North Pacific Fisheries Commission

Yearbook 2020

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FOREWORD

It is with great pleasure for me as the Chair of the Commission to congratulate all Members of the Commission on the publication of this 5th volume of the NPFC Yearbook for 2020.

2020 was a remarkably challenging year to all of us as well as to other world communities due to the unprecedented difficulties caused by the COVID-19 pandemic, which is still underway with an uncertain future. Despite the difficulties, our Members have maintained their strong commitment to the conservation and management of high seas fisheries resources and protection of marine ecosystems, which marked 2020 as another successful year by fulfilling faithfully the mandate stipulated on the Convention.

This yearbook contains the events and activities of the fifth year of the Commission covering all official meetings mostly held by videoconference. However, it should also be noted that a number of intersessional informal meetings took place to discuss various outstanding issues in science and compliance.

I would like to thank all Member delegates, invited experts and observers who actively participated and contributed to the success of our meetings. Lastly, I sincerely hope that this yearbook provides readers a valuable opportunity for reflection and learning from our past endeavors.

Dr. Vladimir Belyaev
Chairman
North Pacific Fisheries Commission

ACKNOWLEDGEMENT

Like the Chairman, I also would like to congratulate our Members on this publication of the 2020 Yearbook, which represents NPFC's fifth year of operation and is published to commemorate the Commission's performances resulting from the commitment and contribution from Members.

There are many people who I wish to appreciate for their hard work in preparation for the meetings held last year, despite the new and unforeseen challenges brought about by the COVID-19 pandemic. They are, first of all, Dr. Vladimir Belyaev, Chair of the Commission, and Chairs of the Scientific Committee, Technical and Compliance Committee, Finance and Administration Committee, Small Scientific Committees, Technical Working Group, Small Working Groups, 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 carry out the Convention's objectives.

We welcome comments or suggestions from readers on this yearbook to improve the quality of this publication in the future.

Dae-Yeon Moon
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 and to establish management regimes to ensure the conservation and sustainable use of the fisheries resources of the North Pacific Ocean and its sensitive marine biological ecosystems. At present, there are eight (8) Members of the NPFC, namely: Canada, China, Japan, Republic of Korea, the Russian Federation, Chinese Taipei, the United States of America, and Republic of Vanuatu. Panama is a Cooperating Non-contracting Party (CNCP). The Secretariat of the North Pacific Fisheries Commission (NPFC) is located in Tokyo, Japan. Dr. Dae-Yeon Moon of Korea is the current Executive Secretary and has been leading the Secretariat since September 2015.

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.

Since the inception of the fishery, the 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 assessments of this particular species are the basis of establishing conservation and management measures for the sustainability of the fishery.

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.

Japanese sardine fishery has been expanding over the last five years, with increasing catch both in the national 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. The Commission is led by the current Chair, Dr. Vladimir Belyaev of Russia. The Secretariat is headed by the Executive Secretary, Dae-Yeon Moon of Korea; with the Science Manager, Aleksandr Zavolokin of Russia; the Compliance Manager, Peter Flewwelling of Canada; and supported by the Executive Assistant, Yuko Yoshimura-Takamiya. 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 two interns 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 and covers key activities and Commission meetings held from the 5th Small Scientific Committee on Pacific Saury Meeting in November 2019 up to the 6th Annual Commission Meeting in February 2021.

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 several (17) small working group meetings on compliance matters;
c. revised six CMMs (Vessel Registration, Bottom Fisheries NW Pacific, Pacific Saury, High Seas Boarding and Inspection Procedures, Japanese Sardine, Neon Flying Squid

and Japanese Flying Squid, Compliance Monitoring Scheme [reporting elements to be determined] and Vessel Monitoring System)

In addition, the Secretariat represented the Commission and its Members at the FAO ABNJ Phase I project review and discussions regarding Phase II, several BBNJ webinars, SAFET – Compliance issues, RFMOs Best Practices, PICES annual meetings and workshops, Steering Committee of the International Year of the Salmon, WCPFC annual meeting, and FAO COFI meeting. The Secretariat also assisted in the development of the informal Pan-Pacific Fisheries Compliance Network (PPFCN) to foster greater information exchange in the RFMOs of the Pacific Ocean basin.

The following pages provide the final approved reports of the international meetings held by the NPFC in its most recent year of formal operations in the chronological order in which the meetings were held.

NPFC

5th Meeting of the Small Scientific Committee on Pacific Saury

13-16 November 2019
Shimonoseki, Japan
Meeting Report

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MEETING REPORT

Agenda Item 1. Opening of the meeting

1. The 5th Meeting of the Small Scientific Committee on Pacific Saury (SSC PS05) took place in Shimonoseki, Japan on 13-16 November 2019, and was attended by Members from Canada, China, Japan, the Republic of Korea, the Russian Federation, Chinese Taipei, and Vanuatu. The meeting was opened by Dr. Toshihide Kitakado (Japan) who served as the SSC PS Chair.

2. Dr. Kaoru Nakata, Executive Director of the Japan Fisheries Research and Education Agency, welcomed the participants to Shimonoseki on behalf of the host Member. She pointed out that Pacific saury is an important species for the NPFC and highlighted the important role of the SSC PS. Lastly, she expressed her hope that the participants would work together effectively and achieve fruitful results.

3. Vanuatu pointed out that the 2019 Pacific saury fishing season has been challenging and that it shares the concern of other Members about the status of the Pacific saury stock. Vanuatu expressed its hope that the participants can work together effectively to prevent the declining trend of the stock. At the same time, Vanuatu urged the participants to take into account the fact that Vanuatu is a small island developing state that still needs to develop its Pacific saury fishery.

Agenda Item 2. Adoption of Agenda

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

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

3.1 TWG PSSA04 meeting

3.2 SSC PS04 and SC04 meeting

5. The Chair presented the outcomes and recommendations from the TWG PSSA03, TWG PSSA04, SSC PS04 and SC04 meetings.

3.3 COM05 meeting and CMM 2019-08

6. The Science Manager, Dr. Aleksandr Zavolokin, presented the outcomes and recommendations from the COM05 meeting and an overview of CMM 2019-08.

3.4 Joint PICES-NPFC workshop

7. The co-convener of the Joint PICES-NPFC workshop on the influence of environmental changes on the distribution and population dynamics of Pacific saury, Dr. Chris Rooper, presented the outcomes and recommendations from the workshop (NPFC-2019-SSC PS05-IP01). The topic session on small pelagics proposed for the 2020 PICES Annual Meeting was accepted by PICES.

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

4.1 Terms of Reference of the SSC PS

8. The participants drafted a provisional Terms of Reference for the SSC PS (Annex D) that can be modified as necessary in the future. The SSC PS *recommended* to the SC to endorse the proposed Terms of Reference for the SSC PS.

4.2 CPUE Standardization Protocol

9. The participants reviewed and revised the CPUE Standardization Protocol (Annex E), including the development of a document template for presenting standardized CPUEs of Pacific saury. The SSC PS *recommended* to the SC to endorse the revised CPUE Standardization Protocol.

4.3 Stock Assessment Protocol

10. The participants reviewed the Stock Assessment Protocol. The participants determined that no revisions are currently necessary but recognized that it may be necessary to update the Protocol in the future when age/size/stage-structured stock assessment models are developed.

Agenda Item 5. Review of Members' fishery status including 2019 fishery

11. China presented its fisheries activities. Total catch fluctuated from 2013 to 2018. The catch in 2018 was over 90,000 tons. From 2016 to 2018, the number of fishing vessels and days has been decreasing. In 2018, there were 49 active vessels in the Convention Area and 5,057 fishing days. China uses a logbook system and the 2019 logbook data will be available once they are processed.

12. Russia presented its fisheries activities. From 2016 to 2018, the percentage of catch in national waters has decreased from about 80% to 30% and that in the Convention Area has

correspondingly increased. In 2018, the distribution of the Pacific saury fishing fleet was very broad, encompassing both national waters and high seas. In 2019, the vessels have mostly moved around searching for catch, rather than staying and fishing in one place. There have been up to 4 active vessels each month. The total catch for 2019 as of early November is approximately 2,300 tons, which is extremely small compared to past years.

13. Korea presented its fisheries activities. There were 11 active vessels in 2019, compared to 12 active vessels in 2018. In the 2019 fishing season, fishing vessels have shifted eastwards compared to the past. Annual catch has been declining in the past decade. The lowest amount of catch was recorded in 2015. Catch has improved twice in the last three years. However, the monthly catch in 2019 has been lower compared to 2018 for each month so far. The total catch for 2019 so far is approximately 7,000 tons and it will likely be lower than in 2018.

14. Japan presented its fisheries activities. The annual catch peaked at approximately 350,000 tons in 2008 but has continued to decline since then. The total catch in 2018 was 128,531 tons. The fishing ground has shifted offshore since 2010. In 2019, the total catch after August has been about 20,000 tons, the worst on record since 1958. The fishing grounds were mainly in the high seas. The percentage of age-1 fish (>29cm) has been about 55%.

15. Chinese Taipei presented its fisheries activities. In 2019, there are 91 active vessels and total catch is only approximately 67,000 tons, until October. In 2018, for the same period, there were 85 active vessels and total catch was approximately 147,000 tons. Monthly CPUE in 2019 was lower in July and August compared to previous years. In general, total CPUE has decreased in 2019 compared to 2018.

16. Vanuatu presented its fisheries activities. There have been 4 active vessels each year since 2015. Catch reached a record high of 8,231 tons in 2018. The current estimated catch amount for 2019 is 2,430 tons.

17. The participants pointed out that it would be useful to understand the dynamics of Members' Pacific saury fleets and suggested that Members could, on a voluntary basis, include a single short paragraph in their Annual Reports or SSC PS meeting documents about general fishing patterns, movement of vessels, and any changes in the size composition of vessels.

18. The participants reviewed the compiled data on Pacific saury catches in the Northwestern Pacific Ocean (NPFC-2019-SSC PS04-WP01 (Rev 2)) and agreed to use the data for the stock assessment (Annex F).

Agenda Item 6. Review of fishery-independent abundance indices

6.1 Review of outcomes of Japanese biomass survey including 2019 estimate

19. Japan presented the outcomes of its annual fisheries-independent survey for Pacific saury, including the 2019 estimate (NPFC-2019-SSC PS05-WP08). The biomass was estimated based on the swept area method (Kidokoro et al. 2018) and was 1,646,000 tons, about 70% of that in 2018. There were also differences in the distribution pattern of age-0 and age-1 fish, with age-1 fish being caught mostly in waters from 160 degrees east longitude to 170 degrees west longitude, and most age-0 fish being caught east of 175 degrees west longitude.

20. The participants noted that there seems to be a synchronization between the annual change in the estimated number of age-0 fish and age-1 fish, with a one-year lag, which supports the decision to develop an age/size/stage-structured model. The predictive power of the correlation between age-0 fish and age-1 fish in the Japanese survey should be investigated and discussed at the next meeting.

21. The participants reaffirmed that the Japanese biomass estimates are key inputs for the Pacific saury stock assessment and strongly encouraged Japan to continue to conduct its biomass surveys.

6.2 Technical aspects

6.2.1 Investigation and refinement of q_biomass

22. Japan presented research on the inclusion of the variance of catchability of biomass survey gear into the CV estimation for biomass.

23. Russia welcomed the new experimental efforts on catchability efficiency estimation in the scientific surveys (q1) initiated by Japan and suggested to revisit the calculation of q1 in the previous observations. According to the data published by Naya et al. (2010), a beta distribution fits observations better than Gaussian distribution and may be a useful assumption in future analyses.

24. The participants considered q_biomass and discussed base case scenarios for the stock assessment update, with updated q values. See agenda 8.1 for details.

25. Japan presented preliminary research for the re-estimation of the fishing efficiency of trawl nets. Japan showed that underwater cameras can be used to record fish escaping from the trawl net and that Acoustic Zooplankton Fish Profiler can be used to estimate the catchability of trawl nets.

26. The participants encouraged Japan to continue its work for re-estimating the fishing efficiency of trawl nets and submit a paper to a future meeting of the SSC PS.

6.2.2 Review of simulation results

27. Japan presented a preliminary report on a simulation experiment framework for evaluating fishery-independent survey designs for Pacific saury (NPFC-2019-SSC PS05-WP16). Japan conducted a simulation experiment framework to evaluate whether it is possible to reduce sampling effort in fishery-independent surveys for Pacific saury, while maintaining high reliability in biomass estimates.

28. The participants encouraged Japan to continue to conduct research towards developing and refining the biomass survey design. Survey cost should be considered in future analyses.

6.2.3 Review of spatio-temporal modelling

29. Japan presented research involving the application of a Vector Autoregressive Spatio-Temporal (VAST) model to Japanese fishery-independent survey data for predicting annual changes in spatio-temporal distribution and annual abundance indices for age-0 and age-1 Pacific saury from 2003 to 2017 (NPFC-2019-SSC PS05-WP17). The predicted annual distribution patterns indicated that the center of distribution for age-0 fish had shifted slightly to the east since 2010 and that density for age-1 fish had decreased over time. The predicted annual abundance index for age-0 fish indicated a similar trend with the nominal values, while the predicted age-1 abundance index showed a higher value than the nominal values, particularly in 2005 and 2007, due to the high predicted density in the northern area, where there was no sampling.

30. The participants recognized that exercises such as Japan's application of VAST to the Japanese fishery-independent survey data can serve as the basis for future simulations to test survey designs and stopping rules. They suggested that Japan incorporate possible environmental factors such as sea surface temperature (SST) into the VAST model, which would be useful for understanding the stock dynamics, and also that Japan work in collaboration with other Members to develop a suite of designs to be tested. The participants highlighted the importance of considering the biological realism of the model projection.

6.3 Conclusion as inputs for stock assessments

31. The participants reviewed and agreed to use the updated biomass estimate from the Japanese fishery-independent survey for Pacific saury for the stock assessment (Annex F).

6.4 Recommendations for future work

32. Recommendations for future work are given in paragraphs 26, 28 and 30.

Agenda Item 7. Review of fishery-dependent abundance indices

7.1 Member's CPUE standardization up to 2018 fishery

33. China presented a standardization of CPUE data for Pacific saury from 2013 to 2018 using a generalized linear model (GLM) and a generalized additive model (GAM) on the assumption of lognormal distribution of errors (NPFC-2019-SSC PS05-WP01). China recommended using the standardized CPUE derived from GAM as the input for the stock assessment.

34. The participants agreed to use China's standardized CPUE derived from GAM as the input for the stock assessment.

35. Chinese Taipei presented a standardization of CPUE data for Pacific saury from 2001 to 2018 using GLM and GAM on the assumption of lognormal distribution of errors (NPFC-2019-SSC PS05-WP02). Chinese Taipei recommended using the standardized CPUE derived from GAM as input for the stock assessment.

36. The participants agreed to use Chinese Taipei's standardized CPUE derived from GAM as the input for the stock assessment.

37. Korea presented a standardization of CPUE data for Pacific saury from 2001 to 2018 using GLM (NPFC-2019-SSC PS05-WP05). Korea recommended using the standardized CPUE derived from GLM as input for the stock assessment.

38. The participants agreed to use Korea's standardized CPUE derived from GLM as the input for the stock assessment.

39. Japan presented a standardization of CPUE data for Pacific saury from 1994 to 2018 using GLM (NPFC-2019-SSC PS05-WP06). Japan recommended using the standardized CPUE derived from GLM as input for the stock assessment.

40. The participants agreed to use Japan's standardized CPUE derived from GLM as the input for the stock assessment.

41. Russia presented a standardization of CPUE data for Pacific saury from 1994 to 2018 using GLM (NPFC-2019-SSC PS05-WP07). Russia recommended using the standardized CPUE derived from GLM as input for the stock assessment.

42. The participants agreed to use Russia's standardized CPUE derived from GLM as the input for

the stock assessment.

43. The finalized table of abundance indices is attached to the report as Annex F.

44. The participants suggested that including the interactions between SST, and temporal and spatial factors and environmental covariates other than SST in CPUE standardization is worth exploring in the future.

45. The participants recognized the need to continue to study ways to incorporate inter-annual changes in spatio-temporal distribution driven by environmental factors in the CPUE standardization.

7.2 Progress on collaborative work for development of joint CPUE

46. Chinese Taipei presented research on the standardization of joint CPUE data for Pacific saury from 2001 to 2017 using conventional and geostatistical approaches (NPFC-2019-SSC PS05-WP10). There is no clear difference in the annual trends of the standardized CPUE indices derived from VAST and GLM, but VAST produces a model with a higher R^2 than GLM and performs better than the GLM with less residuals departing from zero and smaller residual variance. Chinese Taipei therefore recommended to use VAST for deriving the standardized joint index as improved input data in the stock assessment.

47. The participants recognized the value of the work done by Chinese Taipei to produce a joint CPUE standardization for Pacific saury from 2001 to 2017 and agreed to build on this work by updating joint CPUE standardizations at SSC PS06. They also noted that it would be useful to further analyze the interaction between Member fleet and other variables. All Members agreed to submit their 2018 data and Japan, Korea, Russia and Vanuatu agreed to submit their 2019 data by 14 February 2020. Other Members fishing for Pacific saury will provide their 2019 data once they become available and are validated by the SSC PS07 meeting. It was also agreed that the collaboration group submit an updated joint CPUE index for 2001-2019 no later than March 14.

48. The participants agreed to include the updated joint CPUE index for 2001-2019 for sensitivity analyses to supplement the 2020 stock assessment and that, due to time constraints, the sensitivity analyses using the joint CPUE index can be shown at SSC PS06.

49. The participants agreed to share, on the Collaboration website (https://collaboration.npfc.int/), the code developed to produce the joint CPUE standardization for Pacific saury with other Members for joint analyses (TWG PSSA04-WP01, 03, 05, 06; SSC PS05-WP12).

50. The participants agreed to produce nominal monthly CPUE by age and submit it to SSC PS06, if possible, recognizing that this information can be used as an interim proxy for age-based CPUE, towards the analysis and development of age/size/stage-structured models for Pacific saury stock assessment.

51. The Data Coordinator, Mr. Mervin Ogawa, reported on the progress of an ongoing project for the development of the spatial/temporal map of Members' Pacific saury catch and effort (NPFC-2019-SSC PS05-WP21). The Secretariat has revised the map and implemented all recommendations made by Members thus far.

52. The participants requested the Secretariat to add the isotherms of 8^{o} and 18^{o} Celsius on the map of Members' Pacific saury catch and effort, to visualize the optimal temperature range of Pacific saury.

7.3 Recommendations for future work

53. Recommendations for future work are given in paragraphs 44, 45, 47, 48, 49 and 50.

Agenda Item 8. Stock assessment using "provisional base models" (BSSPM)

8.1 Review of the key considerations and recommendations from the TWG PSSA04 meeting

54. Japan presented an evaluation of the possibility of estimating systematic changes in catchability in the interim stock assessment model, BSSPM (NPFC-2019-SSC PS05-WP15 (Rev. 1)). The results showed that a dynamic change in catchability might be estimated well for some scenarios if the assumption in the relative biomass is correct, but if it is not correct, there may be some potential bias in the estimation of catchability and biomass. Japan recommended paying more attention to such exercises before finalizing the 2020 stock assessment.

55. The participants were informed about the study conducted by Japan on the trial application of JABBA (Just Another Bayesian Biomass Assessment) to Pacific saury stock assessment (NPFC-2019-SSC PS05-WP19). Japan tried to use JABBA to mimic the latest stock assessment results for Pacific saury produced by the TWG PSSA and was able to show similar results. It therefore suggested that JABBA could be one of the candidates for the shared stock assessment model for Pacific saury.

56. The participants revised base case scenarios from the previous stock assessment. The participants agreed to conduct a stock assessment update with two new base cases and four sensitivity analyses (Annex G).

57. The participants revised the template for stock assessment status information used in the previous stock assessment (Annex H).

8.2 General implication of BSSPM results for management of Pacific saury: merits and limits of BSSPM assessment

58. Participants deferred the discussion of the implication of BSSPM results for management of Pacific saury to the next meeting.

8.3 Review of the results of improved model, if any

59. No model improvements were tested.

8.4 Review of updated stock assessment results based on BSSPM (if available during the meeting)

60. No updated stock assessment results were produced.

8.5 Timeline until SSC PS in 2020 spring meeting for updating BSSPM assessment

8.6 Recommendations for future work

61. The participants agreed to conduct a stock assessment update with two new base cases and four sensitivity analyses (Annex G).

Agenda Item 9. Biological information on Pacific saury

9.1 Review of comprehensive report from Japan

62. Japan presented a comprehensive report on biological information on Pacific saury, including stock identity, early life history, feeding habits and predators, growth, distribution and migration, maturation, and natural mortality (NPFC-2019-SSC PSSA05-WP13).

63. The participants discussed the biological information presented by Japan and noted the importance of determining whether or not Pacific saury mortality is related to maturity.

64. The participants reaffirmed the importance of biological information as key inputs for the development of age/size/stage-structured models for the Pacific saury stock assessment.

65. The participants were encouraged to conduct experiments to study the maturation and spawning processes of Pacific saury reared in captivity, as these processes are very important for understanding the biology of the species and incorporating that knowledge in the modeling of population dynamics.

9.2 Review of any other documents/papers

66. Chinese Taipei presented a quantification of the spatio-temporal dynamics of Pacific saury in

the Northwestern Pacific Ocean between 2001 and 2017 using the VAST model (NPFC-2019-SSC PS05-WP12). The results indicated that, over time, the spatial distribution of Pacific saury has gradually shifted eastward from coastal and offshore waters. Chinese Taipei investigated this shift and found that it cannot be explained by any single environmental variable or climatic index, nor the linear combination thereof.

67. Some suggestions about improving the predictive power of the VAST model by reducing correlation among predictor variables were discussed.

68. The participants discussed the possibility to publish cooperative research in peer-review journals using the joint CPUE data, in compliance with the NPFC Interim Regulation for Management of Scientific Data and Information.

69. Chinese Taipei presented an estimation of the length and age compositions of Pacific saury in the Northwest Pacific Ocean during the fishing season in 2018 (NPFC-2019-SSC PS05-WP11). The results indicated spatial and temporal changes in Pacific saury size and age structure during the fishing season. Chinese Taipei therefore suggested that the length composition data from this study could be used as input data of a particular fleet in the integrated stock assessment model.

