rev.1).
61. The DSCC agreed with Japan on the importance of implementing measures in the Convention Area that are consistent with those taken in Members' domestic waters.
62. The EU presented proposed amendments to CMM 2023-07 For Chub Mackerel, which it also presented at TCC07, that, among others, are aimed at clarifying some key obligations, in particular those related to the effort management requirements established by the CMM, as well as their application to relevant NPFC Members (NPFC-2024-TCC07-WP10).
63. The Commission combined the two proposals to amend CMM 2023-07, one from Japan and the second from the EU, and further updated the combined proposal (NPFC-2024-COM08-WP07 Rev.3). Based on the results of the discussion, the Commission adopted the proposed amendments to CMM 2023-07 For Chub Mackerel (Annex M).

64. The Commission noted that “fishing activities for chub mackerel” in the amended CMM has the same meaning as “fishing activities targeting chub mackerel.”
65. The USA noted that if the Commission decides to change or set a TAC in the future based on the best available scientific information, the amount of chub mackerel catch allocated to the EU in paragraph 5bis would not be exempt from potential changes.

New CMM 2024-16 For Anadromous Fish

66. Canada presented a proposal for the establishment of a measure to protect anadromous fish in the NPFC Convention Area (NPFC-2023-COM08-WP08 Rev.4). The proposal was co-sponsored by Korea and the USA.
67. The Commission reviewed and adopted the proposal as CMM 2024-16 to Protect Anadromous Fish in the North Pacific Fisheries Commission Convention Area (Annex N).

Review of CMM 2023-05 For Bottom Fisheries and Protection of Vulnerable Marine Ecosystems in the Northwestern Pacific Ocean

68. The Commission considered the amendments to CMM 2023-05 for Bottom Fisheries and Protection of Vulnerable Marine Ecosystems in the Northwestern Pacific Ocean that were endorsed by SC08 (NPFC-2024-COM08-WP01). While Members expressed general support for the amendments, the USA suggested that these amendments should be considered in the context of the US and Canadian proposal (NPFC-2024-COM08-WP09 Rev.1), which also includes these changes, and the Commission agreed to this approach.
69. The USA presented proposed amendments to CMM 2023-05 for Bottom Fisheries and Protection of Vulnerable Marine Ecosystems in the Northwestern Pacific Ocean to ensure more clearly defined science-based limits and baselines, demarcate open and closed areas consistent with the ecosystem and precautionary approaches, close the North Pacific armorhead fishery pending a stock assessment and scientific advice on sustainable levels of fishing activity, close more seamounts to bottom fishing while updated and comprehensive impact assessments are developed, and/or introduce a temporary precautionary pause on certain bottom trawl fishing in the Northwest Pacific Ocean (NPFC-2024-COM08-WP09).
70. Pew Charitable Trusts and the Ocean Foundation urged the Commission to adopt greater protections for the area of the Emperor Seamounts and Northwest Hawaiian Ridge from the adverse impact of bottom fishing. They pointed out that overwhelming scientific evidence supports the conclusion that VMEs are known, or likely to occur, across the entirety of the

Emperor Seamount Chain and that these seamounts serve important ecological functions and are especially vulnerable to bottom fishing. They further pointed out that closing this area to bottom fishing would be a timely opportunity to demonstrate the NPFC's competence regarding ecosystem conservation.

71. The DSCC noted that the proposal is consistent with the obligations in the United Nations Fish Stocks Agreement, the NPFC Convention, and the actions that Members have committed to take through the adoption of United Nations General Assembly (UNGA) resolutions to protect VMEs and marine biodiversity. The DSCC highlighted the urgent need for action and the need to prohibit bottom fishing, especially bottom trawling, on seamounts in the high seas. The DSCC welcomed the measures adopted by the NPFC to date but called for more comprehensive measures that are in line with the proposal and that take into account the more extensive science that has become available since the NPFC first adopted its bottom fishing and VME protection measures.
72. The Commission reviewed Canada and the USA's proposal and amended it based on discussions (NPFC-2024-COM08-WP09 Rev.2). The USA noted that while it and Canada introduced and supported the Rev.2 to carry forward the SC's recommended changes and make other improvements to the measure, which was the most that could be agreed by consensus at this meeting, that it believes the Commission could also do more to strengthen the measure consistent with the precautionary approach. The Commission adopted the proposed amendments to CMM 2023-05 for Bottom Fisheries and Protection of Vulnerable Marine Ecosystems in the Northwestern Pacific Ocean (Annex O).

Review of CMM 2023-06 For Bottom Fisheries and Protection of Vulnerable Marine Ecosystems in the Northeastern Pacific Ocean

73. The Commission reviewed the proposed amendments to CMM 2023-06 for Bottom Fisheries and Protection of Vulnerable Marine Ecosystems in the Northeastern Pacific Ocean that were endorsed by SC08 (NPFC-2024-COM08-WP02). The Commission adopted the proposed amendments (Annex P).

Review of CMM 2023-11 For Japanese Sardine, Neon Flying Squid and Japanese Flying Squid

74. The Commission reviewed the proposed amendments to CMM 2023-11 for Japanese Sardine, Neon Flying Squid and Japanese Flying Squid (NPFC-2024-COM08-WP03) that were endorsed by SC08. The Commission adopted the proposed amendments (Annex Q).

75. The Commission considered the amendments proposed by the EU to CMM 2023-11 For Japanese Sardine, Neon Flying Squid and Japanese Flying Squid, noting that it was also presented at TCC07 (NPFC-2024-TCC07-WP12). The Commission was unable to make substantial progress, and the EU therefore withdrew the proposal.

Review of CMM 2023-12 On The VMS

76. The Commission reviewed the proposed amendments to CMM 2023-12 On the VMS that were endorsed by TCC07 (NPFC-2024-TCC07-WP20). The Commission adopted the proposed amendments (Annex R).

Review of CMM 2023-13 For The Compliance Monitoring Scheme

77. The Commission reviewed the proposed amendments to CMM 2023-13 For the Compliance Monitoring Scheme that were endorsed by the TCC, including the one remaining square bracketed section (NPFC-2024-TCC07-WP04 Rev.5). The Commission noted that at TCC07, some Members wished to review the actual Implementation Questionnaire before agreeing to this section, although they were generally supportive of the concept.

78. The Commission reviewed the draft Implementation Questionnaire (NPFC-2024-TCC07-WP21) prepared by Members. The Commission agreed to task the Secretariat to work with the TCC Chair and the TCC Vice-Chair to adjust the Implementation Questionnaire in the intersession. The Commission agreed that, as this is the first year developing and utilizing the Implementation Questionnaire, the Secretariat would seek feedback from Members and try to accommodate Members' input to the extent possible. The Commission agreed that the Secretariat is empowered to edit the Implementation Questionnaire as necessary and that it should do so as early as possible in the intersessional period to allow time for Members to fill out the Implementation Questionnaire and return it to the Secretariat, and for the Secretariat to prepare the draft CMR by the submission deadline for TCC08. The Commission recognized that this process is intended to provide the Secretariat with the information needed to implement the revised CMS process. The Commission recognized that in future years, as provided for in CMM 2024-13, the Secretariat is given the flexibility to edit the Implementation Questionnaire, as needed, in accordance with the List of Obligations adopted annually by the Commission.

79. Some Members expressed the view that the 2024/2025 Implementation Questionnaire should not be made public, pointing out that the Questionnaire is still under development and there is no value in doing so, as it serves only as material for the Secretariat to create the CMR, and that the CMR essentially contains the same content as is contained in the Implementation

Questionnaire. Other Members expressed their preference to make the Implementation Questionnaire public to provide more information on how members are implementing obligations, pointing out that this is common practice at some other RFMOs that use such questionnaires. These Members also noted that it is essential to be able to discuss the contents of the implementation questionnaires in open TCC meetings, along with the draft CMR.

80. Having reviewed the draft Implementation Questionnaire and noting also that NPFC has a Data Sharing and Data Security Protocol that governs the information that can be made public, the Commission agreed to delete the square bracketed section in the proposal to amend CMM 2023-13 For the Compliance Monitoring Scheme and will resolve the details around how to make the questionnaire public when revising the Rules of Transparency for TCC. The Commission adopted the proposed amendments to CMM 2023-13 For the Compliance Monitoring Scheme (Annex S).

Review of CMM 2019-02 To Establish a List of Vessels Presumed to Have Carried Out IUU Activities in the NPFC Convention Area

81. The Commission reviewed the proposed amendments to CMM 2019-02 To Establish a List of Vessels Presumed to Have Carried Out IUU Activities in the NPFC Convention Area that were endorsed by TCC07 (NPFC-2024-TCC07-WP06). The Commission adopted the proposed amendments (Annex T).