70. The participants encouraged Chinese Taipei to continue conducting estimates of the length and age compositions of Pacific saury, while working to improve the sampling method and optimize the sample size.

9.3 Distribution and migration patterns of juvenile Pacific saury

71. Japan gave a presentation on the distribution of age-0 fish and conservation of younger fish (NPFC-2019-SSC PS05-WP13). Members have previously considered several definitions of "juvenile" Pacific saury. From the perspective of conserving juvenile fish, Japan considered "juvenile" Pacific saury to be those young fish which are large enough to be fished, a good proxy for which is age-0 fish. Because of the low selectivity of stick-held dip nets, it is impossible to control for size of fish caught. A more effective way to protect age-0 fish is to consider an area closure. There tends to be a higher abundance of age-0 fish compared to age-1 fish in eastern areas. Furthermore, in recent years, most age-0 fish within the biomass survey area were found east of 165 degrees east longitude and did not migrate westward extensively until the following summer.

72. The participants encouraged Japan to conduct further research, including analyzing the impact of area closures at different longitudes on the spawning biomass and identifying the longitude

where age-0 fish comprise half the catch using a logistic model.

9.4 Recommendations for future work

73. Recommendations for future work are given in paragraphs 65, 70 and 72.

Agenda Item 10. Exploration of stock assessment models other than existing "provisional base models"

10.1 Data invention/availability (including the identification of potential covariates)

74. Japan presented an estimation of catch at size for Pacific saury caught by the Japanese stick-held dip net fishery based on interview data, length frequency data, and landings for 10-day periods (NPFC-2019-SSC PS05-WP14).

75. Chinese Taipei presented an enumeration of commercial size category, body length distribution, and age composition for Pacific saury caught by the Chinese Taipei stick-held dip net fishery, as available information for the estimation of catch-at-age/size data (NPFC-2019-SSC PS05-WP03 and 04). Chinese Taipei is also developing an image-based measurement approach that can be easily used across multiple months and vessels to measure the knob length of Pacific saury directly within commercial boxes to enhance the quality of datasets and to reduce the time and financial limitations currently hindering the acquisition of robust assessments.

76. The participants noted that stereo cameras and automated image analysis could be an efficient and effective means of collecting length data from commercial catch.

77. The participants reviewed and updated the table of data availability on size composition and catch/CPUE for Pacific saury (Annex I).

78. The participants agreed on specifications and timelines for submitting data on size composition and catch for Pacific saury (Annex J) and revised the template for sharing data (Annex K). The participants agreed to submit data on size composition and catch for Pacific saury, in accordance with the specifications and template, up to 2018 at SSC PS06, and submit the 2019 data at SSC PS07. The deadline for submission of 2018 data is 14 February 2020.

79. The participants agreed to submit papers detailing their protocols for estimating the length composition and age composition of Pacific saury, as well as the sample size over time, to SSC PS06.

80. Japan agreed to share age-length keys for Pacific saury with other Members.

81. The participants agreed to conduct research on spatio-temporal variation in Pacific saury growth, towards determining a spatio-temporal scale for an age-length key that is consistent with the species biology.

10.2 Discussion on age/size/stage-structured models

82. Japan presented a trial calculation of natural mortality estimators for Pacific saury (NPFC-2019-SSC PS05-WP18). The calculated estimators were distributed over a relatively large range, between 1.71 and 2.75. Japan noted the need to carefully consider whether the processes for deriving these estimators are consistent with the physiology of Pacific saury, before incorporating them in age/size/stage-structured models.

83. The participants encouraged Japan to model seasonal growth function, considering the speed of growth of age-0 Pacific saury that have and have not experienced maturity.

84. The Chair presented a simplistic monthly age-structured model as an example to initiate discussions on the development of new models of the population dynamics of Pacific saury.

85. The participants were encouraged to propose new population dynamics models, taking into account the data availability and biology of Pacific saury, and to present the statistical formulation and biological assumptions of the proposed models at SSC PS06.

10.3 Development of data sharing protocol

86. The participants reaffirmed that any data sharing should be conducted in accordance with the Interim Regulations for Management of Scientific Data and Information.

10.4 Initial discussion on simulation setting

87. The participants agreed that simulation studies may be useful for evaluating the performance of any new models. They also recognized that simulation models could form the basis for the future development of operating models for the MSE framework.

10.5 Recommendations for future work

88. Recommendations for future work are given in paragraphs 76, 78, 79, 81, 83 and 85.

Agenda Item 11. Toward setting of biological reference points (RPs) and development of Management Strategy Evaluation (MSE)

11.1 Review of RPs report

11.2 Investigation of reasonable options of RPs

11.3 Initial discussion on MSE for Pacific saury

11.4 Recommendations for future work

89. The participants agreed to discuss a timeline for developing the MSE at SSC PS06, if time allows.

90. The participants suggested that, given that Pacific saury is a short-lived species, and in light of the influence and fluctuation of environmental factors, dynamic RPs are likely to be appropriate. They noted that the NPFC-PICES collaborative framework may be a useful platform for exploring dynamic RPs.

Agenda Item 12. Other matters

12.1 Draft agenda and priority issues for next meeting

91. The participants recognized the following as priorities for the next meeting:
    (a) Conduct regular update of stock assessment and develop recommendations to the Commission to improve conservation and management
    (b) Review survey plans of Japanese biomass survey in 2020
    (c) Review proposal for developing new stock assessment models and refine data requirement
    (d) Finalize initial data set and assumptions for initial trials of conditioning of new stock assessment models
    (e) Review RPs report and start investigation of reasonable actions

12.2 Other

92. No other matters were discussed.

Agenda Item 13. Adoption of the Report

93. The SSC PS05 Report was adopted by consensus.

Agenda Item 14. Close of the Meeting

94. The meeting closed at 12:04 on 16 November 2019.

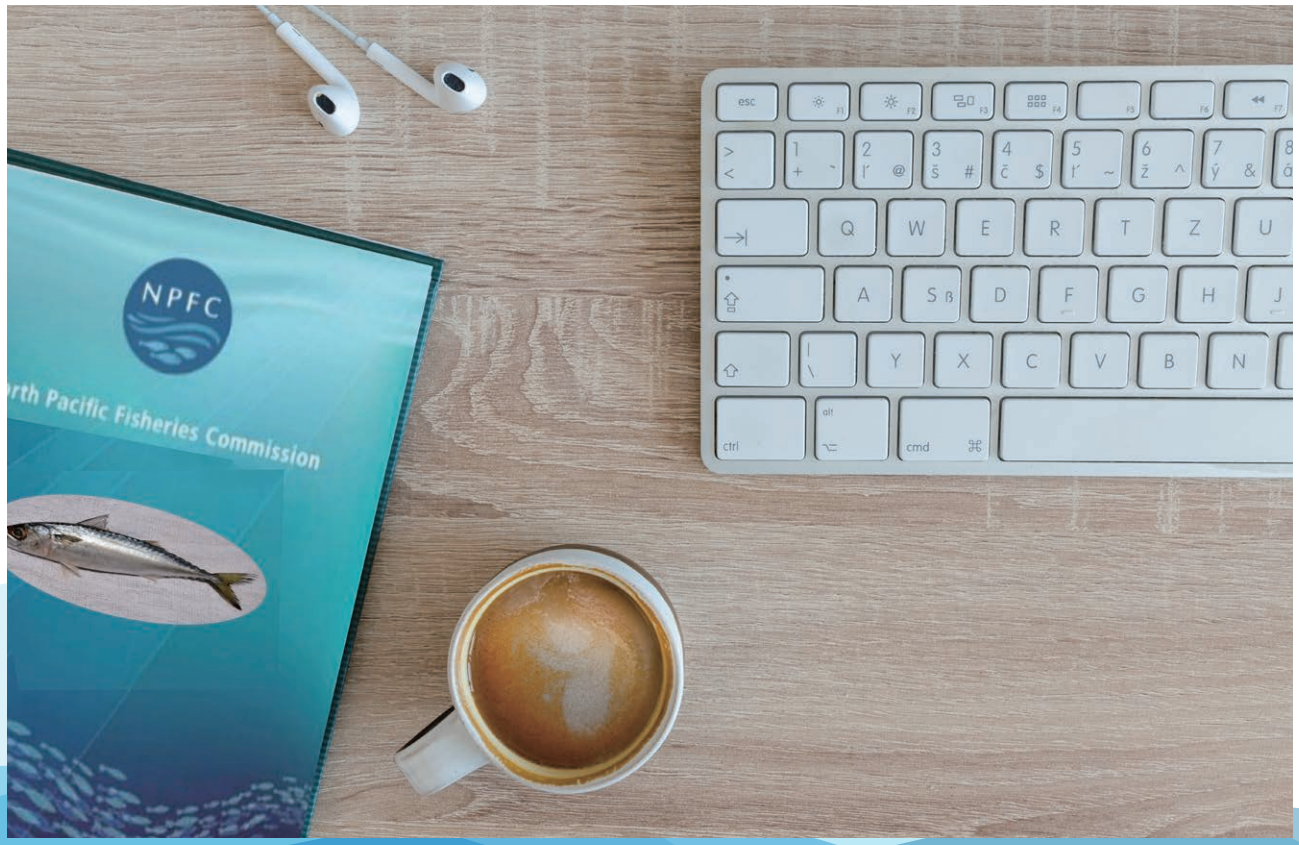
Annexes:

Please refer to the NPFC website for the complete annexes.

NPFC

3rd Meeting of the Technical Working Group on Chub Mackerel Stock Assessment

11-14 November 2020
Virtual
Meeting Report



Annex A

Agenda

Agenda Item 1. Opening of the Meeting

Agenda Item 2. Adoption of Agenda

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

- 3.1 2nd TWG CMSA and 4th SC meeting
- 3.2 5th Commission meeting and CMM 2019-07
- 3.3 Intersessional meeting of TWG CMSA

Agenda Item 4. Toward development of Management Strategy Evaluation (MSE)

- 4.1 Update on intersessional work towards MSE
- 4.2 Recommendations and timelines for future work

Agenda Item 5. Review of Terms of Reference and Protocols of the TWG CMSA

- 5.1 Terms of Reference
- 5.2 CPUE Standardization Protocol
- 5.3 Stock Assessment Protocol
- 5.4 Protocol for the Operating Model Development

Agenda Item 6. Review of Member's fisheries and research activities

Agenda Item 7. Development of the operating model for the stock assessment of chub mackerel

- 7.1 Review of key considerations and specifications from the TWG CMSA02 meeting
- 7.2 Review of availability and quality of data shared by the Members
- 7.3 Review of stock assessment results (VPA, ASAP, KAFKA, SAM)
- 7.4 Assumptions and parameters from the stock assessment models
- 7.5 Major sources of uncertainty to be included in the operating model
- 7.6 Determination of scenarios for the operating model
- 7.7 POPSIM-A as an operating model for testing chub mackerel stock assessment models (final report)
- 7.8 Recommendations and timelines for future work

Agenda Item 8. Review of fishery-dependent and fishery-independent data

8.1 Update on data availability
8.2 Data collection templates
8.3 Observer Program

Agenda Item 9. Review and evaluation of fishery-dependent and fishery-independent indices
9.1 Fishery-dependent indices
9.2 Fishery-independent indices
9.3 Recommendations for future work

Agenda Item 10. Review of the Work Plan of the TWG CMSA

Agenda Item 11. Other matters
11.1 European Union's application
11.2 Next TWG CMSA meetings
11.3 Other matters

Agenda Item 12. Recommendations to the Scientific Committee

Agenda Item 13. Adoption of Report

Agenda Item 14. Close of the Meeting

MEETING REPORT

Agenda Item 1. Opening of the Meeting

1. The 3rd Meeting of the Technical Working Group on Chub Mackerel Stock Assessment (TWG CMSA) of the North Pacific Fisheries Commission (NPFC) took place in the format of video conferencing via WebEx, and was attended by Members from Canada, China, Japan, the Russian Federation, and the United States of America. An invited expert, Dr. Tom Carruthers, participated in the meeting. The European Union (EU), the North Pacific Anadromous Fish Commission (NPAFC), and the Pew Charitable Trusts (Pew) attended as observers.

2. The meeting was opened by the TWG CMSA Chair, Dr. Oleg Katugin (Russia), who outlined the objectives and procedures for the meeting. Mr. Alex Meyer was selected as rapporteur.

Agenda Item 2. Adoption of Agenda

3. The TWG CMSA agreed to discuss the process for selecting a new Chair and a Vice-Chair under Agenda Item 11.3.

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

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

3.1 2nd TWG CMSA and 4th SC meeting

3.2 5th Commission meeting and CMM 2019-07

5. The Chair provided an overview of the recommendations made by the 2nd TWG CMSA meeting, which the 4th Scientific Committee (SC) meeting and 5th Commission meeting adopted.

3.3 Intersessional meeting of TWG CMSA

6. The Chair provided an overview of the outcomes of the intersessional meeting of the TWG CMSA.

Agenda Item 4. Toward development of Management Strategy Evaluation (MSE)

4.1 Update on intersessional work towards MSE

7. Dr. Tom Carruthers, invited expert, presented an updated demonstration MSE for chub mackerel using open-source tools (NPFC-2020-TWG CMSA03-WP11). Chub mackerel stock assessment can be readily converted to operating models for rapid MSE analysis. Demonstration management procedures (MPs) and operating models provided promising performance outcomes. A wider range of operating model scenarios should be considered, potentially including alternative future recruitment scenarios. It is also important to carefully establish an organized MSE process, three key aspects of which are having a clear problem statement, having a clear division of roles among three principal groups (1. Oversight, 2. User and 3. Technical), and having a clearly defined roadmap.

4.2 Recommendations and timelines for future work

8. As possible first steps, Dr. Carruthers suggested beginning open and iterative discussions among the various stakeholders about metrics and performance evaluation, as well as the key sources of uncertainties.

9. The TWG CMSA recognized that the first priority should be given to the development of the operating model and stock assessment of chub mackerel and guidance from the Commission would be helpful to move the process forward.

10. Pew suggested that the TWG CMSA request the Commission to provide management objectives for the chub mackerel fishery that the TWG CMSA could translate into performance metrics, and that scientist-manager dialog groups, an approach taken by other regional fisheries management organizations (RFMOs), may be an appropriate way to create an iterative process for advancing MSE discussions.

11. The TWG CMSA agreed to continue its work on MSE for chub mackerel with managers and stakeholders. To that end, the TWG CMSA agreed to continue discussions about technical aspects of the development of the MSE and request the Commission to give guidance on how to move forward, including the setting of management objectives.

12. The TWG CMSA recommended hiring an external expert for the development of the MSE.

Agenda Item 5. Review of Terms of Reference and Protocols of the TWG CMSA

5.1 Terms of Reference

13. The TWG CMSA reviewed the Terms of Reference and determined that no revisions are currently required.

5.2 CPUE Standardization Protocol

14. The TWG CMSA reviewed the CPUE Standardization Protocol and determined that no revisions are currently required.

5.3 Stock Assessment Protocol

15. The TWG CMSA reviewed the Stock Assessment Protocol and determined that no revisions are currently required.

5.4 Protocol for the Operating Model Development

16. The TWG CMSA reviewed the Protocol for the Operating Model Development and determined that no revisions are currently required.

Agenda Item 6. Review of Member's fisheries and research activities

17. China presented a review of its chub mackerel fisheries and research activities (NPFC-2020-TWG CMSA03-IP02). China operates a light-purse seine fishery (>95%) and a small pelagic trawl fishery (<5%). The number of fishing vessels increased from 2014 to 2016 and has decreased since then. CPUE has slightly increased every year since 2016. China's fishing effort was stable in 2018 but decreased in 2019. China has been collecting biological data and conducting research on the relationship between weight and fork length, feeding levels, and age identification/composition. It is also providing training for fishermen and enterprises. As for future research, China intends to strengthen collection of fishery-dependent biological data, conduct in-depth study of mackerel otoliths on the high seas, and collect data for assessment of mackerel resources. Based on its research, China concluded that the dominant length size of chub mackerel is 190-320 mm and the dominant age groups are 1, 2 and 3.

18. A Member requested an explanation of the decrease in fishing vessels of China in 2019 and whether the total fishing effort such as total fishing days also decreased in 2019. The Member also suggested that further investigation of those issues is needed.

19. Japan presented an update on its chub mackerel fishery and the stock status (NPFC-2020-TWG CMSA03-IP01). Japan presented catch and catch-at-age data used for its domestic stock

assessment, which is based on the fishing year beginning in July. Japan pointed out that chub mackerel recruitment begins in July, and the difference between the calendar year and the life history needs to be noted and understood. Catch in the 2019 fishing year was 283,000 tons, slightly lower than 2017 and 2018, and consisted of age-0 to age-6+ fish. The strong 2013-year-class continues to be highly present. Japan also presented a diagram to clarify the inconsistency between the calendar year and chub mackerel life history and fishing.

20. Japan agreed to update its catch and effort data in both its EEZ and the Convention Area in the Japanese annual summary footprint.

21. Russia presented an update of its chub mackerel fisheries with results for 2019 and preliminary results for 2020 (NPFC-2020-TWG CMSA03-WP12). In 2019, the number of fishing days increased only slightly compared to 2018. Chub mackerel catch by Russian vessels was 98,812 tons in 2018, and 86,592 tons in 2019. Russia conducted a trawl survey in the upper epipelagic layer off the south Kuril Islands within the Russian EEZ in August and early September 2020. Foraging mackerel were observed throughout the entire research area, except for the Oyashio Current during maximum warming of surface water. Maximum chub mackerel catches were associated with high-density concentrations of zooplankton in the northeastern part of the survey area in the northern Subarctic Front.

Agenda Item 7. Development of the operating model for the stock assessment of chub mackerel

7.1 Review of key considerations and specifications from the TWG CMSA02 meeting

22. The TWG CMSA reviewed the key considerations and specifications from the 2nd TWG CMSA meeting.

7.2 Review of availability and quality of data shared by the Members

23. Dr. Shota Nishijima, the lead of the Small Working Group on Operating Model (SWG OM), presented a compilation and summary of Members' data for operating models of the chub mackerel in the northwestern Pacific Ocean (NPFC-2020-TWG CMSA03-WP04). The following were identified as key issues to be resolved ahead of conducting a benchmark stock assessment: missing catch-at-age and weight-at-age data in Chinese data, inconsistency of weight-at-age among Members, inconsistency of maturity-at-age among Members, difference of age composition in catch among Members, how to use abundance indices especially those of China and Russia, and standardization of abundance indices from China and Russia.

24. In response to the presentation, China will consider improving catch-at-age data and standardizing CPUE. Russia stated that difficulty exists for CPUE standardization.

7.3 Review of stock assessment results (VPA, ASAP, KAFKA, SAM)

25. China presented a preliminary stock assessment based on age-structured assessment program (ASAP) for the operating model for chub mackerel in the North Pacific Ocean (NPFC-2020-TWG CMSA03-WP09 (Rev. 1)). Chub mackerel biomass stayed at a high level in the 1980s then declined to a low value, before recovering from 2005 and then declining again in recent years, with a similar trend for abundance and spawning stock biomass (SSB). Fishing mortality during 1985-2005 was high for chub mackerel and stock abundance was very low. The Kobe plots revealed that the stock of chub mackerel was almost in the red zone, indicating this stock has been overfished and subject to overfishing in the last 50 years. The availability and quality of data for chub mackerel have a large influence on the stock assessment results and model performance.

26. The TWG CMSA discussed data and model configurations to be used, such as abundance indices, recruitment age, and selectivity of ASAP.

27. Japan presented the results of the application of virtual population analysis (VPA) and state-space assessment model (SAM) to the shared data of chub mackerel in the northwestern Pacific Ocean (NPFC-2020-TWG CMSA03-WP05). The past estimates by VPA and SAM were similar, but VPA estimated higher abundances and lower fishing impact than SAM. Both models did not show serious retrospective biases. The absolute values of MSY-based reference points (MSY, SSB_{MSY}) were very different between the two models but the relative values (SSB_{MSY}/SSB0, $\%SPR_{MSY}$) were quite robust. The MSY-based reference points are sensitive to the choice of stock-recruitment relationship. The stock assessment results are relatively robust against the choice of natural mortality although recent estimates are slightly different.

28. The TWG CMSA discussed the reason for the difference of recent estimates between VPA and SAM, and the high values of recruitment indices in 2018. Japan explained that the survey area, design and gear did not change through the analyzed period.

29. Russia presented a chub mackerel stock assessment using a KAFKA model (NPFC-2020-TWG CMSA03-WP10). Catch data from China, Japan, and Russia, and standardized abundance indices for recruitment and SSB were used. The data were grouped into eight fleets. A total of 15 scenarios were formed.

30. The SWG OM lead presented a comparison of the stock assessment outputs from the three working papers including the estimates of biomass, exploitation rate, recruitment and SSB

(NPFC-2020-TWG CMSA03-IP03). The estimates for past years were similar, but estimates for recent years were very different among the stock assessment models.

7.4 Assumptions and parameters from the stock assessment models

31. The TWG CMSA compiled a table of the stock assessment model settings (Annex D).

32. The TWG CMSA agreed to use the merged data, rather than per-fleet data, for the development of the operating model.

7.5 Major sources of uncertainty to be included in the operating model

33. The TWG CMSA agreed that uncertainties regarding natural mortality, weight-at-age, and maturity-at-age should be incorporated into scenario settings.

34. The TWG CMSA determined that two sets of natural mortality will be used:
    (a) The median of various estimators (M=0.41)
    (b) Age-specific M based on Gislason estimator

35. The TWG CMSA requested Japan to provide the age-specific M including age 0 from recalculation of Japan's data.

7.6 Determination of scenarios for the operating model

36. The TWG CMSA determined three scenarios for weight- and maturity-at-age (lowest, average, and highest).

37. The TWG CMSA agreed to analyze six scenarios for operating models as shown in Annex E.

38. The TWG CMSA agreed that all six abundance indices (China's fishery, Japan's recruitment surveys in summer and fall, Japan's egg survey, Japan's dip-net fishery and Russia's trawl fishery) will be used in all the models for all the scenarios.

39. The TWG CMSA reviewed and revised a table of performance measures for evaluating the stock assessment models (Annex F). The time periods for depletion statistics and relative fishing mortality in evaluating the performance are still an open question, and the TWG CMSA agreed to determine them at the next TWG CMSA meeting.