Review of CMM 2023-15 On The Prevention, Reduction and Elimination of Marine Pollution

82. The Commission reviewed the proposed amendments to CMM 2023-15 on the Prevention, Reduction and Elimination of Marine Pollution that were endorsed by TCC07 (NPFC-2024-TCC07-WP08 Rev.5). The Commission adopted the proposed amendments (Annex U).

Review of CMM 2023-09 For High Seas Boarding and Inspection Procedures

83. The Commission reviewed the proposed amendments to CMM 2023-09 For High Seas Boarding and Inspection Procedures for the NPFC that were endorsed by TCC07 (to NPFC-2024-TCC07-WP14). The Commission adopted the proposed amendments (Annex V).

Review of CMM 2023-03 On Transshipments

84. Korea presented NPFC-2024-TCC07-WP02 Rev.2, which combined proposed amendments to CMM 2023-03 On Transshipments that were presented by Japan, Korea and Chinese Taipei at TCC07 and incorporated subsequent revisions into this combined proposal based on consultations among Members.

85. The Commission reviewed the combined proposal. Some Members indicated that they could accept the shorter timeframes and larger distances from the estimated start location for modifying submitted advance notifications of transshipments and other transfer activities, but only for vessels that use the online transshipment application. These Members pointed out that the use of the online transshipment application would provide more real-time data that would be essential for maintaining effective MCS and would also alleviate the administrative burdens that the proponents of the amendments were seeking to address. Other Members indicated that they could not accept the prerequisite of the use of the online transshipment application at this time, as the crews on their fishing vessels require more time to transition to using the application, and reiterated that their vessels face practical difficulties due to the conditions of the North Pacific Ocean.
86. In the spirit of compromise, Members agreed to amend CMM 2023-03 by adding a provision whereby, for 2024 only, modification to the advance notification would only need to be submitted if the transshipment or other transfer activity does not occur within 72 hours of the estimated start time or within 50 nautical miles of the estimated start location in the original advance notification (NPFC-2024-TCC07-WP02 Rev.4). Members agreed to revisit this matter at COM09. Canada stated that it would not consider an extension of the new provision unless it is linked to the use of the online transshipment application. Canada further stated that it is not acceptable to expect the Secretariat to manually input transshipment forms when an electronic option exists.
87. The Commission adopted the proposed amendments to CMM 2023-03 On Transshipments (Annex W).
88. China noted that the time that is conducive to transshipment activities in the North Pacific Ocean is limited due to the rough weather and sea conditions. China indicated that it believes that permitting receiving vessels to conduct two transshipment activities simultaneously is compliant with paragraph 30 of CMM 2023-03 On Transshipments if separate observers from an independent source are observing each activity, but wished to seek confirmation from Members. The Commission endorsed China's interpretation of paragraph 30.
89. Pew Charitable Trusts and the Ocean Foundation expressed concern that the Commission has adopted revisions to the CMM 2023-03 Transshipment before one full year has passed since the start of its implementation. They suggested that the Commission would be better served considering at least a year's worth of data and ensuring the transshipment reporting application is more fully used.

90. The Commission considered the proposal for the establishment of a resolution on core principles on labor standards in NPFC fisheries that was presented by the USA at TCC07 and co-sponsored by Canada and Korea. The Commission noted that the proposal had been updated since TCC07 based on consultations among Members. The Commission reviewed and further updated the proposal (NPFC-2024-TCC07-WP13 Rev.3). The Commission adopted the Resolution on Core Principles on Labor Standards in NPFC Fisheries (Annex X).

8b. EU fishing plan

91. There was no discussion on this subject as this was already discussed at TCC07 and should be considered in conjunction with the two proposals on chub mackerel. An updated version of this document was submitted during COM08 (NPFC-2024-TCC07-WP11 Rev.1).

Agenda Item 9. Performance Review of the Commission – considerations for the Commission

92. The Executive Secretary presented the NPFC Performance Review recommendations, highlighting a subset of recommendations involving crosscutting work that would require Commission support (NPFC-2024-COM08-WP11).

93. The Commission thanked the Secretariat and the Chairs of the Commission and its subsidiary bodies for compiling the matrix with the recommendations of the Performance Review Panel showing each recommendation, its priority and timeframe, the responsible body, the activities undertaken to date and their status, as tasked by COM07. The Commission noted that the SC had been able to review the sections of the matrix with SC-related recommendations but that the TCC and the FAC had not been able to review the TCC and FAC-related sections due to time constraints. The Commission noted that, nevertheless, it has made progress on several recommendations made by the Performance Review Panel.