7.7 POPSIM-A as an operating model for testing chub mackerel stock assessment models (final report)

40. The TWG CMSA reviewed and adopted the final report on PopSim-A operating models for chub mackerel by the consultant, Dr. Larry Jacobson.

7.8 Recommendations and timelines for future work

41. The TWG CMSA agreed to rerun the models using the determined scenarios for datasets for review at the next TWG CMSA meeting.

42. If necessary and possible, the TWG CMSA agreed to hold web meetings of the SWG OM intersessionally before the next TWG CMSA meeting to assess Members' progress in the development of the stock assessment model for the operating model.

43. The TWG CMSA reaffirmed the need to hire an external expert to continue the work to develop an operating model (PopSim) and test chub mackerel stock assessment models.

Agenda Item 8. Review of fishery-dependent and fishery-independent data

8.1 Update on data availability

44. Japan presented its catch, weight, and maturity at age data for chub mackerel (NPFC-2020-TWG CMSA03-WP02). Japan introduced its methodology for estimating catch, weight, and maturity at age with the results, explaining that it has long used tuned-VPA for its domestic stock assessment of chub mackerel, for which these estimations are essential. Japan also pointed out that a strong year class shifts the size-at-age, that its age-length key strongly relies on stock demographics and therefore constant development of the age-length key is critical. Japan also pointed out that maturity-at-age relies on the stock level and the maturity patterns in the recent years are changing. Japan pointed out that an adequate amount of length, weight and age samples is critical.

45. China presented a description of its available data (NPFC-2020-TWG CMSA03-WP06). China introduced its sampling methodology and its work to develop an age-length key, and presented its data for length and age distribution, length-weight relationship and catch-at-age.

46. Members agreed to present monthly catch data and the maps of their fishing grounds at the next TWG CMSA meeting.

47. Russia presented the average weight-at-age data. Russia pointed out the large body weight of chub mackerel observed in Russia's fishery.

48. The TWG CMSA discussed inconsistencies between Members' data, including:

(a) Data aggregation by fishing year as opposed to calendar year.
(b) Differences in weight-at-age related to density-dependent effect and other factors.
(c) Differences in maturity-at-age

49. To resolve the aforementioned inconsistencies, the TWG CMSA agreed to share biological information, such as age-length keys if possible and weight-length relationship. The TWG CMSA agreed to work intersessionally, through the SWG OM, to address the above issues (paragraph 48) and other data-related matters. The SWG OM will report the outcomes of data preparation to the next TWG CMSA meeting.

8.2 Data collection templates

50. The TWG CMSA agreed to discuss data collection and data sharing intersessionally.

8.3 Observer Program

51. The TWG CMSA discussed the potential establishment of an observer program for chub mackerel and requested the Secretariat to work intersessionally to compile TWG CMSA members' views regarding the necessity/objective of such a program and potential issues.

Agenda Item 9. Review and evaluation of fishery-dependent and fishery-independent indices

9.1 Fishery-dependent indices

9.2 Fishery-independent indices

52. Japan presented a review and update of its fishery-independent and fishery-dependent indices for chub mackerel (NPFC-2020-TWG CMSA03-WP03). Japan provided four potential abundance indices of the chub mackerel in the Northwestern Pacific: two recruitment indices derived from research surveys in summer and autumn; an index of SSB from egg surveys off the Pacific coast of Japan, and a fishery-dependent SSB index. All indices are standardized and have time series longer than or equal to 15 years. Strong year classes were observed in 2013, 2016 and 2018. The indices provide useful information for the stock assessment of the Pacific chub mackerel.

9.3 Recommendations for future work

53. Recommended future work is described in the TWG CMSA Work Plan.

Agenda Item 10. Review of the Work Plan of the TWG CMSA

54. The TWG CMSA reviewed and updated the Work Plan of the TWG CMSA (NPFC-2020-TWG CMSA03-WP01 (Rev. 1)).

55. The TWG CMSA reviewed and revised the flowchart for the development of the operating model and testing stock assessment models (Annex G).

Agenda Item 11. Other matters

11.1 European Union's application

56. The TWG CMSA reviewed the application of the European Union for the development of its chub mackerel fishery in the NPFC Convention Area (NPFC Circular #006/2020).

57. The TWG CMSA requested the EU to update its Fisheries Operation Plan with the following information, preferably before the upcoming SC meeting:
    (a) Impact assessment for sea turtle bycatch
    (b) Reference to the most up-to-date Japanese domestic stock assessment for chub mackerel
    (c) More detailed information about specific gear configurations, such as mesh sizes

58. The TWG CMSA discussed the potential increase in fishing effort arising from the EU's accession to the NPFC.

59. In considering the EU's application, the TWG CMSA also discussed the importance of reporting bycatch of pelagic species and recommended that reporting requirements be changed such that Convention Area chub mackerel fisheries be required to report bycatch of pelagic species (in weight or numbers, by species).

11.2 Next TWG CMSA meetings

60. The TWG CMSA recommended holding two meetings to conduct the stock assessment for chub mackerel in the 2021 fiscal year. The TWG CMSA suggested that the meetings be held in spring 2021 and winter 2021/2022, respectively, with the specific dates and meeting format to be determined intersessionally via correspondence.

11.3 Other matters

61. Dr. Katugin expressed his intention to resign from his position as Chair and the TWG CMSA requested the SC to elect a new Chair and a Vice-Chair.

Agenda Item 12. Recommendations to the Scientific Committee

62. The TWG CMSA agreed:
    (a) To continue its work on MSE for chub mackerel with managers and stakeholders.
    (b) To continue discussions about technical aspects of the development of the MSE.
    (c) To use the revised performance measures for evaluating the stock assessment models in

the development of the operating model (Annex F).

(d) To rerun the models using the determined base-case scenarios for operating model by the next TWG CMSA meeting. The base-case scenarios use the merged catch-at-age data, all 6 abundance indices (China's fishery, Japan's recruitment surveys in summer and fall, Japan's egg survey, Japan's dip-net fishery and Russia's trawl fishery), and the biological parameters including 6 different scenarios (Annex E).

(e) To share available biological data and age-length-key intersessionally to fill the data gap.

(f) To standardize CPUE for the use of stock assessment for all abundance indices.

63. The TWG CMSA recommended the following to the SC:

(a) The TWG CMSA recommended to request the Commission to give guidance on how to move forward, including the setting of management objectives for the development of the MSE.

(b) The TWG CMSA recommended hiring an external expert for the development of the MSE.

(c) The TWG CMSA recommended hiring an external expert to continue the work to develop an operating model (PopSim) and test chub mackerel stock assessment models.

(d) The TWG CMSA recommended the adoption of the final report on PopSim-A operating models for chub mackerel.

(e) The TWG CMSA recommended the Work Plan of the TWG CMSA (NPFC-2020-TWG CMSA03-WP01 (Rev. 1)).

(f) The TWG CMSA recommended that reporting requirements be changed such that Convention Area chub mackerel fisheries be required to report bycatch of pelagic species (in weight or numbers, by species).

(g) The TWG CMSA recommended holding meetings in spring 2021 and winter 2021/2022, with the specific dates and meeting format to be determined intersessionally via correspondence.

(h) The TWG CMSA requested the SC to elect a new Chair and a Vice-Chair.

Agenda Item 13. Adoption of the Report

64. The report was adopted by consensus.

Agenda Item 14. Close of the Meeting

65. The meeting closed at 12:59 on 14 November 2020, Tokyo time.

Annexes:

Annex A – Agenda

Annex B – List of documents

Annex C – List of participants

Annex D – Settings of the stock assessment models used for the conditioning of operating models

Annex E – Scenarios for operating models

Annex F – Performance measures for evaluating the stock assessment models

Annex G – Flowchart for the development of operating models and testing stock assessment models

Please refer to the NPFC website for the complete annexes.

NPFC

1st Meeting of the Small Scientific Committee on Bottom Fish and Marine Ecosystems

16-18 November 2020
Virtual
Meeting Report

Agenda

Agenda Item 1. Opening of the Meeting

Agenda Item 2. Adoption of Agenda

Agenda Item 3. Stock assessment and scientific advice on the management of North Pacific armorhead (NPA)

- 3.1 NPA monitoring survey and Adaptive Management Procedure (AMP)
  - 3.1.1 Review of the results from 2020 monitoring survey
  - 3.1.2 Review of proposed changes to monitoring survey design
- 3.2 Update on analyses or progress on biomass estimates from the NPA 2020 acoustic survey
- 3.3 Review of Members' research activities on NPA
  - 3.3.1 Analysis of recruitment relationships to oceanography
  - 3.3.2 Review of the report on literature, data availability and data gaps for NPA stock assessment

Agenda Item 4. Stock assessment and scientific advice on the management of splendid alfonsino (SA)

- 4.1 Review of Members' research activities on SA
  - 4.1.1 Yield per recruit analysis of SA
  - 4.1.2 Review of the report on literature, data availability and data gaps for SA stock assessment
- 4.2 Adaptive management strategy for SA
  - 4.2.1 Review of approaches from other RFMO's
  - 4.2.2 Intersessional work to develop TOR for SA adaptive management plan

Agenda Item 5. Data-limited management tools and approach to assessment of NPA and SA

- 5.1 Discussion of next steps in identification of data limited approaches to stock assessment for NPA and SA
  - 5.1.1 Review of tools available to use with existing data
  - 5.1.2 Discussion of data availability and sharing
  - 5.1.3 Planning for identification and application of data limited approaches to stock assessment for NPA and/or SA

Agenda Item 6. Assessment and scientific advice on the management of Vulnerable Marine Ecosystems (VME)

6.1 Review of Members' research activities on VME

6.1.1 Towards a quantitative definition of VMEs

6.1.2 Trade-off analysis between VME protection and sablefish fishing

6.2 VME identification

6.2.1 Update on planning for VME indicator taxa identification course

6.2.2 Adoption of the VME taxa ID guide

6.2.3 Update on the two potential VME sites identified by Japan

6.3 Encounter protocol

6.3.1 Review of post-encounter measure questionnaire results

6.3.2 Discussion of suggestions from post-encounter questionnaire

6.3.3 Refinement of post-encounter measures

6.4 Significant and adverse impacts (SAI) assessment

6.4.1 Update on Canada-Japan small working group to compare approaches to standardizing an approach to defining SAI

6.4.2 Review of the report on the observations of VMEs and presence of SAIs on the Emperor Seamounts

Agenda Item 7. Data collection and reporting

7.1 Review of the template for collection of scientific observer data

7.2 Update on Japan's fish ID guide, translation into English and translation costs

7.3 Update on fishing footprint and effort data sharing

7.4 Review of example species profile concept and recommendation of direction on future development

7.5 Review of spatial databases for VME

7.6 Review of the draft data sharing and data security protocols from the TCC

Agenda Item 8. Proposed 5-Year (2020-2024) Rolling Work Plan

8.1 North Pacific armorhead

8.2 Splendid alfonsino

8.3 Sablefish

8.4 Vulnerable marine ecosystems

8.5 Other ecosystem components

Agenda Item 9. Review of CMMs 2019-05 and 2019-06 for bottom fisheries and protection of vulnerable marine ecosystems and CMM 2019-10 for sablefish

Agenda Item 10. Other matters

10.1 Inter-sessional work and priority issues for next meeting

10.2 Other issues

Agenda Item 11. Recommendations to the Scientific Committee

Agenda Item 12. Next meeting

Agenda Item 13. Adoption of the Report

Agenda Item 14. Close of the Meeting

MEETING REPORT

Agenda Item 1. Opening of the Meeting

1. The 1st Meeting of the Small Scientific Committee on Bottom Fish and Marine Ecosystems (SSC BF-ME01) took place in the format of video conferencing via WebEx, and was attended by Members from Canada, China, Japan, the Republic of Korea, the Russian Federation, and the United States of America. The North Pacific Anadromous Fish Commission (NPAFC), the Deep Sea Conservation Coalition (DSCC), and the Pew Charitable Trusts (Pew) attended as observers.

2. The meeting was opened by the SSC BF-ME Chair, Dr. Chris Rooper (Canada), who welcomed the participants. The Science Manager, Dr. Aleksandr Zavolokin, outlined the procedures for the meeting. Mr. Alex Meyer was selected as rapporteur.

Agenda Item 2. Adoption of Agenda

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

Agenda Item 3. Stock assessment and scientific advice on the management of North Pacific armorhead (NPA)

3.1 NPA monitoring survey and Adaptive Management Procedure (AMP)

3.1.1 Review of the results from 2020 monitoring survey

4. The Science Manager presented the results of the monitoring survey for NPA in the Emperor Seamounts in 2020 (NPFC-2020-SSC BFME01-IP03). Four monitoring surveys were conducted. Nominal catch per unit effort (CPUE) ranged from 57.5 to 148 kg/hour. The ratio of fatness index varied significantly from 28 to 80. The criteria for strong recruitment were not met and the CPUE indicated that probably the stock remained at a low level.

3.1.2 Review of proposed changes to monitoring survey design

5. Japan presented the proposed amendment to the monitoring survey design (NPFC-2020-SSC BFME01-WP09). Only one Japanese bottom trawler conducted fishing in the Emperor Seamounts in the 2020 fishing season. This is likely to remain unchanged for the 2021 fishing season. Therefore, Japan proposes to amend Conservation and Management Measure (CMM) 2019-05, to increase the number of monitoring blocks from two to four to enable the trawler to continue to conduct monitoring surveys at regular intervals while reducing the current operational difficulties. The Japanese trawler would conduct a monitoring survey each month from March to June in the monitoring block that is nearest to its position, as long as signs of high recruitment are not detected. If signs of possible high recruitment are detected, Japan will consider increasing the frequency of monitoring surveys while taking into account the trawler's operational availability.

6. The SSC BF-ME reviewed and revised Annex 6 of the CMM 2019-05 (Annex D).

7. The SSC BF-ME noted Article 9, 1 (b) of the Convention that "the decision shall become binding upon all members of the Commission ninety (90) days after the date of transmittal specified in the Chairperson's notification of the adoption of the decision by the Commission, pursuant to subparagraph (a) above, unless otherwise specified in the decision." The SSC BF-ME suggested that the Commission consider a waiver to the above 90-day rule in order to enter the revised CMM 2019-05 into force before March 2021.

8. Korea mentioned the possibility that one Korean trawler may decide to operate in the Emperor Seamount area in 2021, in which case it could participate in the monitoring survey in addition to the Japanese trawler. This would increase the frequency of samples and the spatial coverage.

3.2 Update on analyses or progress on biomass estimates from the NPA 2020 acoustic survey

9. Japan reported that work to produce biomass estimates from the NPA 2020 acoustic survey is ongoing and that it will share the results when they are available.

3.3 Review of Members' research activities on NPA

3.3.1 Analysis of recruitment relationships to oceanography

10. Canada reported that it is planning to conduct an analysis of recruitment relationships to oceanography and invited other Members to collaborate with such work.

3.3.2 Review of the report on literature, data availability and data gaps for NPA stock assessment

11. Canada presented a report on the literature review, data availability and data gaps for NPA

stock assessment (NPFC-2020-SSC BFME01-WP14). The report included a review of research on life history studies and important processes, including factors affecting recruitment, factors affecting mortality, distribution, and information of previous stock assessments; a list of available data including catch and effort history, survey data, biological data associated with catch and surveys, and biological data that can be inferred from previous stock assessments; data gaps; and potential next steps.

12. Japan pointed out that one data gap may be fatness index, which can be an indicator of new recruitment. Japan has been collecting such data from 2009.

13. Korea explained that it collected NPA fatness data in 2019.

14. Korea mentioned that it had participated in a paper describing otolith-based age estimations for armorhead that could be used as reference.

Agenda Item 4. Stock assessment and scientific advice on the management of splendid alfonsino (SA)

4.1 Review of Members' research activities on SA

15. Japan presented the catch size composition of splendid alfonsino in the Emperor Seamounts area before and after the implementation of the NPFC's mesh size regulation (NPFC-2020-SSC BFME01-WP05 (Rev.1)). To evaluate the effectiveness of the new mesh size regulation, Japan compared the catch size composition of splendid alfonsino before (2018) and after (2019) its implementation. The direction and extent of yearly changes differed among vessels and seasons, indicating the need for further examination on the determinants of catch size composition in this fishery. Possible determinants include different gear configurations, different operational patterns, and seasonal fluctuation in population structure and/or local size distribution.

16. Korea explained that it has observer data from Korean trawlers that could be included in Japan's analysis of the effect of the mesh size regulation and offered to collaborate with Japan.

17. The SSC BF-ME noted that the research results presented by Japan remain inconclusive about the effectiveness of the new mesh size regulation and encouraged Japan to continue to conduct such research in collaboration with Korea and any other interested Members.

18. Japan reported that it is engaged in the analysis of SA gonad samples from the Emperor Seamount area to study size-at-maturation and will share the results when they are available.

4.1.1 Yield per recruit analysis of SA

19. No updates were provided.

4.1.2 Review of the report on literature, data availability and data gaps for SA stock assessment

20. Canada presented a report on the literature review, data availability and data gaps for SA stock assessment (NPFC-2020-SSC BFME01-WP11 (Rev. 1)). The report included a review of research on important life-history processes, including factors affecting recruitment, factors affecting mortality, distribution, and information of previous stock assessments; a list of available data including catch and effort history, survey data, biological data associated with catch and surveys, and biological data that can be inferred from previous stock assessments; data gaps; and potential next steps.

4.2 Adaptive management strategy for SA

4.2.1 Review of approaches from other RFMOs

21. The Chair presented a brief review of approaches to SA management by other regional fisheries management organizations (RFMOs) and nations (NPFC-2020-SSC BFME01-WP10). Measures include spatial closures (SPRFMO), effort controls (NPFC, NEAFC, SIOFA), and quota systems based on historical catch (SEAFO). In one case (NAFO) the fishery was closed to protect an overfished stock and has not been re-opened. Only one of the RFMOs conducts a stock assessment. None of the RFMOs use a fishery-independent survey-based approach. None of the RFMOs use an adaptive management approach.

4.2.2 Intersessional work to develop TOR for SA adaptive management plan

22. Discussion of the intersessional work to develop the Terms of Reference (TOR) for the SA adaptive management plan was included as part of the discussions on plans to establish a small working group (SWG) on data-limited management tools and approaches for assessing NPA and SA stocks under Agenda Item 5.

Agenda Item 5. Data-limited management tools and approach to assessment of NPA and SA

23. Japan presented a summary of past NPFC studies of the biology, life history, biomass and stock for NPA and SA in the Emperor Seamounts area (NPFC-2020-SSC BFME01-WP04). Although several stock assessment approaches have been applied, they were not successful in specifying ways to harvest NPA and SA stocks sustainably.

5.1 Discussion of next steps in identification of data limited approaches to stock assessment for NPA and SA

5.1.1 Review of tools available to use with existing data

5.1.2 Discussion of data availability and sharing

5.1.3 Planning for identification and application of data limited approaches to stock assessment for NPA and/or SA

24. The SSC BF-ME agreed to establish an SWG on data-limited management tools and approaches for assessing NPA and SA stocks (SWG NPA&SA) whose tasks would include:
    (a) Reviewing available data for stock assessment, examining data quality and sharing data
    (b) Formulating TORs for stock assessment for NPA and SA, and potentially for adaptive management of SA
    (c) Reviewing and recommending data-limited stock assessment methods
    (d) Deciding who (one Member / all Members / an external consultant) will conduct the stock assessments if possible
    (e) Discussing plans determining stock status and potentially for rebuilding stocks
    (f) Discussing environmental factors affecting abundance and recruitment
    (g) Developing plans for holding a workshop with other RFMOs managing stocks of NPA, SA and other related species, possibly under the framework of the FAO Deep Sea Fisheries Project

25. Ms. Kari Fenske (USA) volunteered to lead the new SWG NPA&SA. The other members of the SWG would be Dr. Chris Rooper (Canada), Dr. Qiuyun Ma (China), Dr. Kota Sawada (Japan), Dr. Kyum Joon Park (Korea), and Dr. Oleg Katugin (Russia).

Agenda Item 6. Assessment and scientific advice on the management of Vulnerable Marine Ecosystems (VME)

26. The SSC BF-ME agreed to establish an SWG for assessment and scientific advice on the management of VMEs (SWG VME) that would conduct various intersessional work as detailed below. Dr. Janelle Curtis (Canada) volunteered to lead the new SWG VME. The other members of the SWG would be Dr. Qiuyun Ma (China), Dr. Mai Miyamoto (Japan), Dr. Taro Ichii (Japan), Dr. Kyum Joon Park (Korea), Dr. Oleg Katugin (Russia), and Ms. Kari Fenske (USA). Dr. Amy Baco-Taylor, an observer, would also participate.

6.1 Review of Members' research activities on VME

27. Korea reported on VME bycatch by Korean trawl fisheries on the Emperor Seamounts in 2019 (NPFC-2020-SSC BFME01-WP07). In 2019, one Korean trawler operated in the Emperor Seamount area. It took a total of 49 hauls, 36 of which were observed, and 14 of which included VME bycatch. The largest constituent of the by-caught VME indicator taxa was Gorgonacea, which accounted for 47% by weight. This was followed by Antipatharia, which accounted for

26% by weight. Korea also presented a map of by-caught VME indicator taxa's spatial distribution and weight composition in 2019.

28. Russia introduced NPFC-2020-SSC BFME01-IP06 of its research in the Emperor Seamount chain, including indicator taxa, landscapes, and biogeography and NPFC-2020-SSC BFME01-IP07 on research on diversity, distribution and biogeographical boundary of Octocorallia as a key taxon in the VMEs of the Emperor Seamount chain. The two papers are based on the surveys conducted by a Russian research vessel in July and August 2019. The research utilized a remotely operated underwater vehicle (ROV) that was able to take videos, photos and sampling. A laser scale of 10 cm was used to measure the size of underwater objects. Around 2,000 photos and 50 hours of video were taken. The depth range was 338 to 2,182 m.

29. Russia informed that the research in the Emperor Seamounts will be continued in the future. The SSC BF-ME encouraged Russia to continue to conduct such surveys in 2021.