94. The Commission agreed to work intersessionally to continue to update the matrix by:

- (a) tasking the Secretariat, in consultation with the Chairs of the Commission and its subsidiary bodies, to update the matrix based on the outcomes of the meetings of the Commission and its subsidiary bodies, taking into account the practice in other RFMOs such as CCAMLR,
- (b) circulating the updated matrix among Members to seek comments on the priority and suggested way forward for each recommendation,
- (c) compiling comments from Members and circulating the revised matrix,
- (d) repeating this process to the extent possible during the intersessional period,
- (e) reporting to the Commission on the updates as part of the Secretariat's Report.

95. The FAO suggested that the Deep-seas Fisheries (DSF) Project may be able to provide assistance and funding for implementing some of the cross-cutting recommendations identified by the Secretariat, specifically 3.4.3 on developing a regional observer program for addressing science demands, 3.4.4 on electronic monitoring, 4.1.1 on stock assessments for splendid alfonsino and North Pacific armorhead, and 5.2.11 on the CMS process.
96. The Commission thanked the DSF Project for its offer.

Agenda Item 10. NPFC Data Sharing and Data Security Protocols update

97. The Data Coordinator, Mr. Sungkuk Kang, provided an update on the NPFC Data Sharing and Data Security Protocols. He explained that the Secretariat has conducted a gap analysis to assess compliance with the protocol elements by the Secretariat and the Commission and that the Secretariat is enhancing implementation of this protocol. Key actions include obtaining and storing signed Confidentiality Agreements from Members that request access to non-public domain data, executing a 90-day backup routine for all NPFC data, implementing website encryption for NPFC website data access and employing two-way SSL certifications for VMS data transfers, and monitoring and identifying unauthorized participants in NPFC meetings. The Secretariat has also developed a number of initiatives for enhanced implementation.
98. The DSCC expressed concern that as a result of the new regulations for data sharing that the Commission adopted at COM07, there is now less information available regarding the catch and the Members fishing, for the bottom fisheries on the Northwest Hawaiian Ridge and Emperor Seamount Chain, because there are three or fewer vessels involved in those fisheries. The DSCC noted that this makes it more difficult for interested Observers and the public to understand what is occurring in those fisheries.

Agenda Item 11. Climate change

99. The SC Chair reported on the efforts of the SC and its subsidiary bodies to incorporate climate change into their work. These include discussing and developing plans to further investigate the impact of climate change on chub mackerel and Pacific saury, offering its support for the development and implementation of Basin-scale Events to Coastal Impacts (BECI) project, working with the FAO's DSF Project on an FAO-funded consultancy on climate change-related work, and reviewing Members' research related to climate change.

100. The Commission expressed its appreciation for the efforts of the SC to incorporate the impacts of climate change in its work, especially in relation to stock assessments. The Commission agreed to task the SC to continue its work towards providing climate-related scientific advice that could underpin development of climate-resilient fisheries management, including identifying and collecting data and other relevant information that would contribute to informing and understanding impacts on key NPFC species, identifying key gaps and future work for developing climate-robust fisheries management systems, and developing management procedures and MSE frameworks for key stocks that are robust to uncertainties such as those related to climate change. The Commission agreed to task the Secretariat to promote stronger collaboration with other RFMOs in relation to climate change, including sharing information on common challenges and best practices, and identifying opportunities for joint initiatives.

Agenda Item 12. Cooperation with Other Organizations

101. The Executive Secretary provided an update on cooperation with other organizations and suggestions for future collaborative work (NPFC-2024-COM08-IP04).

12a. PICES

102. The Executive Secretary explained that the NPFC and the North Pacific Marine Science Organization (PICES) held various collaborative activities based on the Framework for Enhanced Scientific Collaboration in the North Pacific between NPFC and PICES, which was adopted in 2019. The NPFC expressed its support for the development and implementation of the Basin Scale Events to Coastal Impacts project (BECI). Representatives of the NPFC and PICES have attended their respective Annual Meetings. An NPFC representative will attend the next PICES annual meeting, PICES-2024, which will be held in Honolulu, USA, on 26 October to 1 November 2024.
103. PICES provided an update in NPFC-2024-COM08-OP04 which was taken as read.

12b. NPAFC

104. The Executive Secretary reported that the NPFC has continued to cooperate with the NPAFC through the Memorandum of Cooperation (MOC) signed in May 2019 between the NPFC and the NPAFC. This has facilitated cooperation with a focus on a 5-year Work Plan to implement the NPAFC/NPFC MOC for 2021–2025, NPAFC’s multinational pan-Pacific survey in 2022, and sharing of salmon bycatch or retention information. The NPFC and NPAFC Secretariats have discussed the possibility of co-hosting a workshop on transshipment and the implications of salmon bycatch, but based on the early phase of the implementation

of the CMM 2023-03 On Transshipments, it was considered that a later timing would be beneficial and that discussions will continue.

105. Mr. Yoshikiyo Kondo, Executive Director of NPAFC, provided further updates on the NPAFC's research activities, including the International Year of the Salmon (IYS) expedition and development of a tagging program, as well as enforcement activities, including the launch of the IUU Vessel List and ongoing discussions with the NPFC on transshipment (NPFC-2024-COM08-OP06). Mr. Kondo thanked the NPFC for its contribution to the IYS expedition and expressed the NPAFC's intention to continue close cooperation with the NPFC.
106. China pointed out that it is not a member of NPAFC and that the NPAFC does not have its own vessel registry. China expressed the view that if the NPAFC suspects a vessel of engaging in IUU fishing in the North Pacific, it should first forward that information to the NPFC for the NPFC's consideration before adding the vessel to the NPAFC IUU Vessel List.
107. The Commission noted the importance of the continued sharing of data and information between the NPFC and the NPAFC. The Commission confirmed that if it receives IUU vessel-related information from the NPAFC, the Commission will consider how to handle that information in accordance with its own procedures for IUU vessel listings.

12c. FAO: Deep Sea Fisheries project and FIRMS

108. The Executive Secretary reported that the NPFC and the Fisheries and Resources Monitoring System (FIRMS) signed a Partnership Arrangement in June 2023 and explained that FIRMS aims to facilitate access to a wide range of high-quality authoritative information on global marine fisheries resources to develop informed fisheries and marine resource policies.
109. The Executive Secretary reported that the Secretariat's participation in the virtual Regional Fishery Body Secretariats' Network (RSN) has also been valuable and looks forward to the in-person meeting on the margins of FAO Fisheries Committee this July.
110. Ms. Eszter Hidas, FAO, presented an update on the DSF Project (NPFC-2024-COM08-OP01). The project is aimed at ensuring deep-sea fisheries in areas beyond national jurisdiction (ABNJ) are managed under an ecosystem approach. Its work mainly concerns strengthening and implementing regulatory frameworks, enhancing management of deep-sea fisheries, and reducing the environmental impacts of deep-sea fisheries. In 2024-205, the DSF Project intends to support the NPFC in the implementation of the NPFC's climate change resolution, the assessment of data-limited stocks, and the implementation of the NPFC's shark resolution.

The DSF Project has also reviewed the implementation of the FAO DSF Guidelines, has launched an e-learning course on the management of deep-sea fisheries in the ABNJ, is holding a symposium on applying ecosystem approaches to fisheries management in the ABNJ, providing various training and capacity development opportunities, and exploring and trialing innovative technologies for monitoring and reporting of catch.

12d. WCPFC

111. The Executive Secretary explained that, as directed by the Commission, the Secretariats of the Western and Central Pacific Fisheries Commission (WCPFC) and the NPFC have been discussing developing a Memorandum of Understanding (MOU) between the two organizations. COM07 approved a draft MOU for submission to WCPFC. WCPFC reviewed this draft in December 2024 and has recommended adoption and signing with a few editorial suggestions. The Executive Secretary presented the draft MOU, with editorial suggestions from WCPFC, for the Commission's consideration (NPFC-2024-COM08-WP04 Rev.1).
112. The Commission adopted the draft MOU (Annex Y).

12e. SPRFMO

113. The Executive Secretary explained that the NPFC and South Pacific Regional Fisheries Management Organisation (SPRFMO) signed an MOU in 2023 based on COM07 decision. This has allowed the Secretariats to communicate effectively with one another on issues of mutual interest related to administrative matters. The Science Manager is proposing to attend the SPRFMO Scientific Committee meeting this fall.

12f. ISC

114. The Executive Secretary explained that the proposed MOU with the International Scientific Committee for Tuna and Tuna-Like Species in the North Pacific Ocean (ISC) has been reviewed and endorsed with minor edits by the ISC at its annual meeting in 2023. The Executive Secretary presented the draft MOU, with editorial suggestions from ISC, for the Commission's consideration (NPFC-2024-COM08-WP05).
115. The Commission adopted the draft MOU (Annex Z).