6.1.1 Towards a quantitative definition of VMEs

30. Canada proposed the use of a decision tree as the first step in the identification of VMEs using the best information available (NPFC-2020-SSC BFME01-WP12). The proposed decision tree is related to use of bycatch data, visual data, predictive models, and other sources of available information. Canada also proposed that it would develop a method to use predictive models for quantitatively identifying VMEs.

31. The SSC BF-ME considered the proposed decision tree and agreed to work intersessionally, through the SWG VME, to define the types of data that can be used to identify VMEs and review Members' available VME-related data.

32. The SSC BF-ME noted the difference in the approach for VME identification proposed by Canada and the approaches of other Members.

6.1.2 Trade-off analysis between VME protection and sablefish fishing

33. Canada proposed a process for analyzing trade-offs between fishing and VME protection and presented a preliminary study to demonstrate the proposed process (NPFC-2020-SSC BFME01-WP13). The process includes nine general steps modelled after the South Pacific RFMO (SPRFMO) VME trade-off analysis and follows the basic principles of systematic conservation planning: (1) identifying and involving stakeholders, (2) identifying goals and objectives, (3) defining conservation features and gathering data, (4) setting conservation targets and design principles, (5) identifying cost metrics and gathering data, (6) dividing the

planning region into planning units, (7) selecting a decision support tool, (8) completing analysis, and (9) completing sensitivity analysis. The process is not definitive and leaves room for customization based on regional or situational differences among Members. Canada also suggested that it would conduct a trade-off analysis in the northeast Pacific using the proposed method.

34. The SSC BF-ME endorsed the proposed process for analyzing trade-offs between fishing and VME protection as one potential approach, while recognizing the need to continue to explore various options, and to discuss data availability and needs.

35. The SSC BF-ME endorsed Canada's plan to conduct a trade-off analysis in the northeast Pacific using the proposed method and asked Canada to report its progress at the next SSC BF-ME meeting.

6.2 VME identification

6.2.1 Update on planning for VME indicator taxa identification course

36. The Science Manager provided an update on the organizing of a VME indicator taxa identification course (NPFC-2020-SSC BFME01-IP02 (Rev. 1)). The course was originally planned for 2020 but was postponed due to the COVID-19 pandemic and other factors. Dr. Tatiana Dautova (Russia) has agreed to be the principal coordinator and Russia has expressed its interest in hosting the course. The provisional dates are for fall 2021, and the duration is tentatively set at four days. The proposed course was also presented as a project to North Pacific Marine Science Organization (PICES), and PICES has provisionally decided to provide 15,000 US dollars for the course to cover meeting costs, travel costs for invited experts, and travel costs for students.

6.2.2 Adoption of the VME taxa ID guide

37. The SSC BF-ME reviewed and adopted the final draft of the VME taxa identification guide for the Western North Pacific compiled by the Small Working Group on VME Taxa ID Guide and the Secretariat (NPFC-2020-SSC BFME01-WP06; https://www.npfc.int/system/files/2020-09/NPFC%20VME%20taxa%20ID%20guide.pdf).

6.2.3 Update on the two potential VME sites identified by Japan

38. Japan reported on its work to define the distribution ranges of the two potential VME sites identified in NPFC-2019-SSC VME04-WP02 in the Emperor Seamounts area based on aggregations of corals observed (NPFC-2020-SSC BFME01-WP03). For the potential VME sites in the northwestern part of Koko Seamount, the distribution range is approximately 0.95

miles north-south and 0.4 miles east-west, and the coordinates of its four corners are 35-44.75 N 171-07.60 E, 35-44.75 N 171-07.80 E, 35-43.80 N 171-07.80 E, 35-43.80 N 171-08.00 E. For the potential VME site on the northern ridge of Colahan Seamount, the distribution range is approximately 0.8 miles north-south and 0.4 miles east-west, and the coordinates of its four corners are 31-03.85 N 175-53.40 E, 31-03.85 N 175-53.65 E, 31-03.05 N 175-53.50 E, 31-03.05 N 175-53.85 E. Japan recommended that the Commission consider the coordinates of the potential VME sites, along with information in NPFC-2019-SSC VME04-WP02, and develop measures for the protection of these VMEs.

39. The SSC BF-ME recommended to revise CMM 2019-05 to protect the two areas as potential VME sites.

6.3 Encounter protocol

6.3.1 Review of post-encounter measure questionnaire results

6.3.2 Discussion of suggestions from post-encounter questionnaire

6.3.3 Refinement of post-encounter measures

40. The Science Manager presented the results of the questionnaire on options for the development of a post encounter measure for the NPFC's bottom fisheries (NPFC-2020-SSC BFME01-WP16).

41. The SSC BF-ME recommended to the SC to revise the requirements for reporting of an encounter of VME indicator taxa and the collection of supplementary information in the CMMs 2019-05 and 2019-06. All such encounters, including the location, gear type, date, time and name and weight of the VME indicator species, shall be reported to the Secretariat, through the Member state, within one business day, who shall immediately notify the other Members of the Commission. To collect supplementary information for identification of VMEs, Members are encouraged to conduct research surveys for seabed mapping (e.g. multibeam or other echosounder), seafloor images by drop camera, ROV and/or autonomous underwater vehicle (AUV).

42. The SSC BF-ME recognized some ambiguity in the questions in the questionnaire and divergent understandings of their intended meaning among Members. The SSC BF-ME agreed to work intersessionally, through the SWG VME, to clarify the questions and update the Members' views on a temporary measure, SAI assessment, potential conservation measures and other elements of a post-encounter measure presented in the questionnaire (NPFC-2020-SSC BFME01-WP16 (Rev. 1)).

43. The SSC BF-ME discussed the need for gear-specific encounter thresholds, noting that most RFMOs have different encounter protocols for mobile and static gears.

6.4 Significant and adverse impacts (SAI) assessment

44. The Science Manager presented a review conducted by SPRFMO of the approaches used by other RFMOs and CCAMLR to avoid significant adverse impacts on VMEs (NPFC-2020-SSC BFME01-IP04).

45. The SSC BF-ME noted the variety of approaches used by other RFMOs and CCAMLR to avoid SAIs on VMEs and agreed to evaluate their relevance and utility for preventing SAIs on VMEs as a future task.

6.4.1 Update on Canada-Japan small working group to compare approaches to standardizing an approach to defining SAI

46. Canada presented an update on its intersessional work to standardize an approach to defining SAI (NPFC-2020-SSC BFME01-WP15 (Rev. 1)). Canada explained that it has used its fishing footprint and predictive habitat models to identify potential areas of high risk of SAIs. Canada recommended that the SSC BF-ME establish an SWG that will work intersessionally to continue developing standardized approaches to defining risk of SAI for all NPFC Members and provide an update at the next SSC BF-ME meeting.

47. The SSC BF-ME endorsed Canada's recommendation and agreed that the proposed work will be conducted by the SWG VME.

6.4.2 Review of the report on the observations of VMEs and presence of SAIs on the Emperor Seamounts

48. Dr. Amy Baco-Taylor presented a report on surveys of VMEs and SAIs on Koko, Yuryaku, Kammu and Colahan seamounts based on Baco et al. 2019 and Baco et al. 2020. (NPFC-2020-SSC BFME01-WP08). The evidence from the aforementioned research shows that VMEs are likely to be widespread and SAI have occurred. The United States recommended that the Emperor Seamount area be closed to bottom contact fisheries until the gear used can be proven to not cause SAIs. Furthermore, since recovery is possible for these VME taxa, both untrawled areas and actively fished areas should be closed to bottom contact gear to allow them time to recover.

49. The SSC BF-ME considered the proposed recommendations but was not able to reach a consensus. Some Members believed that further discussion and additional scientific research

are required before determining mitigation measures and advocated taking a staged-approach.

50. The SSC BF-ME noted that the surveys presented by the United States showed some areas with significant densities of VMEs that may require closures and agreed to work intersessionally, through the SWG VME, to analyze the potential impact of current fishing activities on known potential VME sites identified by the USA and other Members and provide an update at the next SSC BF-ME meeting.

Agenda Item 7. Data collection and reporting

7.1 Review of the template for collection of scientific observer data

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

52. The SSC BF-ME agreed to discuss the sharing of data collected in accordance with the template at the next SSC BF-ME meeting.

7.2 Update on Japan's fish ID guide, translation into English and translation costs

53. Japan explained that the work to translate its fish ID guide into English is ongoing. It will provide an update at the next SSC BF-ME meeting.

54. Japan reported that it has conducted a literature survey on the taxonomy and biogeography of the species in the tentative list of bycatch species, as outlined in NPFC-2020-SSC BFME01-IP01.

7.3 Update on fishing footprint and effort data sharing

55. The Data Coordinator, Mr. Mervin Ogawa, presented a summary of fishing footprint and effort data shared by Members.

56. The SSC BF-ME requested the Secretariat to work intersessionally to develop provisional maps of combined, gear-specific footprints and present them at the next SSC BF-ME.

57. The SSC BF-ME recognized the need to hold further discussions on the intended objective(s) of developing maps of combined fishing footprint, which could inform the setting of the appropriate data resolution and time period.

7.4 Review of example species profile concept and recommendation of direction on future development

58. The United States explained that it has begun work to develop "Species Summary" documents for the NPFC priority species, as outlined by NPFC-2020-SSC BFME01-WP02.

59. The SSC BF-ME welcomed the work initiated by the United States and agreed to continue this work intersessionally for NPA and SA, through the SWG NPA&SA.

7.5 Review of spatial databases for VME

60. The Chair presented an overview of the National Oceanic and Atmospheric Administration (NOAA) Deep Sea Coral Research and Technology Program's (DSCRTP's) deep sea coral database (NPFC-2020-SSC BFME01-IP05). The Chair reported that Dr. Tom Hourigan, the lead scientist of DSCRTP, would support Members of the NPFC working with the DSCRTP to submit VME data to the database, if this was deemed appropriate by Members.

7.6 Review of the draft data sharing and data security protocols from the TCC

61. The Compliance Manager, Mr. Peter Flewwelling, reported on the ongoing work to draft NPFC Data-Sharing and Data-Security Protocol for Vessel Monitoring System (VMS) Data (NPFC-2020-SC05-WP07), highlighting the sections of the draft protocol that are relevant to SSC BF-ME.

Agenda Item 8. Proposed 5-Year (2020-2024) Rolling Work Plan

8.1 North Pacific armorhead

8.2 Splendid alfonsino

8.3 Sablefish

8.4 Vulnerable marine ecosystems

8.5 Other ecosystem components

62. The SSC BF-ME reviewed the 2020-2024 SSC BF-ME 5-Year Rolling Work Plan and updated it as detailed in NPFC-2020-SSC BFME01-WP01 (Rev. 1).

Agenda Item 9. Review of CMMs 2019-05 and 2019-06 for bottom fisheries and protection of vulnerable marine ecosystems and CMM 2019-10 for sablefish

63. The SSC BF-ME reviewed and revised CMM 2019-05 (Annex D).

64. The SSC BF-ME reviewed CMM 2019-06 and agreed to revise the requirements for reporting of an encounter of VME indicator taxa and the collection of supplementary information in accordance with paragraph 41.

Agenda Item 10. Other matters

10.1 Inter-sessional work and priority issues for next meeting

65. The SSC BF-ME identified the following intersessional work and priority issues for the next meeting:
    (a) Update on Japanese biomass survey
    (b) Update on Japanese maturity data
    (c) Update on mesh size analyses for SA
    (d) Tasks and reporting of the SWG NPA&SA
    (e) Tasks and reporting of the SWG VME

10.2 Other issues

66. Canada reported that PICES has established a new Working Group that will work on ecology of seamounts. Its objectives are mainly focused on understanding the ecology and distribution of species associated with pelagic, demersal and benthic communities of seamounts.

67. The Chair reported that he recently attended an International Seabed Authority workshop on seabed mining in the northwestern Pacific as an informal representative of the NPFC.

Agenda Item 11. Recommendations to the Scientific Committee

68. The SSC BF-ME agreed to:
    (a) Continue research to evaluate the effectiveness of the mesh size regulation for SA
    (b) Establish an SWG on data-limited management tools and approaches for assessing NPA and SA stocks (SWG NPA&SA) whose tasks would include:
        i. Reviewing available data for stock assessment, examining data quality and sharing data
        ii. Formulating TORs for stock assessment for NPA and SA, and potentially for adaptive management of SA
        iii. Reviewing and recommending data-limited stock assessment methods
        iv. Deciding who (one Member / all Members / an external consultant) will conduct the stock assessments if possible
        v. Discussing plans determining stock status and potentially for rebuilding stocks
        vi. Discussing environmental factors affecting abundance and recruitment
        vii. Developing plans for holding a workshop with other RFMOs managing stocks of NPA, SA and other related species, possibly under the framework of the FAO Deep Sea Fisheries Project
        viii. Developing “Species Summary” documents for NPA and SA
    (c) Establish an SWG for assessment and scientific advice on the management of VMEs (SWG VME) whose tasks would include:

i. Updating the Members' views on a temporary measure, SAI assessment, potential conservation measures and other elements of a post-encounter measure
ii. Defining the types of data that can be used to identify VMEs
iii. Reviewing Members' available VME-related data
iv. Analyzing the potential impact of current fishing activities on known potential VME sites in the Emperor Seamount area
v. Continuing to develop standardized approaches to defining risk of SAI for all NPFC Members

(d) Continue to explore various options for analyzing trade-offs between fishing and VME protection, and discuss data availability and needs
(e) Hold a VME indicator taxa identification course in fall 2021 in cooperation with PICES

69. The SSC BF-ME recommends the following to the SC:
(a) Endorse the revised CMM 2019-05 (Annex D)
(b) Revise CMM 2019-05 to protect the two areas identified as potential VME sites in NPFC-2020-SSC BME01-WP03
(c) Endorse the revised requirements for reporting of an encounter of VME indicator taxa and the collection of supplementary information in CMM 2019-06 in accordance with paragraph 41
(d) Adopt the VME taxa identification guide for the Western North Pacific
(e) Endorse the updated 2020-2024 SSC BF-ME 5-Year Rolling Work Plan (NPFC-2020-SSC BFME01-WP01 (Rev. 1))
(f) Hold a 3-day meeting of the SSC BF-ME in 2021
(g) Hold intersessional meetings of the SWG NPA&SA and SWG VME

Agenda Item 12. Next meeting

70. The SSC BF-ME recommends holding a 3-day meeting of the SSC BF-ME in 2021 and requests the guidance of the SC and Commission for determining the date and location of the meeting.

71. The SSC BF-ME recommends holding intersessional meetings of the SWG NPA&SA and SWG VME.

Agenda Item 13. Adoption of the Report

72. The report was adopted by consensus.

Agenda Item 14. Close of the Meeting

73. The meeting closed at 13:08 on 18 November 2020, Tokyo time.

Annexes:

Annex A – Agenda

Annex B – List of documents

Annex C –List of participants

Annex D – Revised CMM 2019-05 - Conservation and Management Measure for Bottom Fisheries and Protection of Vulnerable Marine Ecosystems in the Northwestern Pacific Ocean

Please refer to the NPFC website for the complete annexes.

NPFC

6th Meeting of the Small Scientific Committee on Pacific Saury

19-23 November 2020
Virtual
Meeting Report

Agenda

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Agenda Item 2. Adoption of Agenda

Agenda Item 3. Overview of the outcomes of previous NPFC meetings
- 3.1 SSC PS05 meeting
- 3.2 SSC PSint01 virtual meeting
- 3.3 COM05 meeting and CMM 2019-08

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 2020 fishery

Agenda Item 6. Fishery-independent abundance indices
- 6.1 Review of results of abundance estimation based on 2020 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 any updates and progress
- 7.2 Review of progress on collaborative work for development of joint CPUE
- 7.3 Recommendations for future work

Agenda Item 8. Stock assessment using "provisional base models" (BSSPM)
- 8.1 Review and update of the existing specification
- 8.2 Review of BSSPM results
- 8.3 Implications to management
- 8.4 Development of recommendations to the Commission to improve conservation and management
- 8.5 Recommendations for future work

Agenda Item 9. Biological information on Pacific saury
- 9.1 Review of any updates and progress
- 9.2 Distribution and migration patterns of juvenile Pacific saury
- 9.3 Recommendations for future work

Agenda Item 10. Exploration of stock assessment models other than existing "provisional base models"
- 10.1 Review of proposals for developing new stock assessment models
- 10.2 Invention and refinement of data

10.3 Finalization of initial data set and assumptions for initial trials of conditioning of new stock assessment models
10.4 Discussion on simulation setting
10.5 Data sharing protocol for age/size/stage-structured models
10.6 Recommendations for future work

Agenda Item 11. Toward setting of biological reference points (RPs) and development of Management Strategy Evaluation (MSE)
11.1 Review of RPs report
11.2 Investigation of reasonable actions
11.3 Discussion on MSE
11.4 Recommendations for future work

Agenda Item 12. Review of the Work Plan of the SSC PS

Agenda Item 13. Other matters
13.1 Draft agenda and priority issues for next meeting
13.2 Dates of SSC PS meetings in 2021
13.3 Invited experts
13.4 Other

Agenda Item 14. Recommendations to the Scientific Committee

Agenda Item 15. Adoption of Report

Agenda Item 16. Close of the Meeting

MEETING REPORT

Agenda Item 1. Opening of the Meeting

1. The 6th Meeting of the Small Scientific Committee on Pacific Saury (SSC PS06) took place in the format of video conferencing via WebEx, and was attended by Members from Canada, China, Japan, the Republic of Korea, the Russian Federation, Chinese Taipei, the United States, and Vanuatu. Dr. Larry Jacobson participated as an invited expert. The North Pacific Anadromous Fish Commission (NPAFC) attended as an observer.

2. The meeting was opened by Dr. Toshihide Kitakado (Japan), the SSC PS Chair, who welcomed the SSC PS. The Science Manager, Dr. Aleksandr Zavolokin, outlined the procedures for the meeting. Mr. Alex Meyer was selected as rapporteur.

Agenda Item 2. Adoption of Agenda

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

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

3.1 SSC PS05 meeting

3.2 SSC PSint01 virtual meeting

4. The Chair presented the outcomes and recommendations from the SSC PS05 and SSC PSint01 meetings.

3.3 COM05 meeting and CMM 2019-08

5. The Science Manager, Dr. Aleksandr Zavolokin, presented the outcomes from the fifth Commission meeting and an overview of Conservation and Management Measure (CMM) 2019-08 For Pacific Saury.

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

6. The SSC PS recommended that the SC endorse the Terms of Reference for the SSC PS proposed at the SSC PS05 meeting (Annex D).

4.2 CPUE Standardization Protocol

7. The SSC PS recommended that the SC endorse the CPUE Standardization Protocol revised at the SSC PS05 meeting (Annex E).

4.3 Stock Assessment Protocol

8. The SSC PS reviewed the Stock Assessment Protocol and determined that no revisions are currently necessary.

Agenda Item 5. Member's fishery status including 2020 fishery

9. China presented its fisheries activities. Total catch fluctuated from 2013 to 2019. The catch in 2019 was over 50,000 tons. In 2019, there were 62 active vessels in the Convention Area. Comparing the mean weekly catch value in 2020 and that from 2015-2019, the main fishing season in 2020 has been two weeks later than previous years. The 2020 fishing season for Pacific saury had not been finished yet and the reported catch showed an increasing trend recently. China mentioned that the outbreak of COVID-19 was likely to reduce the Pacific saury fishing efforts, which may consequently affect the total catch.

10. Chinese Taipei presented its fisheries activities. Historical catch was at its highest in 2014. The catch in 2019 was 83,941 tons, the lowest since 2007. In 2020, fishing vessels began operations in fishing grounds later than in previous years. The distribution of fishing activities in 2020 has been limited in the area west of 170^{o} East and more southerly than in 2019. Nominal CPUE has been about 8 tons/day in 2020 compared to 12 tons/day in 2019 and 28 tons/day in 2018.

11. Vanuatu presented its fisheries activities. Annual catch in 2019 was 3,465 tons. Nominal CPUE in 2020 has been a historical low at 7.06 tons/day, compared to 10.76 in 2019. Fishing grounds have mainly been in the east in the early fishing season, then shifting to the west.

12. Japan presented its fisheries activities (NPFC-2020-SSC PS06-WP11). Annual catch has continued to decrease since 2008. Annual catch in 2019 was 42,790 tons, the lowest since 1950, but the fishing condition in 2020 has been even worse so far. The accumulated catch from August to October in Japan was about 13000 metric tons, about 64% of 2019 (20,300 MT). Nominal CPUE from August to October in 2020 dropped to the historical lowest at 0.86 tons/hauls, which was 64% of that in 2019 (1.38 tons/hauls). The fishing grounds in late August

and September 2020 were between 156ºE and 165º E longitude, which is farther east than those in 2019.

13. Korea presented its fisheries activities. The general trend in annual catch has been one of decline. Annual catch in 2019 was 8,375 tons, a historical low. The annual catch in 2020 is expected to be even lower. Accumulated catch by month has been historically low for every month in 2020. Nominal CPUE is expected to be a historical low in 2020. The fishing distribution in 2020 has been spread over a smaller area than in 2019.

14. Russia presented its fisheries activities (NPFC-2020-SSC PS06-WP19). The highest catch by Russian vessels was in 2007 and amounted to 109,000 tons. However, there has been a significant decrease in catch in the last 5 years. The number of fishing vessels has also significantly decreased in recent years. In 2019, catch was 2,402 tons, the lowest level since 1985.

15. The Science Manager presented Members' cumulative catch of Pacific saury in the Convention Area based on weekly catch reports provided by Members in 2020. As of 14 November, the cumulative total in 2020 is slightly more than 100,000 tons, and the Pacific saury fisheries are still ongoing.

16. The SSC PS compiled a table of Members' Pacific saury catches up to 2020, with preliminary catch statistics as of 14 November (Annex F). The SSC PS noted the decline in catch in 2019 and low catch in the 2020 fishing season.

Agenda Item 6. Fishery-independent abundance indices

6.1 Review of results of abundance estimation based on 2020 Japanese biomass survey

17. Japan explained that, due to COVID-19, it had to use a different research vessel for its 2020 biomass survey. The survey period was shorter than previous years and therefore the surveyed area was reduced to the west of 175º E. The survey was conducted over a narrower sea surface temperature (SST) range of 8-13ºC, compared to 7 or 8-17ºC in previous years. The survey was conducted over 64 stations. 1,118 fish were caught. Age-1 fish were mainly distributed west of 167º E and age-0 fish west of 175º E. The density of Pacific saury was remarkably lower in this year than the previous year (2019; a reduction of approximately 90%).