12g. IMCS Network

116. The Executive Secretary explained that the NPFC became a Member of IMCS in 2023 based on the COM07 decision to do so. This has provided the Secretariat access to a network of experts that allow informal consultation and guidance on compliance approaches, technology

and consideration of assessing data related to IUU vessels. The Compliance Manager and Compliance Assistant attended the IMCS Global Fisheries Enforcement Training Workshop in 2023, which focused on priority and emerging MCS challenges and opportunities to exchange information and share lessons learned.

12h. UN BBNJ

117. The Chair presented an update on the Biodiversity Beyond National Jurisdiction (BBNJ) process (NPFC-2024-COM08-IP02).
118. The Commission noted the Chair's presentation and thanked him for providing his perspectives on the important developments related to BBNJ. The Commission noted the importance of the BBNJ Agreement and of considering proactively the implications and objectives of BBNJ for the NPFC and agreed to keep this as a standing agenda item. Some Members highlighted that the Agreement provides that the BBNJ Conference of the Parties, in taking decisions, shall respect the competences of, and not undermine, relevant legal instruments and frameworks and relevant global, regional, subregional and sectoral bodies. Some Members indicated they must reserve their position on the Chair's analysis, and may have a different view on some of the issues identified by the Chair, and that some of the processes for consultation, scientific and technical review are yet to be fully elaborated and will only be done once the BBNJ Agreement enters into force. The Commission recognized the importance of engagement within and between RFMOs and other relevant international bodies on the BBNJ process. The Secretariat offered to share the Chair's presentation with other RFMOs through the RSN, while making it clear that the presentation was prepared by the Chair in a personal capacity and did not necessarily represent the position of the Commission or its Members.
119. The DSCC, Greenpeace International, and Pew noted the importance of the BBNJ Agreement and encouraged the NPFC to proactively engage with the BBNJ process and to view this as an opportunity to demonstrate the NPFC's commitment to the protection of ecosystems and biodiversity.

12i. WTO: Agreement on Fisheries Subsidies

120. The Executive Secretary provided an update on the WTO Agreement on Fisheries Subsidies adopted at the 12th Ministerial Conference on 17 June 2022.
121. The Commission noted the Executive Secretary's report.

12j. Other Organizations

122. There was no discussion of cooperation with any other organizations.

Agenda Item 13. Other Matters

13a. Secondment and Intern for 2024

123. The Commission endorsed the FAC's recommendation and agreed to accept the secondment application from Mr. Jumpei Hinata (Japan) for a 12-month period commencing in June 2024.

124. The Commission endorsed the FAC's recommendation and agreed to accept the applications from Mr. Jiyu Wang (China) and Mr. Shinnosuke Kato (Japan) for six-month internships, and to stagger their start times.

13b. Selection of SC Chair and Vice-chair (based on SC08 recommendation)

125. The Executive Secretary presented the NPFC 2024/2025 list of Chairs and appointment duration (NPFC-2024-COM08-IP03).

126. The Commission endorsed the SC's recommendation and agreed to extend the current SC Chair, Dr. Janelle Curtis (Canada) and the SC Vice-Chair, Dr. Jie Cao (China), for another term each.

13b. bis Selection of a Science co-chair of the joint SC-TCC-COM Small Working Group on Management Strategy Evaluation for Pacific Saury (SWG MSE PS)

127. The Chair explained that there had been a misunderstanding and that the term of Dr. Toshihide Kitakado (Japan) as the Scientific co-Chair of the SWG MSE PS was not in fact expiring. He explained that, according to paragraph 10 of the Terms of Reference of the SWG MSE PS, the co-Chairs of the SWG MSE PS will serve at pleasure or until the Commission decides otherwise, and that Dr. Kitakado has confirmed his intention to continue to serve as co-Chair of the SWG MSE PS.

13c. Other business

128. Korea presented proposed draft terms of reference on legal advisory consultancies for the NPFC Secretariat (NPFC-2024-TCC07-WP09 Rev.2). Korea explained that it had originally presented its proposal to TCC07 and FAC06, and that it has since worked with the Executive Secretary to revise its proposal based on the discussions at those meetings.

129. The Commission reviewed and further revised the proposal. The Commission adopted the Terms of Reference on Legal Advisory Consultancies for the NPFC Secretariat (Annex AA).

130. The Commission discussed providing public access to meeting documents in advance of meetings of the Commission and its subsidiary bodies. The Commission agreed to make documents submitted to meetings of the Commission and its subsidiary bodies, as well as documents adopted at those meetings, publicly accessible through the NPFC website, except for documents that are determined to contain sensitive information in accordance with the NPFC Data Sharing and Data Security Protocol or whose authors have directed that the document be made solely available to NPFC Members. The Commission noted that this is the common practice at many other RFMOs and that it was also recommended by the Performance Review Panel. The Commission made revisions to the NPFC Document Policy accordingly.
131. The Commission also added revisions to the NPFC Document Policy to reduce the number of copies of Meeting Information Papers that must be made available in printed form.
132. The Commission adopted the revised NPFC Document Policy (Annex BB).
133. China raised a question regarding the interpretation of the vessel marking requirements under CMM 2023-01 On Information Requirements for Vessel Registration. China indicated that many of its vessels have vessel markings on the port and starboard sides of the hull and that these markings are repeated above the hull on the superstructure. It expressed its belief that even if one of the markings is obscured for technical reasons, the second marking on the same side, assuming that it remains legible and adheres to the vessel marking specifications outlined in Annex 2, would assure that the vessel would be compliant with the requirements of paragraph 5(a) of Annex 2 of CMM 2023-01. It was noted that vessels would also require markings in accordance with paragraph 5(b) of Annex 2 of CMM 2023-01 (horizontal deck markings). The Commission endorsed China's interpretation.

13d. Press Release

134. The Commission endorsed the Press Release for publication on the NPFC website.

Agenda Item 14. Date and Place of next meeting of the Commission and its Committees

135. The Executive Secretary presented a hosting proposal by the Secretariat if no Member is accepted to host COM09, TCC08 and FAC07, including timing, hosting costs if borne by the Secretariat, and funds for the 10th anniversary recognition (NPFC-2024-COM08-WP10). The Executive Secretary also recommended that the Commission commit to a regular timing of

its annual meetings to facilitate reserving appropriate meeting space. The proposed timing takes into account the Lunar New Year and fisheries operations.

136. The Commission confirmed that the Secretariat would host the COM09, TCC08 and FAC07 meetings.
137. The Commission agreed to tentatively hold the next meetings of the TCC, the FAC, and the Commission in Japan, somewhere other than Tokyo, on the following dates:
 - (a) TCC08: 18-21 March 2025
 - (b) FAC07: 22 March 2025
 - (c) COM09: 24-27 March 2025 (with the Heads of Delegation meeting to be held on the morning of 24 March)
138. The Commission agreed to maintain flexibility in the timing of its annual meetings, rather than committing to a regular timing each year.
139. The Commission endorsed the use of funds for the recognition of the 10th anniversary of the NPFC and encouraged Members to share any ideas they may have with the Secretariat for the celebration of this event.