18. Japan presented a study exploring the effect of sea surface temperature in spatio-temporal modeling of Pacific saury distribution using Japanese fishery-independent survey data through the VAST model (NPFC-2020-SSC PS06-WP13). Abundance indices for age-0 and age-1 fish

were predicted through this modeling. Incorporating not only spatio-temporal variation but also SST effects on fish density resulted in a biologically plausible prediction of annual distribution patterns. Age-specific standardized abundance indices indicated similar year trends to nominal abundance indices, except for some years.

19. Japan presented the estimation of the Japanese survey biomass index of Pacific saury for 2020 using VAST model (NPFC-2020-SSC PS06-WP14). The estimated biomass index from the developed VAST model indicated similar year trends with the index from the swept-area method since 2011 and the estimate in 2020 dropped to the historical lowest since 2003.

20. Japan presented a supplementary study applying delta-GLM models to the 2020 survey data. The study showed a similar trend to the VAST model for the biomass index estimate.

21. The SSC PS expressed its appreciation to Japan for conducting the biomass survey in 2020 despite the difficult circumstances caused by COVID-19.

22. The SSC PS noted the declining trend of the fishery-independent index through 2020.

6.2 Review of plans of future biomass surveys

23. Japan reported that it is planning to conduct a biomass survey with full area coverage for 2021. In light of the probable continued impact of COVID-19, Japan will prioritize carrying out the survey for the conventional survey area, from the Japanese EEZ to 165ºW longitude. Japan suggested that it may be fruitful to conduct additional surveys in the northern and eastern sides of the conventional survey area and encouraged other Members to conduct such surveys if possible.

24. Russia explained that it has a long history of conducting research surveys in the northern side of the Japanese survey area. Russia suggested that it may be able to provide data from such surveys.

25. Canada explained that it conducts pelagic surface trawls in the northeastern Pacific Ocean and may be able to provide data from such surveys.

26. Science Manager reported that NPFC has been discussing plans to participate in NPAFC's pan-Pacific survey as part of the International Year of the Salmon initiative, which may provide useful information on the distribution of Pacific saury.

27. The SSC PS encouraged Members to conduct research surveys or share data from existing research surveys that could complement the Japanese biomass survey and provide useful information for understanding the abundance, spatio-temporal distribution, and migration patterns of Pacific saury.

6.3 Recommendations for future work

28. Recommendations for future work are given in paragraph 27 and the SSC PS Work Plan.

Agenda Item 7. Fishery-dependent abundance indices

7.1 Review of any updates and progress

29. China presented a standardization of CPUE data for Pacific saury from 2013 to 2019 using a generalized linear model (GLM) and a generalized additive model (GAM) on the assumption of lognormal distribution of errors (NPFC-2020-SSC PS06-WP07). China recommended using the standardized CPUE derived from GAM as the input for the stock assessment.

30. The SSC PS agreed to use China's standardized CPUE derived from GAM as the input for the stock assessment.

31. Japan presented a standardization of CPUE data for Pacific saury from 1994 to 2019 using GLM (NPFC-2020-SSC PS06-WP12). Japan recommended using the standardized CPUE derived from GLM as input for the stock assessment.

32. The SSC PS agreed to use Japan's standardized CPUE derived from GLM as input for the stock assessment.

33. Korea presented a standardization of CPUE data for Pacific saury from 2001 to 2019 using GLM (NPFC- 2020-SSC PS06-WP03). Korea recommended using the standardized CPUE derived from GLM as input for the stock assessment.

34. The SSC PS agreed to use Korea's standardized CPUE derived from GLM as the input for the stock assessment.

35. Russia presented a standardization of CPUE data for Pacific saury from 1994 to 2019 using GLM (NPFC-2020-SSC PS06-WP04). Russia recommended using the standardized CPUE derived from GLM as input for the stock assessment.

36. The SSC PS agreed to use Russia's standardized CPUE derived from GLM as the input for the

stock assessment.

37. Chinese Taipei presented a standardization of CPUE data for Pacific saury from 2001 to 2019 using GLM and GAM on the assumption of lognormal distribution of errors (NPFC-2020-SSC PS06-WP05). Chinese Taipei recommended using the standardized CPUE derived from GAM as input for the stock assessment.

38. The SSC PS agreed to use Chinese Taipei's standardized CPUE derived from GAM as the input for the stock assessment.

39. The finalized table of abundance indices is attached to the report as Annex G.

40. The Chair reminded Members to follow the most up-to-date CPUE standardization protocol when conducting future CPUE standardizations.

41. The SSC PS discussed the impact of COVID-19 on Members' fishing operations in 2020. The SSC PS noted that the start of some Members' fishing operations was slightly delayed due to COVID-19, which might have contributed partially to their low catch through early November.

42. The SSC PS agreed that updated CPUE standardization up to 2020 will be submitted by Members to the next SSC PS meeting.

7.2 Review of progress on collaborative work for development of joint CPUE

43. Chinese Taipei presented research on the standardization of joint CPUE data for Pacific saury from 2001 to 2019 using conventional and geostatistical approaches (NPFC-2020-SSC PS06-WP06). The results of relative density from VAST and GLM showed similar trends but VAST performs better than GLM in terms of higher R^2 value, fewer residuals departing from zero, and smaller residual variance. Correlation analysis indicated that the joint CPUE index could resolve the inconsistencies among Members' individual indices. Chinese Taipei recommended using VAST for deriving the standardized joint index as improved input data in the stock assessment and that its analysis be considered as a standard tool in the CPUE standardization.

44. The SSC PS recognized the value of the work done by Chinese Taipei and the contributions of all collaborating Members. The SSC PS agreed to use the standardized joint CPUE index derived from VAST as input for sensitivity analyses to supplement the stock assessment (Annex G).

45. The SSC PS agreed to update the shared data for a single joint CPUE index for future stock assessment by a date to be decided intersessionally depending on the meeting schedule for 2021, which is to be set by the Commission in February 2021.

46. The invited expert advised the SSC PS that procedures for calculating joint CPUE using the VAST or other model are suitable for consideration as data used in stock assessment models.

7.3 Recommendations for future work

47. Recommendations for future work are given in paragraphs 40, 42, 44, 45, 46 and the SSC PS Work Plan.

Agenda Item 8. Stock assessment using "provisional base models" (BSSPM)

8.1 Review and update of the existing specification

48. The SSC PS reviewed the updated BSSPM specification that was agreed on at the SSC PS05 meeting.

8.2 Review of BSSPM results

49. China presented its results of Pacific saury stock assessment (NPFC-2020-SSC PS06-WP08). The estimated median B_{2019} from the two base case scenarios was 596,100 and 2,311,000 metric tons, respectively. The median B_{2019}/B_{MSY} and F_{2018}/F_{MSY} over the two base case scenarios were 0.69 and 1.13, respectively. The probability of the population being in the green Kobe quadrant in 2018 was estimated to be greater than 32%.

50. Japan presented an updated stock assessment for Pacific saury in the North Pacific Ocean using BSSPM (NPFC-2020-SSC PS06-WP10). The 2019 median depletion level was only 26% of the carrying capacity, declining from 33.9% in 2018. B-ratio (B/B_{MSY}) in 2019 and F-ratio (F/F_{MSY}) in 2018 were 0.574 and 1.382, respectively. The probability of the population being in the green Kobe quadrant in 2018 was estimated to be less than 10%, while that of being in the red Kobe quadrant was assessed to be greater than 80%, which indicated that the population was overfished and subject to overfishing in 2018. For population outlook, population dynamics were projected for some scenarios and showed that continuation of the current level of catch may cause a further decline in the population size. However, as shown in the retrospective/hindcasting analyses, the estimation for the recent population size tended to depend on the recent data set. Therefore, for providing better management advice, Japan strongly suggested that the analysis should be updated using the most recent abundance indices (including 2020 fishery-independent abundance index and 2019 CPUE indices).

51. Chinese Taipei presented an updated stock assessment for Pacific saury in the North Pacific Ocean using BSSPM (NPFC-2020-SSC PS06-WP17). The models estimate an increase in biomass in 2018 (median B_{2018}/B_{MSY} = 0.87, 80 percentile range 0.61-1.30) followed by a slight decrease in 2019 (median B_{2019}/B_{MSY} = 0.70, 80 percentile range 0.48-1.05). A steady increase in fishing mortality is estimated to have occurred from 2004 to 2018 and the recent average fishing mortality is estimated to be above F_{MSY} (median $F_{2016-2018}/F_{MSY}$ = 1.26, 80 percentile range 0.65-2.35).

52. The SSC PS agreed that Members will share the code from each other's stock assessment models by the end of November 2020 and finish the check by the end of December 2020. In future, the code and data files should be shared when assessment reports are submitted for greater transparency and reproducibility.

8.3 Advice on the stock status

53. See section "Summary of stock assessment results" of the stock assessment report for the condition of the stock (Annex H).

8.4 Development of recommendations to the Commission to improve conservation and management

54. The SSC PS recognized that the current stock assessment uses a CPUE series of up to 2018, thereby producing assessment results with a 3-year time lag between the data and the report to the Commission meeting planned to be held in early 2021. Noting that the CPUE data for 2019 have become available and recognizing the importance of using all available scientific information for the stock assessment, subject to approval from Members' governments, it is suggested to hold a special session for conducting an updated Pacific saury stock assessment in January 2021 using the 2019 CPUE data after cross-checking the computer code of Members' stock assessment analyses. This would reduce the time lag between data availability and report to the Commission and also enhance the transparency and reproducibility of the analyses.

55. The SSC PS noted that Vanuatu is a small island developing state which still needs to develop its fishery, and that the Vanuatu urges the SSC PS to consider its aspiration when making recommendations to the Commission.

8.5 Recommendations for future work

56. Recommendations for future work are given in paragraph 52 and the SSC PS Work Plan.

Agenda Item 9. Biological information on Pacific saury

9.1 Review of any updates and progress

9.2 Distribution and migration patterns of juvenile Pacific saury

57. Japan presented a description of the longitudinal distribution of Pacific saury juveniles (NPFC-2020-SSC PS07-WP15). Japan calculated cumulative percentages of age-0 abundance from west to east for all years from 2003 to 2019. Two major patterns in annual longitudinal distributions were observed. Age-0 fish showed a multi-peak longitudinal distribution pattern in some years. On the contrary, most age-0 fish were found only in the waters east of 180°E longitude in the rest of those years. The present western boundary at 170°E longitude is highly likely to fail to protect a large part of age-0 fish under the situations in some years. In light of the precautionary approach, Japan proposed to expand the area by setting the western boundary at 160°E longitude to prevent exposure to fishing pressure for age-0 fish not only in the eastern part but also the western part of distributions.

58. Chinese Taipei noted that age composition in scientific surveys may differ from age composition in fisheries due to the selectivity of the sampling/fishing gears. The Chinese Taipei research results for the age composition of catch in 2017 showed that on average less than 20% saury was age-0 fish in the catch from May to July, in which the fishing locations were mainly east of 160°E.

59. The SSC PS encouraged Members to conduct further analyses, including refining the method of calculating annual longitudinal distributions.

60. The SSC PS recognized the need to engage in further research and discussions to further refine the definition of juvenile Pacific saury described in paragraph 20 of the SSC PS04 report.

9.3 Recommendations for future work

61. Recommendations for future work are given in paragraphs 59, 60 and the SSC PS Work Plan.

Agenda Item 10. Exploration of stock assessment models other than existing "provisional base models"

10.1 Review of proposals for developing new stock assessment models

62. China presented a trial study of stock assessment for North Pacific Ocean Pacific saury using Age-Structured Assessment Program (ASAP; NPFC-2020-SSC PS06-WP09). The trial was successful and the ASAP model may be useful in future stock assessments for Pacific saury, particularly if non-linear CPUE models can be accommodated.

63. The SSC PS requested the NPFC Secretariat to inquire with the developer of the model about incorporating hyperstability parameters into ASAP.

64. The SSC PS encouraged Members to conduct research towards the development and evaluation of age/size-structured production models.

10.2 Invention and refinement of data

65. Japan presented its age-determination and age-length keys for Pacific saury, from 2000 to 2018 (NPFC-2020-SSC PS06-WP16).

66. Chinese Taipei presented body length distributions and age compositions of the Pacific saury caught by the Chinese Taipei saury fishery in 2007-2018 (NPFC-2020-SSC PS06-WP18).

10.3 Finalization of initial data set and assumptions for initial trials of conditioning new stock assessment models

10.4 Discussion on simulation setting

10.5 Data sharing protocol for age/size/stage-structured models

67. The SSC agreed to hold further discussions intersessionally through a Small Working Group (SWG) regarding age-determination techniques and the development of a standardized approach to determining, collecting and sharing age and size data. The SWG will be co-led by Dr. Satoshi Suyama (Japan) and Dr. Wen-Bin Huang (Chinese Taipei). The SWG will provide an update to the next SSC PS meeting.

68. The SSC PS agreed to hold further discussions on the specifications for age-structured models at the next SSC PS meeting.

10.6 Recommendations for future work

69. Recommendations for future work are given in paragraphs 64, 67, 68 and the SSC PS Work Plan.

Agenda Item 11. Toward setting of biological reference points (RPs) and development of Management Strategy Evaluation (MSE)

11.1 Review of RPs report

11.2 Investigation of reasonable actions

11.3 Discussion on MSE

11.4 Recommendations for future work

70. The SSC PS agreed to continue to advance discussions and work toward the setting of biological RPs and development of the timeframe for the MSE process as described in the SSC PS Work Plan.

71. The SSC-PS agreed to evaluate the performance of the $B_{current}$ * F_{MSY} approach used to calculate the 2020 TAC through historical TAC calculations in comparison to observed catches and stock trends, by simulation and by any other means available.

Agenda Item 12. Review of the Work Plan of the SSC PS

72. The SSC PS reviewed the 2020-2024 SSC PS 5-Year Rolling Work Plan and updated it as detailed in NPFC-2020-SSC PS06-WP01 (Rev. 1).

Agenda Item 13. Other matters

13.1 Draft agenda and priority issues for next meeting

73. The Chair will develop the agenda and priorities for the next meeting based on the SSC PS Work Plan.

13.2 Date of SSC PS meetings in 2021

74. The SSC PS suggested to hold two four-day meetings in 2021, the first in October (preparation of data (fisheries data up to 2020, survey index up to 2021, nominal CPUE data up to September 2021), model specifications, and stock assessment output format) and the second in December (stock assessment).

13.3 Invited experts

75. The SSC PS expressed its appreciation for the continued valuable contributions of the invited expert, Dr. Larry Jacobson.

76. As Dr. Jacobson will no longer be able to participate in the meetings of the SSC PS, the SSC PS recommended that an expert with similar qualifications and experience be invited to the next SSC PS meetings.

13.4 Other matters

77. No other matters were discussed.

Agenda Item 14. Recommendations to the Scientific Committee

78. The SSC PS06 recommends the following to the SC:
    (a) Endorse the Terms of Reference for the SSC PS proposed at the SSC PS05 meeting (Annex D).
    (b) Endorse the CPUE Standardization Protocol revised at the SSC PS05 meeting (Annex E).
    (c) Endorse the stock assessment report (Annex H).

(d) Further measures should be taken effectively to avoid the decreasing trend identified by:
    (i) Stock assessments conducted by China, Japan and Chinese Taipei (Annex H)
    (ii) Members' and joint standardized CPUEs up to 2019 (Annex G)
    (iii) Japan's fishery-independent biomass index up to 2020 (Annex I)
    (iv) Members' catch up to 2019 and preliminary catch as of 14 November 2020 (Annex F)
    (v) Members' preliminary estimates of nominal CPUEs up to 2020
(e) Endorse the SSC PS Work Plan (NPFC-2020-SSC PS06-WP01 (Rev. 1)).
(f) Allocate funds for the participation of an invited expert in the next SSC PS meetings.
(g) Hold two four-day meetings in 2021, in October and December.

Agenda Item 15. Adoption of the Report

79. The SSC PS06 Report was adopted by consensus.

Agenda Item 16. Close of the Meeting

80. The meeting closed at 16:37 on 23 November 2020, Tokyo time.

Annexes:

Annex A – Agenda
Annex B – List of Documents
Annex C – List of Participants
Annex D – Terms of Reference for the SSC PS
Annex E – CPUE Standardization Protocol for Pacific Saury
Annex F – Members' Pacific saury catches up to 2020, with preliminary catch statistics as of 14 November 2020
Annex G – Updated total catch, CPUE standardizations and survey biomass indices for the stock assessment of Pacific saury
Annex H – Stock Assessment Report for Pacific Saury
Annex I – Japan's fishery-independent biomass index from 2003 to 2020

Please refer to the NPFC website for the complete annexes.

NPFC

5th Scientific Committee Meeting

24-27 November 2020
Virtual
Meeting Report

Agenda

Agenda Item 1. Opening of the Meeting

Agenda Item 2. Adoption of Agenda

Agenda Item 3. Meeting arrangements

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

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- 4.2 SSC on Pacific Saury
- 4.3 Technical Working Group on Chub Mackerel Stock Assessment
  - 4.3.1 Management Strategy Evaluation (MSE) for chub mackerel
  - 4.3.2 EU application for accession to NPFC
  - 4.3.3 Selection of TWG CMSA Chair and Vice-Chair

Agenda Item 5. Priority species

- 5.1 Summary of progress on other four priority species (Neon flying squid, Japanese flying squid, Japanese Sardine, Spotted Mackerel)
- 5.2 Identification of data needs and data gaps and discussion on an observer program and other ways to fill data gaps
- 5.3 Establishment of a new SSC on these four priority species
- 5.4 Development of summary sheets for all priority species

Agenda Item 6. Progress in data collection, management and security

- 6.1 Information management and security regulations
  - 6.1.1 Review of the Interim Regulations for Management of Scientific Data and Information
  - 6.1.2 NPFC Data Sharing and Data Security Protocols
  - 6.1.3 NPFC Data-Sharing and Data-Security Protocols for Vessel Monitoring System (VMS) Data
- 6.2 NPFC data management system (DMS)

Agenda Item 7. Scientific projects for 2021 and 2022

- 7.1 Ongoing/planned projects
- 7.2 New projects

7.3 Review and prioritization of projects

Agenda Item 8. Cooperation with other organizations

8.1 Reports on the joint NPFC-PICES activities since the SC04 meeting, including a report from PICES Secretariat

8.2 Joint PICES-ICES WGSPF, PICES topic session on small pelagic fish (SPF) and PICES-ICES SPF symposium

8.3 Joint NPFC-PICES workshop/course on VME indicator identification

8.4 SC representation at PICES meetings

8.5 Memorandum of Cooperation between NPFC and NPAFC

8.5.1 Work plan to implement NPFC/NPAFC Memorandum of Cooperation

8.5.2 NPAFC's multinational survey in the North Pacific Ocean

8.6 UN Decade of Ocean Science

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

8.8 Cooperation with other organizations

Agenda Item 9. 2020-2024 Research Plan and Work Plan

9.1 Five-year Research Plan

9.2 Five-year Work Plan

Agenda Item 10. Other matters

10.1 Review of the Scientific Committee Terms of Reference (TOR)

10.2 Coordination between SC and TCC

10.3 Other issues

Agenda Item 11. Advice and recommendations to the Commission

Agenda Item 12. Next meeting

Agenda Item 13. Press release

Agenda Item 14. Adoption of the Report

Agenda Item 15. Close of the Meeting

MEETING REPORT

Agenda Item 1. Opening of the meeting

1. The 5th Meeting of the Scientific Committee (SC) took place in the format of video conferencing via WebEx, and was attended by Members from Canada, China, Japan, the Republic of Korea, the Russian Federation, Chinese Taipei, the United States of America and Vanuatu. Dr. Tom Carruthers attended the meeting as an invited expert. The Deep-Sea Conservation Coalition (DSCC), the European Union, 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. The meeting was opened by Dr. Janelle Curtis (Canada), who served as the SC Chair.

2. The Executive Secretary, Dr. Dae Yeon Moon, welcomed the participants to the meeting. He expressed his gratitude to Vanuatu, who had originally offered to host the meetings of the SC and its three subsidiary bodies, before the outbreak of the COVID-19 pandemic, and hoped that the participants would be able to meet in person in Vanuatu at some point in the future. Lastly, Dr. Moon expressed his hope for a successful and productive meeting.

3. Mr. Alex Meyer was selected as rapporteur.

Agenda Item 2. Adoption of Agenda

4. The SC noted the intention of Dr. Oleg Katugin (Russia) to resign from his position as the Chair of the Technical Working Group on Chub Mackerel Stock Assessment (TWG CMSA) and agreed to add a new agenda item, 4.3.3, “Selection of TWG CMSA Chair and Vice-Chair.”

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

Agenda Item 3. Meeting arrangements

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

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

4.1 SSC on Bottom Fish and Marine Ecosystems

7. 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 1st SSC BF-ME meeting (NPFC-2020-SSC BFME01-Final Report).

8. The SC reviewed the recommendations of the SSC BF-ME and endorsed the following recommendations:
   (a) Endorse the revised CMM 2019-05 (Annex D)
   (b) Revise CMM 2019-05 to protect the two areas identified as potential VME sites in NPFC-2020-SSC BFME01-WP03
   (c) Endorse the revised requirements for reporting of an encounter of VME indicator taxa and the collection of supplementary information in CMM 2019-06 in accordance with paragraph 41 of the SSC BF-ME01 report
   (d) Adopt the VME taxa identification guide for the Western North Pacific: https://www.npfc.int/system/files/2020-09/NPFC%20VME%20taxa%20ID%20guide.pdf
   (e) Endorse the updated 2020-2024 SSC BF-ME 5-Year Rolling Work Plan (NPFC-2020-SSC BFME01-WP01 (Rev. 1))
   (f) Hold a 3-day meeting of the SSC BF-ME in 2021
   (g) Hold intersessional meetings of the SWG NPA&SA and SWG VME

4.2 SSC on Pacific Saury

9. The Chair of the SSC on Pacific Saury (SSC PS), Dr. Toshihide Kitakado (Japan), summarized the outcomes and recommendations of the 5th and 6th SSC PS meetings (NPFC-2019-SSC PS05-Final Report, NPFC-2020-SSC PS06-Final Report).