Agenda Item 15. Adoption of the report

140. The report was adopted by consensus.

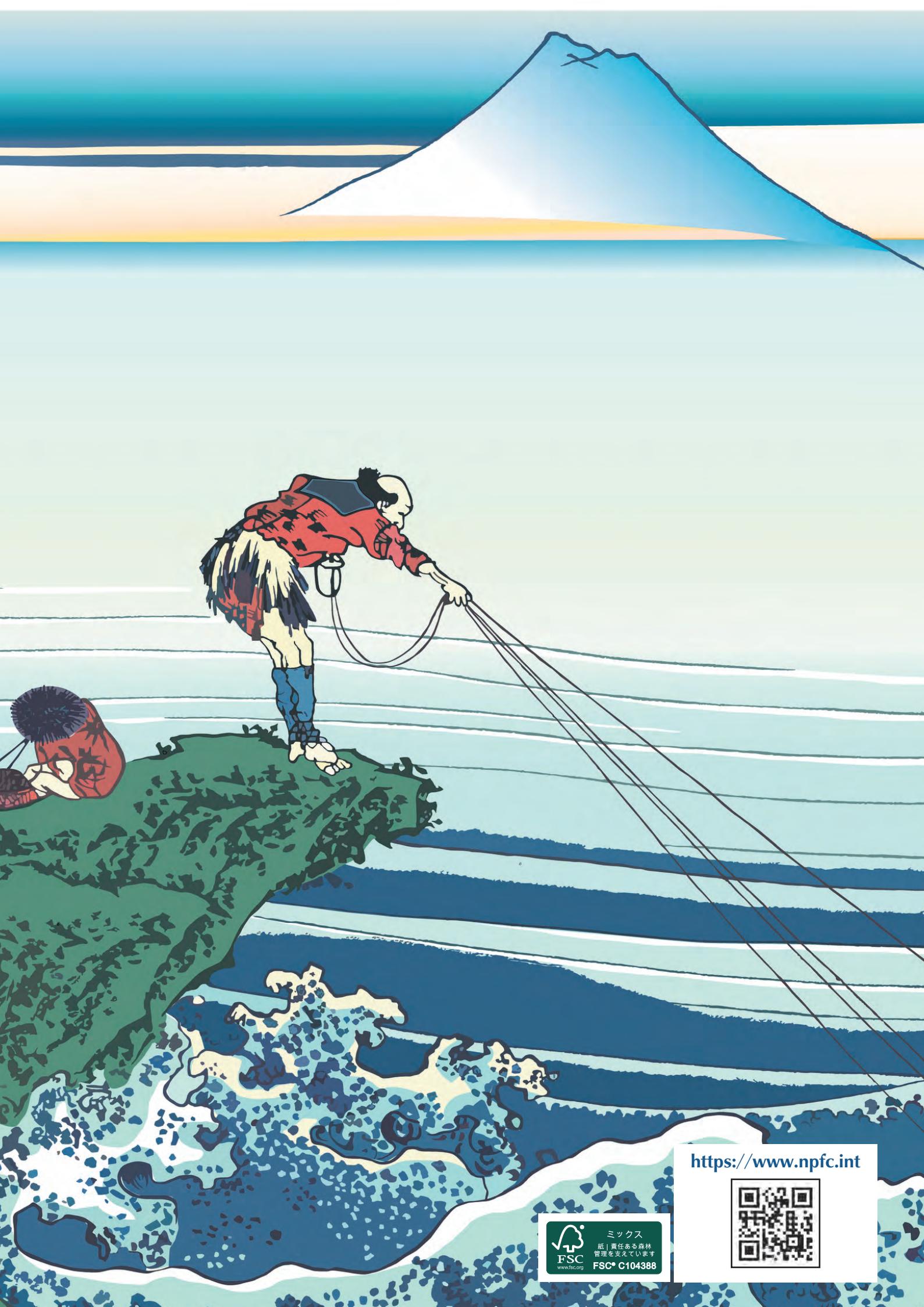
Agenda Item 16. Close of the Meeting

141. The Chair thanked the Secretariat for organizing and running the meeting, Osaka Prefecture for providing participants with the opportunity to enjoy a unique cultural experience, and the participants for their cooperation and engagement. The Chair congratulated the Commission on a successful and productive meeting, and requested Members to continue their hard work in the intersessional period to ensure the success of COM09 as well. Lastly, the Chair expressed his hope that the participants had enjoyed their time in Osaka and would consider visiting again.
142. The Commission meeting closed at 19:15 on 18 April 2024, Osaka time.

Annexes:

- Annex A – Agenda
- Annex B – List of Documents
- Annex C – List of Participants
- Annex D – NPFC SC08 Final Report
- Annex E – NPFC 2024 IUU Vessel List
- Annex F – NPFC TCC07 Final Report
- Annex G – Budgets for 2024/2025 and 2025/2026 with assessed contributions
- Annex H – NPFC FAC06 Final Report
- Annex I – NPFC MSE PS04 Final Report
- Annex J – NPFC MSE PS05 Final Report
- Annex K – CMM 2024-08 Pacific saury
- Annex L – Statement by Vanuatu
- Annex M – CMM 2024-07 Chub mackerel
- Annex N – CMM 2024-16 Anadromous
- Annex O – CMM 2024-05 Bottom fisheries and VME in NWPO
- Annex P – CMM 2024-06 Bottom fisheries and VME in NEPO
- Annex Q – CMM 2024-11 JS, NFS, and JFS
- Annex R – CMM 2024-12 VMS
- Annex S – CMM 2024-13 CMS
- Annex T – CMM 2024-02 IUU list process
- Annex U – CMM 2024-15 Marine pollution
- Annex V – CMM 2024-09 HSBI
- Annex W – CMM 2024-03 Transshipments
- Annex X – Resolution on Labor Standards
- Annex Y – MOU with WCPFC
- Annex Z – MOU with ISC
- Annex AA – Legal advisor terms of reference
- Annex BB – Document policy

Please refer to the NPFC website for the complete annexes.



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