10. The SC reviewed the recommendations of the SSC PS and endorsed the following recommendations:
    (a) Endorse the Terms of Reference for the SSC PS proposed at the SSC PS05 meeting.
    (b) Endorse the CPUE Standardization Protocol revised at the SSC PS05 meeting.
    (c) Endorse the stock assessment report produced during the SSC PS06 meeting (Annex E).
    (d) Further measures should be taken to effectively avoid the decreasing trend identified by:

(i) Stock assessment conducted by China, Japan and Chinese Taipei (Annex E)
(ii) Members' and joint standardized CPUEs up to 2019 (Annex F)
(iii) Japan's fishery-independent biomass index up to 2020 (Annex G)
(iv) Members' catch up to 2019 and preliminary 2020 catch as of 14 November 2020 (Annex H)
(v) Members' preliminary estimates of nominal CPUEs up to 2020

(e) Endorse the SSC PS 5-year rolling Work Plan (NPFC-2020-SSC PS06-WP01 (Rev. 1)).
(f) Allocate funds for the participation of an invited expert in the next SSC PS meetings.
(g) Hold two four-day SSC PS meetings in 2021, in October and December.

11. The SC noted the status of the Pacific saury stock and the stock assessment results based on fishery-dependent indices up to 2018 and fishery-independent index up to 2019 as follows:
    (a) All six base case model runs indicate that recent Pacific saury stock size in 2019 was less than Bmsy.
    (b) A majority of base case model comparisons indicate that recent harvest rates for Pacific saury were higher than Fmsy.
    (c) Additional data for 2019-2020 indicate Pacific saury biomass continued to decline after 2019 to a relatively low level in 2020. In particular, CPUE and catch data for 2019, preliminary fishery data through mid-November 2020 and Japanese survey data for 2020 were presented and discussed but could not be included in BSSPM analysis due to time constraints and concerns about the plausibility of the very low survey biomass estimate.
    (d) The current stock assessment uses a CPUE series of up to 2018, thereby producing assessment results with a 3-year time lag between the data and the report to the Commission meeting planned to be held in early 2021.
    (e) Noting that the CPUE data for 2019 have become available and recognizing the importance of using all available scientific information for the stock assessment, it is suggested, subject to approval from Members' governments, to hold a special meeting for conducting an updated Pacific saury stock assessment in January 2021 using the 2019 CPUE data after cross-checking the computer code of Members' stock assessment analyses. This would reduce the time lag between data availability and report to the Commission and also enhance the transparency and reproducibility of the analyses.

12. Russia stated that, in view of the existing negative trend in the Pacific saury stock abundance, and taking into account the emerging issues during discussions on the Pacific saury stock assessment, Russia will consider, in 2021, the possibility to collect, using national observers, additional information on the Pacific saury distribution and biology, which may provide deeper understanding of the Pacific saury stock fluctuations.

13. The SC noted that Vanuatu is a small island developing state which is still developing its fishery, and that Vanuatu urges the SC to consider its aspirations when making recommendations to the Commission.

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

14. The TWG CMSA Chair, Dr. Oleg Katugin, summarized the outcomes and recommendations of the 3rd TWG CMSA meeting (NPFC-2020-TWG CMSA03-Final Report).

15. The SC expressed its gratitude to Dr. Katugin for his thoughtful guidance and influence within the NPFC, in particular his leadership during the past three years as the Chair of the TWG CMSA.

16. The SC reviewed the recommendations of the TWG CMSA and endorsed the following recommendations:
    (a) The TWG CMSA recommended hiring an external expert to continue the work to develop an operating model and simulation test chub mackerel stock assessment models using PopSim.
    (b) The TWG CMSA recommended the adoption of the final report on PopSim-A operating models for chub mackerel.
    (c) The TWG CMSA recommended the 5-year rolling Work Plan of the TWG CMSA (NPFC-2020-TWG CMSA03-WP01 (Rev. 1)).
    (d) The TWG CMSA recommended that reporting requirements be changed such that Convention Area chub mackerel fisheries be required to report bycatch of pelagic species (in weight or numbers, by species).
    (e) The TWG CMSA recommended holding meetings in spring 2021 and winter 2021/2022, with the specific dates and meeting format to be determined intersessionally via correspondence.
    (f) The TWG CMSA requested the SC to elect a new Chair and a Vice-Chair.

17. The SC noted that:
    (a) The TWG CMSA will hold intersessional web meetings of the SWG OM to assess progress on its development.
    (b) Members will communicate their views to the Secretariat on the establishment of an observer program for chub mackerel.

4.3.1 Management Strategy Evaluation (MSE) for chub mackerel

18. The SC reviewed the recommendations of the TWG CMSA regarding MSE for chub mackerel and endorsed the following recommendations:
    (a) The TWG CMSA recommended to request the Commission to give guidance on how to move forward, including setting management objectives for the development of the MSE.
    (b) The TWG CMSA recommended hiring an external expert for the development of the MSE.

19. The SC recommended that the Commission itself also hire an external expert to support the Commission with the development of the MSE process including setting objectives, stages and timelines and overseeing the implementation of the framework.

4.3.2 EU application for accession to NPFC

20. The SC noted that the EU had updated its Fisheries Operation Plan in accordance with the requests of TWG CMSA03.

21. The SC requested the EU to further update its Fisheries Operation Plan to revise the description of the Japanese domestic stock assessment for chub mackerel, specifically the section on future projections.

22. The SC noted that the EU's Fisheries Operation Plan included plans to fish not only for chub mackerel but also other NPFC priority species. The SC noted that the current CMM for chub mackerel, CMM 2019-07, as well as CMMs for most NPFC priority species, are effort-based rather than catch-based, and that the EU's accession to the NPFC could result in increased fishing effort for these species. The SC suggested that catch-based measures may be more effective for ensuring the long-term sustainability of chub mackerel and other priority species, but recognized that it had not made enough progress in its stock assessment work to provide advice on such measures.

23. The SC concluded that it currently does not have enough information to determine how a potential expansion of fishing effort or catch arising from the EU's accession to the NPFC would affect the long-term sustainability of chub mackerel and other NPFC priority species.

4.3.3 Selection of TWG CMSA Chair and Vice-Chair

24. The SC selected Dr. Vladimir Kulik (Russia) to serve as the new TWG CMSA Chair and Dr. Kazuhiro Oshima (Japan) to serve as the TWG CMSA Vice-Chair.

Agenda Item 5. Priority species

5.1 Summary of progress on the other four priority species (Neon flying squid, Japanese flying squid,

Japanese Sardine, Spotted Mackerel)

25. No updates were provided.

5.2 Identification of data needs and data gaps and discussion on an observer program and other ways to fill data gaps

26. Ms. Raiana McKinney (Pew) outlined the key elements for the NPFC to consider when developing an electronic monitoring (EM) program (NPFC-2020-SC05-OP03). These are stakeholder engagement, outreach and communication; program objectives and coverage levels; program structure; standards for data collection, transmission, and storage; and data review and privacy. Pew recommended that the NPFC support and prioritize the continued development of a regional observer program, and include supporting language to develop minimum standards for the implementation of EM and a work plan for making progress.

27. The SC noted the potential value of an EM system, while recognizing the need to conduct further research and reviews to understand the potential capabilities of an EM system, the potential scientific need for it, the feasibility of its application, and other relevant questions.

28. The SC requested that its subsidiary bodies provide advice to the SC regarding the types of data that would be relevant to their work and could be collected by an EM system or an observer program.

5.3 Establishment of a new SSC on these four priority species

29. The Science Manager presented a partial list of participants for small working groups (SWG) for working towards stock assessment of priority species not addressed by SSC BF-ME, SSC PS, or TWG CMSA (NPFC-2020-SC05-IP01).

30. The SC established four SWGs for the priority species: SWG on Neon Flying Squid (SWG NFS) led by Dr. Luoliang Xu (China), SWG on Japanese Flying Squid (SWG JFS) led by Ms. Kari Fenske (USA), SWG on Japanese Sardine (SWG JS) led by Dr. Chris Rooper (Canada), and SWG on Spotted Mackerel (SWG SM) led by Dr. Shota Nishijima (Japan). Members reviewed the list of participants for the SWGs and agreed to complete it through correspondence. The SC requested that the SWGs compile information on the aforementioned priority species intersessionally and report to the next SC meeting. The SC agreed to revisit the issues of the establishment of a new SSC for other priority species at its next meeting.

5.4 Development of summary sheets for all priority species

31. The United States presented a proposed template for a series of "species summary" documents

using North Pacific armorhead as an example (NPFC-2020-SSC BFME01-WP02). Such documents would provide a concise summary of information on the NPFC priority species, identify potential data gaps, and track progress towards establishing management targets or limits to determine stock status.

32. The SC reviewed the proposed template and agreed to develop it further, making the following suggestions:
    (a) Include information on biological characteristics and behavior, if needed
    (b) Divide the species summary into two components: A species profile and a data report for that species

33. The SC requested that the United States, the Chairs of the SC subsidiary bodies and the leads of the SWGs for neon flying squid, Japanese flying squid, Japanese sardine, and spotted mackerel use the template to prepare summaries for those species and, in doing so, identify ways to further improve the template.

Agenda Item 6. Progress in data collection, management and security

6.1 Information management and security regulations

6.1.1 Review of the Interim Regulations for Management of Scientific Data and Information

34. The SC reviewed the Interim Regulations for Management of Scientific Data and Information. The SC recommended that the Commission endorse them as formal regulations ("Regulations for Management of Scientific Data and Information") of the SC and its subsidiary bodies. The SC requested that the Technical and Compliance Committee (TCC) consider the inclusion of the regulations as an annex in the NPFC Data Sharing and Data Security Protocols that the TCC is developing as an overarching data policy for the Commission.

6.1.2 NPFC Data Sharing and Data Security Protocols

6.1.3 NPFC Data-Sharing and Data-Security Protocols for Vessel Monitoring System (VMS) Data
Information management and security regulations

35. The Compliance Manager, Mr. Peter Flewwelling, reported on the ongoing work to draft the NPFC Data Sharing and Data Security Protocol (NPFC-2020-SC05-WP06) and the NPFC Data-Sharing and Data-Security Protocol for Vessel Monitoring System (VMS) Data (NPFC-2020-SC05-WP07), highlighting the sections that were relevant to the SC.

36. The SC noted that VMS data may be useful for scientific analyses and agreed with the proposed definition of "Scientific purposes" which may include estimating distribution of fishing effort for use in the Commission's research activities; planning for and implementing tagging

programs; modelling fishing effort for use in fisheries management activities, including management strategy evaluation (MSE); estimating abundance indices or undertaking stock assessments; validating logbook data; and, any other scientific purposes agreed to by the Commission.

6.2 NPFC data management system (DMS)

37. The Data Coordinator, Mr. Mervin Ogawa, reported on the progress in the development of the SC-related data management system (NPFC-2020-SC05-WP08). Quick links have been added to the front page of the NPFC website for easier access to pages that Members need to visit regularly, such as significant dates/events, Pacific Saury Weekly Report, collaboration, and e-annual reports. In addition, the NPFC GIS Map has been updated to include Pacific Saury Catch and Effort data, including sea surface temperature per grid from 1994 to 2018. The Data Coordinator informed the participants that from 2021 Members are requested to submit their annual reports through the e-annual report system on the NPFC website.

Agenda Item 7. Scientific projects for 2021 and 2022

7.1 Ongoing/planned projects

7.2 New projects

7.3 Review and prioritization of projects

38. The Science Manager presented a draft list of scientific projects that were discussed during the meetings of the SC and its subsidiary bodies.

39. The SC reviewed and revised the list of proposed scientific projects and endorsed it for consideration by the Commission (Annex I).

Agenda Item 8. Cooperation with other organizations

40. The Science Manager presented a compiled list of cooperation opportunities and requests from other organizations, for consideration by the SC (NPFC-2020-SC05-IP02).

8.1 Reports on the joint NPFC-PICES activities since the SC04 meeting, including a report from PICES Secretariat

41. The Executive Secretary of PICES, Dr. Sonia Batten, reported on recent and upcoming PICES activities of relevance to the NPFC:
    (a) Two joint workshops were held at the PICES-2019 Annual Meeting (PICES-NPFC: influence of the environment on Pacific saury; PICES-NPAFC-NPFC: developing a collaborative, integrated ecosystem survey program to determine climate/ocean mechanisms affecting the productivity and distribution of salmon and associated pelagic

fishes across the North Pacific Ocean).

(b) At the PICES-2020 virtual Annual Meeting, a virtual workshop on research priorities for understanding the population dynamics of small pelagic fish in the North Pacific and a virtual theme session on implementing a collaborative, integrated ecosystem high seas survey program to determine climate/ocean mechanisms affecting the productivity and distribution of salmon and associated pelagic fishes across the North Pacific Ocean were held.

(c) Small Pelagic Fish: New Frontiers in Science for Sustainable Management, a joint PICES-ICES SPF symposium, is planned to be held in Lisbon, Portugal, from 21 to 25 February 2022, and PICES has made a formal request to NPFC for support for the symposium.

(d) PICES has approved the establishment of a new Working Group on Ecology of Seamounts, which should offer opportunities for collaboration between PICES and NPFC.

(e) An NPFC-PICES co-sponsored course on VME indicator taxa identification is planned to be held in fall 2021, for which PICES has decided to provide 15,000 US dollars as financial support.

42. The SC considered the invitation from PICES to provide support for PICES-ICES small pelagic fish (SPF) symposium (NPFC-2020-SC05-OP04) and recommended that the Commission provide financial support of 15,000 US dollars for the symposium, as well as travel support for three members of the SC or its subsidiary bodies to attend the symposium.

8.2 Joint PICES-ICES WGSPF, PICES topic session on small pelagic fish and PICES-ICES SPF symposium

43. Dr. Toshihide Kitakado provided an update on the work of the Joint ICES/PICES WGSPF, outlining the WGSPF's Terms of Reference and the activities of its task forces. Two NPFC representatives, Dr. Toshihide Kitakado and Dr. Oleg Katugin, have been designated as the NPFC's representatives to the WGSPF.

44. Dr. Toshihide Kitakado reported that he has been designated as NPFC representative to serve on the Scientific Steering Committee of the PICES-ICES SPF symposium, Small Pelagic Fish: New Frontiers in Science for Sustainable Management.

8.3 Joint NPFC-PICES workshop/course on VME indicator identification

45. Russia provided an update on the proposed joint NPFC-PICES course on VME indicator taxa identification. Russia reiterated its intention to host the course but explained that, due to the COVID-19 pandemic, there are uncertainties about its ability to do so. Russia hoped to be able to provide an update to Members in early 2021.

46. The Science Manager informed the SC that updated details about the course can be found in NPFC-2020-SSC BFME01-IP02 (Rev. 1).

8.4 SC representation at PICES meetings

47. The SC recommended that the Commission financially support the travel of two members of the SC or its subsidiary bodies to participate in the PICES Annual Meetings in 2021, if financial support is necessary.

8.5 Memorandum of Cooperation between NPFC and NPAFC

8.5.1 Work plan to implement NPFC/NPAFC Memorandum of Cooperation

48. The Science Manager presented the draft Work plan to implement NPAFC/NPFC Memorandum of Cooperation, 2021-2025 (NPFC-2020-SC05-WP04) for the consideration of the SC.

49. The SC reviewed the work plan and did not propose any revisions.

8.5.2 NPAFC's multinational survey in the North Pacific Ocean

50. The Executive Director of the NPAFC, Dr. Vladimir Radchenko, provided an update on the NPAFC's multinational survey in the North Pacific Ocean (NPFC-2020-SC05-OP06). NPAFC is planning to conduct a comprehensive pan-Pacific survey of pelagic ecosystems to estimate abundance, distribution, migration, growth, fitness and survival of Pacific salmon and ecologically related species. The NPAFC invites the NPFC to provide financial support for chartering a research vessel, engage NPFC scientists in expedition planning, and consider a joint NPAFC/NPFC/PICES/ICES proposal for the UN Decade of Ocean Science.

51. The SC recognized the importance of the NPAFC's multinational survey and the scientific knowledge it will generate, particularly data that would provide greater insight into the distribution and migration of NPFC's six pelagic priority species, all of which have been reported as bycatch in historical salmon research surveys in the planned survey area. The SC recommended that the Commission provide financial support of 10,000 US dollars for the survey and encouraged Member scientists to collaborate with the survey. Furthermore, the SC requested the Finance and Administration Committee (FAC) to consider providing further financial support for the survey, in light of the great scientific value of the project. The SC requested the Secretariat to work with the NPAFC to prepare further detailed information about the planned survey to facilitate the discussions of the FAC.

8.6 UN Decade of Ocean Science

52. Dr. Sonia Batten reported on the ongoing work to develop a scientific program for the UN Decade of Ocean Science for Sustainable Development, in collaboration with partner organizations.

53. The SC looked forward to hearing more about PICES' participation in the UN Decade of Ocean Science and how the NPFC may be able to cooperate.

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

54. Mr. Aureliano Gentile (FAO) presented a proposal for NPFC's participation in the FIRMS Partnership (NPFC-2020-SC05-OP01). FIRMS is aimed at facilitating access to information on the status and trends of marine resources and fisheries to develop effective fisheries policies and management plans. The NPFC is invited to join the FIRMS Partnership, under either a Partnership Arrangement or a Collaborative Arrangement.

55. The SC recognized the value of FIRMS and the overlap between the goals of the NPFC and that of FIRMS. However, as the NPFC is in the process of developing scientific knowledge, the SC agreed to continue to learn more about FIRMS and reconsider whether to participate in the FIRMS Partnership at the next SC meeting.

8.8 Cooperation with other organizations

56. Dr. William Emerson (FAO) provided an update on Areas Beyond National Jurisdiction (ABNJ) Deep Seas Fisheries Project (NPFC-2020-SC05-OP05). The project is now in the development of its second phase and has four components: governance, legal, enforcement, compliance; science and science-management interface; cross-sectoral activities affecting deep seas fisheries; and knowledge management and communication. Among the expected outcomes of the project, those of particular relevance to the SC are the project's contributions to more effective decision-making, improved advice, better understanding of the impacts of deep sea fisheries on biodiversity, and cross-sector integration. The Secretariat informed that the FAO questionnaire on project outputs and activities has been circulated to Members for feedback.

57. The SC reaffirmed its support for the ABNJ Deep Seas Fisheries Project and recognized the great value of the contribution made by the Project to the NPFC.

58. Mr. Marc Taconet (FAO) presented a proposal for NPFC to participate in research collaboration with FAO and Global Fishing Watch (GFW) on the use of Automatic Identification System (AIS) data technology to improve monitoring of high seas fisheries

(NPFC-2020-SC05-OP02). Possible research objectives would be identifying gaps in fishing activity monitoring, analyzing fishing interactions among RFMO mandates, improving classification of AIS fishing activity by gear, providing refined measurements of fishing effort to improve estimates of effort and CPUEs, addressing the feasibility of producing near-to-real-time indications of aggregated catch, contributing to ecosystem assessments, and contributing to monitoring and prediction of the effects of climate change.

59. The SC recommended that the NPFC collaborate with FAO and GFW on the proposed project on the use of AIS data technology for scientific analyses and requested the Secretariat to liaise with Members and FAO to determine the process for moving forward with such collaboration.

60. Dr. Chris Rooper reported that he recently attended an International Seabed Authority workshop on seabed mining in the northwestern Pacific. The workshop identified potential maps and datasets, attempted to model cumulative effects of mining on ecosystems, and overlaid maps of ecosystem features to identify areas of particular environmental concern.

Agenda Item 9. 2020-2024 Research Plan and Work Plan

9.1 Five-year Research Plan

9.2 Five-year Work Plan

61. The SC reviewed its 2020-2024 Five-Year Rolling Research Plan and Work Plan. The Research Plan and the Work Plan of the SC and its subsidiary bodies are attached as Annex J.

Agenda Item 10. Other matters

10.1 Review of the Scientific Committee Terms of Reference (TOR)

62. The SC revised its TOR to:
    (a) allow Chairs of the SC subsidiary bodies to serve more than two consecutive terms, recognizing the specialized nature of the subjects and tasks that its subsidiary bodies deal with, and noting the need to provide greater consistency and continuity of expertise to its subsidiary bodies, in accordance with the decision made by the Commission at its 5th meeting,
    (b) allow the Chair of the SC to be reelected for two additional terms of two years, with a maximum of three successive terms of two years each, and
    (c) clarify that in the case that the SC Chair is unable or unwilling to serve a full term, the Vice-Chair would assume the Chair's position for the balance of the vacated term or until the Commission elects a new Chairperson, in accordance with paragraph 4.5 of the Rules of Procedure.

63. The revised SC TOR is attached as Annex K.

10.2 Coordination between SC and TCC

64. Based on the discussion above, the SC identifies the following as matters for coordination between SC and TCC:
    (a) Revision of CMM 2019-05.
    (b) Revisions to the requirements for reporting of an encounter of VME indicator taxa and the collection of supplementary information in CMM 2019-06.
    (c) Proposal for revisions to pelagic species bycatch reporting requirements for Convention Area chub mackerel fisheries.
    (d) Proposal for revision of CMM 2019-05 to protect the two areas identified as potential VME sites in NPFC-2020-SSC BFME01-WP03.
    (e) Proposal for inclusion of the Regulations for Management of Scientific Data and Information in the NPFC Data Sharing and Data Security Protocols.
    (f) Request to the Commission to give guidance on MSE process for chub mackerel including setting objectives, stages and timelines and overseeing the implementation of the framework.

10.3 Other issues

65. No other issues were discussed.

Agenda Item 11. Advice and recommendations to the Commission

66. Based on the recommendations from its SSCs and TWG CMSA, the SC recommends that the Commission:
    (a) Endorse the revised Research Plan and Work Plan (Annex J).
    (b) Endorse the proposed scientific projects (Annex I).
    (c) Endorse the Regulations for Management of Scientific Data and Information as formal regulations for the SC.
    (d) Endorse the revised SC TOR (Annex K).
    (e) Consider the scientific meetings schedule for 2021 as described in paragraph 68.

    Bottom Fish and Marine Ecosystems

    (f) Endorse the revised CMM 2019-05 as described in Annex D.
    (g) Revise CMM 2019-05 to protect the two areas identified as potential VME sites in NPFC-2020-SSC BFME01-WP03
    (h) Endorse the revised requirements for reporting of an encounter of VME indicator taxa and the collection of supplementary information in CMM 2019-06 in accordance with paragraph 41 of NPFC-2020-SSC BFME01-Final Report.

(i) Adopt the VME taxa identification guide for the Western North Pacific

Pacific Saury

(j) Consider the stock assessment results for Pacific saury (paragraph 11, Annex E).

(k) Consider further measures to effectively avoid the decreasing trend identified by:

  (i) Stock assessment conducted by China, Japan and Chinese Taipei (Annex E)

  (ii) Members' and joint standardized CPUEs up to 2019 (Annex F)

  (iii) Japan's fishery-independent biomass index up to 2020 (Annex G)

  (iv) Members' catch up to 2019 and preliminary 2020 catch as of 14 November 2020 (Annex H)

  (v) Members' preliminary estimates of nominal CPUEs up to 2020

(l) Fund the participation of an invited expert in the next SSC PS meetings.

Chub Mackerel

(m) Contract an external expert to continue the work of the TWG CMSA to develop an operating model and simulation test chub mackerel stock assessment models using PopSim.

(n) Revise reporting requirements such that Convention Area chub mackerel fisheries be required to report bycatch of pelagic species (in weight or numbers, by species).

(o) Contract an external expert to support the TWG CMSA in developing the MSE.

(p) Give guidance on how to move forward, including setting management objectives for the development of the MSE.

(q) Contract an external expert to support the Commission in developing the MSE process including setting objectives, stages and timelines and overseeing the implementation of the framework.

Data Sharing

(r) Update the data shared by TWG CMSA, SSC BF-ME and SSC PS in accordance with their Work Plans.

Cooperation with Other Organizations

(s) Provide financial support of 15,000 US dollars for the joint PICES-ICES SPF symposium, as well as travel support for three members of the SC or its subsidiary bodies to attend the symposium.

(t) Financially support the travel of two participants of the SC or its subsidiary bodies to participate in the 2021 PICES Annual Meeting, if necessary.

(u) Provide financial support of 10,000 US dollars for the NPAFC pan-Pacific multinational survey.

(v) Consider collaboration with FAO and GFW on the use of AIS data technology to improve monitoring of high sea fisheries for scientific analyses.

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

Species Summary Documents

(a) The SC is working to develop a template for species summary documents for NPFC priority species that would provide a concise summary of information on the species, identify potential data gaps, and track progress towards establishing management targets or limits to determine stock status.

Bottom Fish and Marine Ecosystems

(b) The SSC BF-ME will hold informal web meetings of the SWG NPA&SA and SWG VME to check their progress and plan intersessional work.

Pacific Saury

(c) The SSC PS suggested, subject to approval from Members' governments, to hold a special meeting for conducting an updated Pacific saury stock assessment in January 2021 using the 2019 CPUE data after cross-checking the computer code of Members' stock assessment analyses.

Chub Mackerel

(d) The TWG CMSA will hold informal web meetings of the SWG OM to assess progress on operating model development.

Other priority species

(e) The SC established four SWGs for priority species: SWG on Neon Flying Squid (SWG NFS), SWG on Japanese Flying Squid (SWG JFS), SWG on Japanese Sardine (SWG JS), and SWG on Spotted Mackerel (SWG SM) to work intersessionally on data collation and species summaries.

EU Application for Accession to NPFC

(f) The SC concluded that it currently does not have enough information to determine how a potential expansion of fishing effort or catch arising from the EU's accession to the NPFC would affect the long-term sustainability of chub mackerel and other NPFC priority species.

Observer Program

(g) The SC noted the potential value of an Electronic Monitoring (EM) system, while recognizing the need to conduct further research and reviews to understand the potential capabilities of an EM system, the potential scientific need for it, the feasibility of introducing it, and other relevant questions.

(h) The SC will continue discussions on the establishment of an observer program, including regarding the types of data that would be relevant to their work and could be collected by a human observer program and/or electronic monitoring system.

Cooperation with Other Organizations

(i) The SC requested the FAC to consider providing further financial support for the NPAFC multinational survey, in light of the great scientific value of the project.
(j) The SC agreed to continue to learn more about FIRMS and reconsider whether to participate in the FIRMS Partnership at the next SC meeting.

Agenda Item 12. Next meeting

68. The SC suggested the following meeting schedule for 2021:
    (a) TWG CMSA04: Spring 2021
    (b) SSC PS07: Autumn 2021
    (c) SSC-BF-ME02, SSC PS08, SC06: December 2021
    (d) TWG CMSA05: Winter 2021/2022

Agenda Item 13. Press release

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

Agenda Item 14. Adoption of the Report

70. The SC05 Report was adopted by consensus.

Agenda Item 15. Close of the Meeting

71. The meeting closed at 10:03 on 27 November 2020, Tokyo time.

Annexes:

Annex A – Agenda
Annex B – List of Documents
Annex C – List of Participants
Annex D – Revised CMM 2019-05 - Conservation and Management Measure for Bottom Fisheries and Protection of Vulnerable Marine Ecosystems in the Northwestern Pacific Ocean
Annex E – Stock Assessment Report for Pacific Saury
Annex F – Updated total catch, CPUE standardizations and survey biomass indices for the stock assessment of Pacific saury
Annex G – Japan's fishery-independent biomass index from 2003 to 2020
Annex H – Members' Pacific saury catches up to 2020, with preliminary catch statistics as of 14 November 2020
Annex I – Scientific projects for 2017-2021
Annex J – Five-Year Research Plan and Work Plan of the Scientific Committee
Annex K – Scientific Committee Terms of Reference

Please refer to the NPFC website for the complete annexes.

NPFC

1st Special Meeting of the Scientific Committee

20-22 January 2021
Virtual
Meeting Report

Agenda

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MEETING REPORT

Agenda Item 1. Opening of the meeting

1. The 1st Special Meeting of the Scientific Committee (SC) took place in the format of video conferencing via WebEx, and was attended by Members from Canada, China, Japan, the Republic of Korea, the Russian Federation, Chinese Taipei, the United States of America and Vanuatu. Dr. Larry Jacobson attended the meeting as an invited expert. The Organization for Regional and Inter-regional Studies (ORIS) and the Pew Charitable Trusts (Pew) attended as observers.

2. The meeting was opened by Dr. Janelle Curtis (Canada) and Dr. Toshihide Kitakado (Japan), who served as Co-Chairs. The Science Manager, Dr. Aleksandr Zavolokin, outlined the procedures for the meeting. Mr. Alex Meyer was selected as rapporteur.

Agenda Item 2. Adoption of Agenda

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

Agenda Item 3. Overview of the outcomes of SSC PS06 and intersessional work

4. Dr. Kitakado presented the outcomes and recommendations from the SSC PS06 meeting and the outcomes of the intersessional work.

Agenda Item 4. Member's fishery status including 2020 fishery

5. China reported that, based on preliminary data up to December 10, the nominal catch-per-unit-effort (CPUE) in its fishery was around 9.5 tons per day per vessel. The total catch in 2020 was around 42,000 tons.

6. Japan presented its fishery status. The total catch in 2020 was about 30,000 tons, the lowest since 1950. Nominal CPUE was 1.0 ton per haul per vessel, the lowest since 1994. Fishing grounds were mainly in the high seas where Japan harvested about 60% of its total catch

through the fishing season.

7. Korea presented its fishery status. In 2020, the start of the fishing season was delayed due to the COVID-19 pandemic. Total catch was around 5,990 tons, the lowest on record. The number of active vessels has been declining over the past 20 years. Vessels declined from 26 in 2001 to 11 in 2019 and 10 in 2020. Estimates of nominal and standardized CPUE in 2020 were the lowest on record. The extent of the fishing ground in 2020 was smaller than in previous years.

8. Russia presented its fishery status (NPFC-2021-SCsm01-IP01). In 2020, there were only two active vessels. The average CPUE in 2020 was around 10 tons per day per vessel compared to 5 tons per day per vessel in the previous year. Total catch was approximately 750 tons compared to around 2,400 tons in 2019. The 2020 catch was the lowest in 30 years. The majority of catch was taken in the high seas.

9. Chinese Taipei presented its fishery status. In 2020, accumulated catch by early December was around 55,000 tons, lower than 2019 and the lowest since 2003. Compared to previous years, fishing vessels arrived at fishing grounds later in 2020. Nominal CPUE was 1.8 tons per haul per vessel, the second lowest since 2001.

10. Vanuatu presented its fishery status. Annual catch in 2020 was 2,670 tons, the lowest since 2015. Nominal CPUE was 9.5 tons per day per vessel in 2020, the lowest on record. Fishing grounds were mainly in the east in the early fishing season, then shifted to the west later in the season.

11. The Science Manager presented Members' cumulative catch of Pacific saury in the Convention Area based on weekly catch reports provided by Members in 2020 and effort data based on Members' annual reports. In 2020, the fishing season started at the end of May and catch accrued slowly until the end of September, before increasing significantly in October and November. Total catch has been on a decreasing trend from 2015. In 2020, total catch in the Convention Area and Members' exclusive economic zones (EEZs) was approximately 138,000 tons, the second lowest since 1950. Total effort has steadily increased from 1995 to 2019. The number of active vessels in 2019 was the highest on record (Annex D).

Agenda Item 5. Data and specification

12. The SC reviewed the updated BSSPM specifications that were agreed on at the SSC PS05 meeting and reconfirmed at the SSC PS06 meeting.

13. The SC reviewed the abundance indices agreed on at the SSC PS06 meeting.

Agenda Item 6. Review of BSSPM results

14. Japan presented an updated stock assessment for Pacific saury in the North Pacific Ocean using BSSPM (NPFC-2021-SCsm01-WP01). The 2019 median depletion level was only 20.1% of the carrying capacity, declining from 30.7% in 2018. B-ratio ($B2019/B_{MSY}$) and F-ratio ($F2019/F_{MSY}$) in 2019 were 0.437 and 1.067, respectively. The three-year (2017-2019) average values for B-ratio and F-ratio were 0.503 and 1.428, respectively. The probability of the population being in the green Kobe quadrant in 2019 was estimated to be nearly 0%, while that of being in the red Kobe quadrant was assessed to be greater than 60%. Based on the weight-of-evidence available now, the current Pacific saury stock is determined to be overfished and subject to overfishing. The MSY is estimated to be around 419,000 tons, which is greater than the current catch level. However, the current biomass level is markedly low, and therefore this amount is not an appropriate level of catch. Using the same formula to calculate TAC in 2019, $X=B2019*F_{MSY}=374,000*0.480=179,520$ tons. However, the information of further decline in 2020 abundance indices and 2020 catches warrants further decrease from X for setting TAC to help prevent further decline in Pacific saury abundance.

15. China presented the results of its Pacific saury stock assessment (NPFC-2021-SCsm01-WP03). The estimated median B2019 from the two base case scenarios was 388,800 and 446,200 tons, respectively. The median $B2019/B_{MSY}$ and $F2019/F_{MSY}$ over the two base case scenarios were 0.46 and 0.99, respectively. Over two base case scenarios, large interannual variability was shown in biomass trajectory during the most recent years. An increase was found in 2018 followed by a decrease in 2019. The harvest rate in 2019 (F2019=0.47) was quite low compared to that in 2018 (F2018=0.71). The scale of exploitable biomass was sensitive to prior assumption. The probability of the population being in the yellow Kobe quadrant in 2019 was estimated to be greater than 50%.

16. Chinese Taipei presented an updated stock assessment for Pacific saury in the North Pacific Ocean using BSSPM (NPFC-2021-SCsm01-WP02). The models estimate an increase in biomass in 2018 (median B_{2018}/B_{MSY} = 0.80, 80 percentile range 0.56-1.20) followed by a slight decrease in 2019 (median B_{2019}/B_{MSY} = 0.56, 80 percentile range 0.39-0.84). A steady increase in fishing mortality is estimated to have occurred from 2004 to 2018, but a substantial decrease in fishing mortality was estimated in 2019 (median $F2019/F_{MSY}$ = 0.82, 80 percentile range 0.45-1.38). The recent average fishing mortality is estimated to be above F_{MSY} (median $F2017\text{-}2019/F_{MSY}$ = 1.28, 80 percentile range 0.66-2.49). The 2019 stock status is likely within the yellow quadrant (Prob[$B2019<B_{MSY}$ and $F2019<F_{MSY}$] = 61.35%).

17. The SC reviewed the stock assessments presented by Members and aggregated the results,

recognizing their similarities (Annex E).

Agenda Item 7. Recommendations to the Commission to improve CMM for Pacific Saury

18. The SC recommends that the Commission:
    (a) Consider summary stock assessment results for Pacific saury (Annex E).
    (b) Take into account the following paragraphs for improving the CMM for Pacific saury:
        (i) All stock indicators (estimated biomass, nominal CPUE, Japan biomass survey) show that the Pacific saury stock has been declining. Results of combined model estimates indicate that the stock declined with an interannual variability from near carrying capacity in the mid-2000's after a period of high productivity to current levels. Exploitation rates were increasing slowly since 2005 except for 2019. The results also indicated that B was below B_{MSY} (median average B/B_{MSY} during 2017-2019 = 0.544, 80%CI=0.376-0.803) and F was above F_{MSY} (average F/F_{MSY} during 2017-2019 = 1.327, 80%CI= 0.845-1.841). The results further indicated that stock biomass fell to the lowest value since 1980 in 2017 (median B/B_{MSY} = 0.434, 80%CI=0.295-0.639) and has been still at a historically low level in recent years (2017-2019). Information of the nominal CPUE series further indicated that Pacific saury stock biomass has likely been near a record low level in 2020. More attention should be paid to understanding the environmental impacts on Pacific saury, which are poorly understood and incompletely included in the stock assessment modeling.
        (ii) The stock assessment has uncertainties that carry into the TAC calculation. Such uncertainties could lead to potential under or over-harvest of Pacific saury, which may be important, particularly if stock size is low.
        (iii) The Commission should consider further measures to ensure the sustainability of the Pacific saury stock, taking into account current stock conditions and nominal CPUEs in 2020.

Agenda Item 8. Future works

19. The SC requested that the SSC PS continue to advance its work in accordance with the 2020-2025 SSC PS 5-Year Rolling Work Plan.

20. The SC requested that the SSC PS continue to refine the BSSPM specifications.

21. The SC recognized the need to further consider environmental conditions in future analyses, including in the CPUE standardization and the current stock assessment method, as well as in new stock assessment methods such as age-structured models.

Agenda Item 9. Other matters

22. The SC appreciated that Japanese scientists have made a great contribution in conducting fishery-independent surveys in the North-western Pacific Ocean over the years. The SC encouraged Members to consider scientific surveys in the area in order to extend the spatial and temporal coverage of this highly migratory species, with additional financial support from the Commission's Special Project Fund, and to establish a joint Pacific saury survey project.

23. No other matters were discussed.

Agenda Item 10. Adoption of Report

24. The SCsm01 Report was adopted by consensus.

Agenda Item 11. Close of the Meeting

25. The meeting closed at 13:30 on 22 January 2021, Tokyo time.

Annexes:

Annex A – Agenda

Annex B – List of documents

Annex C – List of participants

Annex D – Number of active fishing vessels for Pacific saury fisheries operated in the Convention Area in 1995-2020

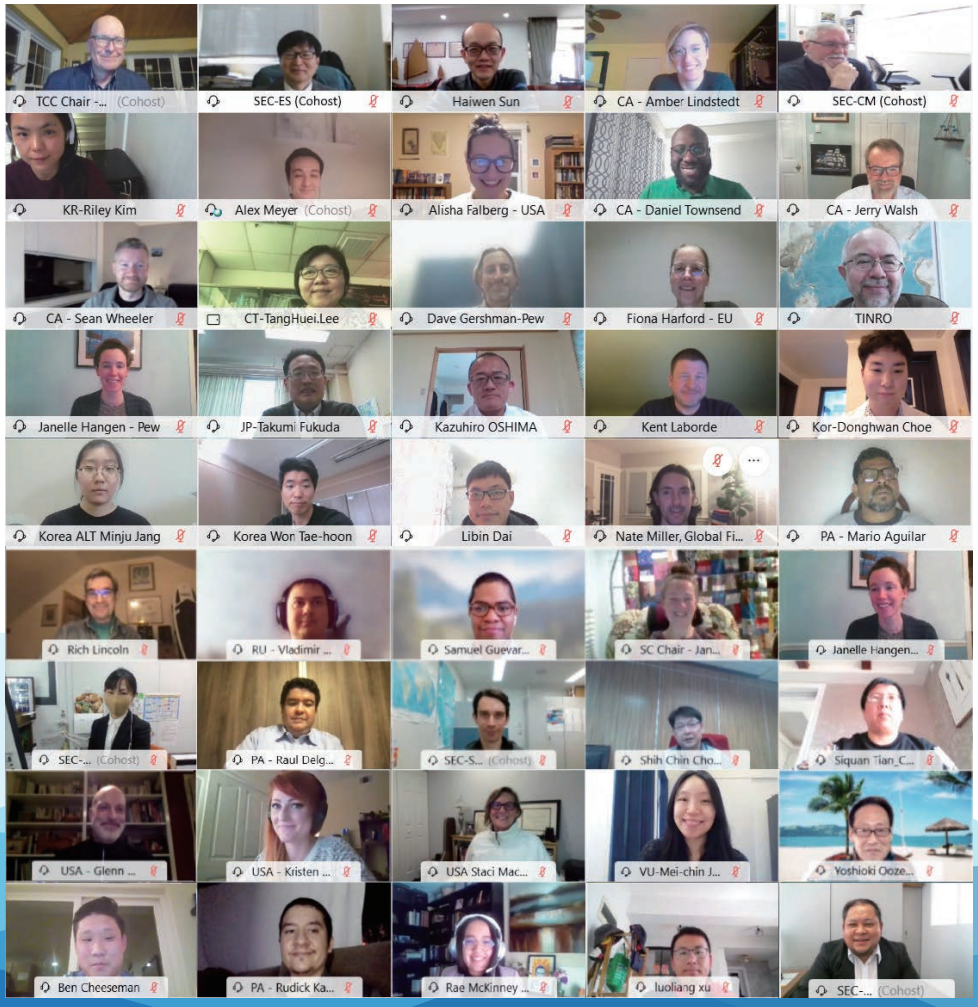
Annex E – Stock Assessment Report for Pacific Saury

Please refer to the NPFC website for the complete annexes.

NPFC

5th Meeting of the Technical and Compliance Committee

18-20 February 2021
Virtual
Meeting Report



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MEETING REPORT

Agenda Item 1. Opening of Meeting

1. The 5th Meeting of the Technical and Compliance Committee (TCC) took place as a virtual meeting via WebEx, on 18-20 February 2021, and was attended by Members from Canada, China, Japan, the Republic of Korea, the Russian Federation, Chinese Taipei, the United States of America, and Vanuatu. The meeting was opened by Dr. Robert Day (Canada), who served as the TCC Chair.

Agenda Item 2. Appointment of Rapporteur

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

Agenda Item 3. Introduction of Observers

3. The Chair introduced approved observers permitted to be present. The meeting was attended by Panama, the European Union, the South Pacific Regional Fisheries Management Organisation (SPRFMO), Global Fishing Watch (GFW), the Pew Charitable Trusts (Pew), and the Organization for Regional and Inter-regional Studies of Waseda University of Japan (ORIS). The observers were admitted without objection. Pew provided opening remarks related to its working paper for the Commission meeting (NPFC-2021-COM06-OP02) related to transparency and Panama on its application for cooperating non-contracting party (CNCP) status.

Agenda Item 4. Adoption of Agenda

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

Agenda Item 5. Fisheries Overview

5. The overview of North Pacific fisheries and issues in 2019 (NPFC-2021-TCC05-IP01) was taken as read.

Agenda Item 6. Review of MCS related Issues from SC

6. The Science Manager, Dr. Aleksandr Zavolokin, provided a summary of MCS matters for coordination between the Scientific Committee (SC) and the TCC (NPFC-2021-TCC05-IP06). These included proposed revisions to CMM 2019-05 and CMM 2019-06 for bottom fisheries and protection of vulnerable marine ecosystems in the northwestern and northeastern Pacific Ocean, proposed revisions to pelagic species bycatch reporting requirements for Convention Area chub mackerel fisheries, proposed inclusion of the Regulations for Management of Scientific Data and Information in the NPFC Data Sharing and Data Security Protocols, and a request to the Commission to give guidance on the management strategy evaluation (MSE) process for chub mackerel.

7. Japan noted that it had proposed further amendments to CMM 2019-05 which would be discussed as document NPFC-2021-COM06-WP01 (Rev 1) at the Commission meeting.

8. The TCC discussed the importance of beginning discussions to develop an MSE process and endorsed the way forward proposed by the SC. However, the TCC noted that the NPFC has not yet completed a stock assessment for chub mackerel but has completed stock assessments for Pacific saury and noted the declining trend of the stock. The TCC suggested that it may therefore be more appropriate to develop an MSE process that would include harvest control rules and Management Procedure for Pacific saury before doing so for chub mackerel. Based on the discussion, and NPFC-2021-TCC05-IP06-Annex C, the TCC provides some recommendations for consideration by the Commission:

Recommendation: That the Commission establish a joint SC-TCC-COM Small Working Group to steer the MSE process, set objectives, and provide considerations for a timeline.

Recommendation: That the Commission direct the Secretariat to contract an external expert to support the development of the MSE process.

Recommendation: That the Commission focus on Pacific saury when initiating this MSE process in NPFC in lieu of the original planned focus on chub mackerel.

6.1 EU Application to Accede to the NPFC Convention
6.2 NPAFC Memorandum of Cooperation Work Plan
6.3 NPFC and VMS Data Sharing and Data Security Protocols

9. The TCC noted SC05's discussions of the scientific aspects of the EU Application to accede to the NPFC Convention, the draft NPAFC Memorandum of Cooperation Work Plan, and the proposed NPFC and VMS Data Sharing and Data Security Protocols. The TCC discussed the MCS-related aspects thereof under Agenda Items 7.1 to 7.3, respectively.

Agenda Item 7. Other MCS Issues

7.1 EU Application to Accede to the NPFC Convention

10. The EU reminded the TCC that it had submitted an updated application to accede to the NPFC Convention at the COM05 meeting, including all information requested by Members at the COM04 meeting, but the Commission was not able to reach a consensus on the application. COM05 requested the EU to resubmit its application with an updated fisheries operation plan that included additional information requested by Members. The EU has since submitted further updated versions of its fisheries operation plans with the requested information to the third Technical Working Group on Chub Mackerel Stock Assessment meeting (TWG CMSA03) and the SC05 meeting, updating the plan each time based on the comments received. The latest application and fisheries operation plan are as described in NPFC-2021-TCC05-OP01.

11. The EU reaffirmed its commitment to cooperate fully in the implementation of NPFC CMMs, to ensure compliance by its fishing vessels and nationals with the provisions of the Convention and

the CMMs, to accept HSBIs in accordance with the relevant NPFC procedures, and to provide the required financial contribution to the NPFC budget.

12. Some Members expressed concern about how to accommodate the EU's fishing interests with those of existing Members of the NPFC who have historically fished for chub mackerel in the Convention Area, and with the need to ensure the long-term sustainability of chub mackerel, as well as over bycatch mitigation of species other than fish.

13. The EU stated that it shares Members' concerns about the long-term sustainability of species under the purview of the NPFC. It considered that its application should be assessed on the basis of the information presently available to the NPFC and the methodology currently used to assess the impacts of Members' fishing activities. The EU suggested that its accession to the NPFC and the potential impact on any fishery by its vessels in the Convention Area, though interlinked, can be treated as separate issues, and that any fishing opportunities for EU vessels could be determined after accession. The EU reiterated that it has repeatedly expressed its interest in fishing in the Convention Area and submitted all information requested by Members.

14. The TCC considered the EU's application and noted the EU's efforts to provide all information requested by Members, as well as Members' concerns about the EU's accession.

    Recommendation: That the Commission review the EU's application while taking into consideration the EU's efforts to provide all information requested by Members and Members' concerns about the EU's accession.

7.2 NPAFC Memorandum of Cooperation Work Plan

15. The Compliance Manager, Mr. Peter Flewwelling, presented the MCS-related aspects of the draft Work plan to implement the NPAFC/NPFC Memorandum of Cooperation, 2021-2025 (NPFC-2021-TCC05-WP03 (Rev 1)).

16. The TCC reviewed and revised the draft work plan (Annex D). The TCC recognized the benefits of cooperation between the NPFC and other RFMOs, such as NPAFC, with which its jurisdiction overlaps. The TCC noted the need to further revise the MCS-aspects of the draft work plan, including through joint work between the NPFC and the NPAFC.

    Recommendation: That the Commission adopt Annex D as the TCC's contribution to the NPAFC Memorandum of Cooperation Work Plan and direct the Secretariat to liaise with NPAFC to continue work to finalize the plan.

7.3 NPFC Data Sharing and Data Security Protocol for VMS

17. The Co-lead of the Small Working Group for Planning and Development (SWG PD), Ms. Amber Lindstedt (Canada), presented a proposal for the development of an NPFC Data Sharing and Data Security Protocol for the Vessel Monitoring System (NPFC-2021-TCC05-WP04).

18. The TCC reviewed and revised the proposal. Members showed flexibility in removing square brackets related to VMS data being available for search and rescue activities. The TCC held significant discussions related to how data would be shared for use while undertaking HSBI operations but was unable to reach a consensus on how to resolve one remaining issue contained in paragraph 14.

    Recommendation: That the Commission take into consideration the discussions by the TCC on the development of an NPFC Data Sharing and Data Security Protocol for the Vessel Monitoring System and provide guidance on resolving the outstanding issue of how data would be shared for use while undertaking HSBI operations in paragraph 14, recognizing the range of perspectives that were presented and without prejudice of further discussions.

19. The Compliance Manager provided an update on the work by the consultant, CLS, to develop the regional NPFC VMS. The system is almost complete and CLS is currently testing the transmission of data among Members. CLS and the Secretariat have also drafted Standard Operating Procedures (SOPs) that would govern how the Secretariat operates the system

(NPFC-2021-TCC05-IP07). Members recognized that this was an internal working document for the Secretariat and were interested in providing input. The SOPs will continue to be amended based on the outcomes of the TCC05 and COM06 meetings, and feedback from Members.

7.4 Review of Applications for CNCP Status

20. The Compliance Manager explained the status of Panama's application for renewal of CNCP status (NPFC-2021-TCC05-WP02).

21. Panama explained that it is seeking CNCP status to be able to operate cargo reefer vessels in the Convention Area and that it has no intention to operate any fishing vessels there. Panama reiterated its commitment to combat and eliminate IUU fishing, to cooperate fully with the NPFC, to ensure all vessels flagged to Panama comply with all NPFC CMMs, and to accept HSBIs.

22. The TCC considered Panama's application but was unable to reach a consensus. Some Members supported the application, recognizing Panama's efforts to address Members' concerns and to combat IUU fishing. However, other Members expressed concern over Panama's flag state control, the gaps in the fisheries data it has submitted to the NPFC, and the fact that it has yet to fulfil its commitment to providing a voluntary contribution to the NPFC. ***Recommendation:*** That the Commission further review Panama's application for CNCP status.

23. Regarding its commitment to providing a voluntary contribution to the NPFC, Panama explained that, in order to comply with its domestic processes, it is unable to fulfil this commitment until the NPFC specifies the amount of the contribution. The TCC noted Panama's explanation and recalled paragraph 10.5 of the NPFC Rules of Procedure: "A non-Contracting Party seeking the status of CNCP is encouraged to make a contribution commensurate with what it would be assessed should it become a Contracting Party."

Recommendation: Should the Commission accept Panama's application, that the Commission support the Executive Secretary in providing a letter to Panama allowing it to make a contribution and specifying an amount commensurate with what it would be assessed should it become a Contracting Party as outlined in the Rules of Procedure.

Agenda Item 8. SWG Reports on Progress, Priorities and Recommendations

8.1 SWG Planning and Development Report

24. Ms. Lindstedt presented a summary of the work of the SWG PD since 2019 (NPFC-2021-TCC05-IP05).

    Recommendation: That the Commission direct TCC to finalize its work that contributes to the general NPFC Data Sharing and Data Security Protocol in line with the progress made by the SC.

25. Ms. Lindstedt presented a proposal for the development of an NPFC Sustainable Use and Conservation Handbook (NPFC-2021-TCC05-WP05). The TCC reviewed and endorsed the proposal.

    Recommendation: That the Commission adopt the NPFC Sustainable Use and Conservation Handbook (Annex E).

26. The TCC discussed the work of the SWG PD and noted the need to prioritize work to design and implement a monitoring and control system for at-sea transshipment activities, recognizing the growing global focus on transshipment issues and the fact that the NPFC is behind other RFMOs in this regard. The TCC also discussed the heavy workload of the SWG PD and noted the need to develop a work plan that balances making progress on the relevant tasks and not overburdening participants.

    Recommendation: That the Commission reemphasize the importance, agreed at the last Commission meeting, to have TCC advance the review and update to the interim transshipment measure, including monitoring and observer coverage.

Recommendation: That the Commission direct TCC to ensure that intersessional workload is adapted to competing work demands and that virtual meetings are held at judicious intervals.

8.2 SWG Operations Report

27. The Co-Lead, Ms. Kristen Caldwell (United States), presented a summary of the work of the Small Working Group for Operations (SWG Ops) since 2019 (NPFC-2021-TCC05-IP04).

28. The TCC reviewed a recommended set of best practices for COVID-19 mitigation measures applicable to HSBIs compiled by SWG Ops (NPFC-2021-TCC05-IP10).

    Recommendation: That the Commission adopt the best practices for COVID-19 mitigation measures applicable to HSBIs and that they be publicly available (Annex F).

8.3 IT Initiatives for 2021 Fiscal Year

29. The Data Coordinator, Mr. Mervin Ogawa, and the Compliance Manager presented a summary of the status of all compliance-related information technology and data management systems completed or currently under development by the Secretariat (NPFC-2021-TCC05-IP02). Completed systems include the direct entry Vessel Registration System, Meeting Management, Calendar, e-Annual Report, Pacific Saury Weekly Report, Collaboration site, e-IUU, e-HSBI, HSBI Events, CMM Chart of Accounts and Data Warehouse Dashboard. Currently under development are a VMS and an Electronic Compliance Monitoring System (e-CMS).

Agenda Item 9. Review of Current CMMs

30. Canada presented proposed amendments to CMM 2017-09 for High Seas Boarding and Inspection Procedures for the NPFC to implement a boarding ladder requirement for inspector safety (NPFC-2021-TCC05-WP06 Rev 1).

31. The TCC noted the usefulness of the proposed approach, but some Members indicated that further discussion was needed.

Recommendation: That the Commission consider the proposed amendments to CMM 2017-09 for High Seas Boarding and Inspection Procedures for the NPFC further, recognizing that no consensus was reached at the TCC.

32. Canada presented proposed amendments to CMM 2019-01 on Information Requirements for Vessel Registration (NPFC-2021-TCC05-WP07 Rev 2). After discussion and updates to the proposal, the TCC endorsed the proposed amendments.

    Recommendation: That the Commission adopt revisions to the CMM on Information Requirements for Vessel Registration (Annex G).

33. In addition, the TCC discussed, but was unable to determine, how to include provisions in the CMM on Information Requirements for Vessel Registration to address the issue of vessels falsifying or misrepresenting their identity.

    Recommendation: That the Commission direct the TCC to further discuss the issue of vessels falsifying or misrepresenting their identity and provide advice to COM07.

34. Canada presented proposed amendments to CMM 2019-12 on the Vessel Monitoring System (NPFC-2021-TCC05-WP11 Rev 1). After discussion and updates to the proposal, the TCC endorsed the proposed amendments.

    Recommendation: That the Commission adopt the revisions to the CMM on the Vessel Monitoring System (Annex H).

    Recommendation: That the TCC Chair provide appropriate advance notification to Members on the timing at which the VMS would go live.

Agenda Item 10. IUU Vessel List

10.1 Recommendation for Provisional IUU Vessel List to the Commission

35. The TCC reviewed the current NPFC IUU vessel list (NPFC-2021-TCC05-WP08) and recommended no deletions.

Recommendation: That the Commission retain all vessels on the current NPFC IUU vessel list.

36. It was recognized by Members that five Chinese vessels, with no markings, present a fundamental challenge to the NPFC's compliance scheme. China agreed, expressed its commitment to preventing recurrence, and indicated that it has taken action to do so.

37. One Member noted the importance of timely notification of alleged infractions. Members agreed to ensure more timely notification of alleged infractions.

38. Japan identified six Chinese vessels that engaged in fishing activities in the Convention Area without being registered on the NPFC Vessel Registry. China explained that this was the result of an internal process error and that all vessels were legally authorized to engage in fishing activities in the Convention Area. China indicated that it has established new working procedures to prevent recurrence and expressed its commitment to ensure on-time registration of vessels. However, one Member expressed concern, pointing out that this is a serious violation that has occurred several times over two years. One Member expressed satisfaction about China's explanation on this issue.

39. Japan identified one Chinese vessel whose appearance was inconsistent with its photo in the NPFC Vessel Registry. China explained that the photo in the NPFC Vessel Registry was an old one and that the vessel has undergone a number of modifications for safety at sea without changing the main parameters of the vessel since the photo was taken.

40. China also noted that for the seven vessels noted above, significant administrative penalties are being applied that are around 100,000-200,000 USD each, as well as implementation of a new internal process for compliance assessment.

41. After extensive discussion, the TCC noted the views expressed by Members concerning these seven vessels and the need for further discussion and consideration by the Commission.

Recommendation: That the Commission consider the TCC provisional NPFC IUU vessel list and whether to retain these seven vessels on the NPFC IUU vessel list, recognizing that no consensus was reached by the TCC.

42. Three stateless vessels were identified in NPFC-2021-TCC05-IP09 and the TCC concurred that these vessels be entered into the provisional IUU vessel list with the recognition that the data associated with the legal vessels would be removed and they would be registered as "unknown" and "no nationality."

Recommendation: That the Commission consider the endorsement of the three stateless vessels to the NPFC IUU vessel list.

43. Japan identified one Panamanian carrier vessel as having no IRCS and subsequently determined data reporting gaps. The TCC noted the extensive correspondence between Panama, the Secretariat, and Japan. Some Members recognized the actions that Panama has taken to address the situation and expressed their satisfaction with removing the vessel from the draft NPFC IUU vessel list.

Recommendation: That the Commission consider the TCC provisional NPFC IUU vessel list (Annex I) and whether to retain the Panamanian carrier vessel on the NPFC IUU vessel list, recognizing that no consensus was reached by the TCC.

44. The provisional NPFC IUU vessel list is included as Annex I.

Agenda Item 11. Compliance Monitoring Scheme

11.1 Provisional Compliance Report

45. The Compliance Manager presented the NPFC Draft Compliance Report – 2019 (NPFC-2021-TCC05-WP09 (Rev. 3)). No potential compliance issues were identified. The TCC reviewed and endorsed the report as the Provisional Compliance Report with the deletion of vessel data for 2016 and 2017 due to challenges in importing data into the direct entry vessel registry.

Recommendation: That the Commission adopt the Provisional Compliance Report (Annex J).

46. The TCC discussed the potential inaccuracies in the recording of Members' authorized fishing vessels for 2016 and 2017 and recognized the need to examine this issue further.

    Recommendation: That the Commission direct the TCC to conduct a review to ascertain a more accurate understanding of the number of authorized fishing vessels in 2016, 2017 and additional years.

11.2 List of obligations for consideration for the Compliance Monitoring Scheme in 2021

47. The United States presented a list of reporting obligations from the NPFC Convention and CMMs to be considered for inclusion in the future Compliance Monitoring Scheme (NPFC-2021-TCC05-WP10 Rev 1). This list expanded the current number of reporting obligations that would be assessed and focused on Member-level reporting requirements. One Member provided additional input for this proposal that was not provided during the intersessional consultation due to insufficient time for discussion.

    Recommendation: That the Commission consider adopting the list of future reporting obligations following appropriate discussion among Members.

Agenda Item 12. Other Matters

48. The Chair noted that the TCC Vice-Chair position was vacant.

    Recommendation: That the Commission take appropriate action to appoint a TCC Vice-Chair.

49. The Compliance Manager presented an invitation from the International MCS Network for NPFC to officially support the Network (NPFC-2021-TCC05-IP03).

50. Japan presented the results of a basic analysis of NPFC Transshipment data, in reference to NPFC Catch Statistics and NPFC Member/CNCP Flagged Vessels Register in 2018 and 2019 (NPFC-2021-TCC05-IP08) and interest was noted.

51. On behalf of other observers, Pew requested that, in the interest of transparency, observer organizations be permitted access to all TCC meetings, including informal sessions and meetings of small working groups, that all meeting documents, including the terms of reference of small working groups, be made publicly available on the NPFC website, and that compliance reports be made available to accredited observer organizations.

52. Some Members noted the importance of transparency and supported the intentions of the Pew paper (NPFC-2021-COM06-OP02).

Recommendation: That the Commission, based on the TCC review of pertinent elements to TCC, give consideration to the observations by Pew and other NGOs.

Agenda Item 13. Recommendations to the Commission.

53. The TCC recommended the following to the Commission:

(Agenda Item 6)

(a) That the Commission establish a joint SC-TCC-COM Small Working Group to steer the MSE process, set objectives, and provide considerations for a timeline.

(b) That the Commission direct the Secretariat to contract an external expert to support the development of the MSE process.

(c) That the Commission focus on Pacific saury when initiating this MSE process in NPFC in lieu of the original planned focus on chub mackerel.

(Agenda Item 7)

(d) That the Commission review the EU's application to accede to the NPFC while taking into consideration the EU's efforts to provide all information requested by Members and Members' concerns about the EU's accession.

(e) That the Commission adopt Annex D as the TCC's contribution to the NPAFC Memorandum of Cooperation Work Plan and direct the Secretariat to liaise with NPAFC to continue work to finalize the plan.

(f) That the Commission take into consideration the discussions by the TCC on the development of an NPFC Data Sharing and Data Security Protocol for the Vessel Monitoring System and provide guidance on resolving the outstanding issue of how

data would be shared for use while undertaking HSBI operations in paragraph 14, recognizing the range of perspectives that were presented and without prejudice of further discussions.

(g) That the Commission further review Panama's application for CNCP status.

(h) Should the Commission accept Panama's application, that the Commission support the Executive Secretary in providing a letter to Panama allowing it to make a contribution and specifying an amount commensurate with what it would be assessed should it become a Contracting Party as outlined in the Rules of Procedure.

(Agenda 8)

(i) That the Commission direct TCC to finalize its work that contributes to the general NPFC Data Sharing and Data Security Protocol in line with the progress made by the SC.

(j) That the Commission adopt the NPFC Sustainable Use and Conservation Handbook (Annex E).

(k) That the Commission reemphasize the importance, agreed at the last Commission meeting, to have TCC advance the review and update to the interim transshipment measure, including monitoring and observer coverage.

(l) That the Commission direct TCC to ensure that intersessional workload is adapted to competing work demands and that virtual meetings are held at judicious intervals.

(m) That the Commission adopt the best practices for COVID-19 mitigation measures applicable to HSBIs and that they be publicly available (Annex F)

(Agenda 9)

(n) That the Commission consider the proposed amendments to CMM 2017-09 for High Seas Boarding and Inspection Procedures for the NPFC further, recognizing that no consensus was reached at the TCC.

(o) That the Commission adopt revisions to the CMM on Information Requirements for Vessel Registration (Annex G).

(p) That the Commission direct the TCC to further discuss the issue of vessels falsifying or misrepresenting their identity and provide advice to COM07.

(q) That the Commission adopt the revisions to the CMM on the Vessel Monitoring System (Annex H).

(r) That the TCC Chair provide appropriate advance notification to Members on the timing at which the VMS would go live.

(Agenda 10)

(s) That the Commission retain all vessels on the current NPFC IUU vessel list.

(t) That the Commission consider the TCC provisional NPFC IUU vessel list and whether to retain these seven vessels on the NPFC IUU vessel list, recognizing that no consensus was reached by the TCC.

(u) That the Commission consider the endorsement of the three stateless vessels to the NPFC IUU vessel list.

(v) That the Commission consider the TCC provisional NPFC IUU vessel list (Annex I) and whether to retain the Panamanian carrier vessel on the NPFC IUU vessel list, recognizing that no consensus was reached by the TCC.

(Agenda 11)

(w) That the Commission adopt the Provisional Compliance Report (Annex J).

(x) That the Commission direct the TCC to conduct a review to ascertain a more accurate understanding of the number of authorized fishing vessels in 2016, 2017 and additional years.

(y) That the Commission consider adopting the list of future reporting obligations following appropriate discussion among Members.

(Agenda 12)

(z) That the Commission take appropriate action to appoint a TCC Vice-Chair.

(aa) That the Commission, based on the TCC review of pertinent elements to TCC, give consideration to the observations by Pew and other NGOs.

(Agenda 14)

(bb) That the Commission provide appropriate direction on the timing and location of the next TCC meeting.

Agenda Item 14. Next Meeting

54. The Chair noted that the tradition for the TCC is to meet adjacent to the Commission meeting.

Recommendation: That the Commission provide appropriate direction on the timing and location of the next TCC meeting.

Agenda Item 15. Adoption of the Report

55. The report was adopted by consensus.

Agenda Item 16. Close of the Meeting

56. The TCC meeting closed at 14:00 on 20 February 2021, Tokyo time.

Annexes:

Annex A – Agenda

Annex B – List of Documents

Annex C – List of Participants

Annex D – Cooperation between NPFC and NPAFC

Annex E – Sustainable Use and Conservation Handbook

Annex F – NPFC High Seas Boarding and Inspection in a COVID-19 Environment - Best Practices

Annex G – CMM 2021-01 On Information Requirements for Vessel Registration

Annex H – CMM 2021-12 On the Vessel Monitoring System (VMS)

Annex I – Provisional NPFC IUU Vessel List

Annex J – NPFC Draft Compliance Report - 2019

Please refer to the NPFC website for the complete annexes.

NPFC

4th Meeting of the Finance and Administration Committee

22 February 2021
Virtual
Meeting Report

Agenda

Agenda Item 1. Opening of the Meeting

Agenda Item 2. Appointment of Rapporteur

Agenda Item 3. Adoption of Agenda

Agenda Item 4. Financial Statement

4.1 Financial Statement from 2019 and 2020 to date

4.2 Status of Member Contributions

4.3 Status of Other Funds

- Working Capital Fund
- Voluntary Contribution
- Special Project Fund

Agenda Item 5. Secretariat's Work Plan; Budget Estimates for 2021-2024

Agenda Item 6. Administration Matters

6.1 NPFC Secondment and Internship programs

6.2 Implementation of 360-degree Performance Review

6.3 Proposed amendment to Staff Regulations

Agenda Item 7. Other matters

Agenda Item 8. Recommendations to the Commission

Agenda Item 9. Next meeting

9.1 Date and place of 5th FAC meeting

9.2 Selection of the Chair and Vice-Chair

Agenda Item 10. Adoption of the Report

Agenda Item 11. Close of the Meeting

MEETING REPORT

Agenda Item 1. Opening of the Meeting

1. The 4th Meeting of the Finance and Administration Committee (FAC) took place as a virtual meeting via WebEx, on 22 February 2021, and was attended by Members from Canada, China, Japan, the Republic of Korea, the Russian Federation, Chinese Taipei, the United States of America, and Vanuatu. Panama, the South Pacific Regional Fisheries Management Organisation (SPRFMO), and the Pew Charitable Trusts (Pew) attended as observers. As the FAC Chair had submitted her resignation in the intersessional period, Mr. Takumi Fukuda (Japan), the FAC Vice-Chair, served as the acting FAC Chair and opened the meeting.

Agenda Item 2. Appointment of Rapporteur

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

Agenda Item 3. Adoption of Agenda

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

Agenda Item 4. Financial Statement

4.1 Financial Statement from 2019 and 2020 to date

4.2 Status of Member Contributions

4.3 Status of Other Funds

- *Working Capital Fund*
- *Voluntary Contribution*
- *Special Project Fund*

4. The Executive Secretary, Dr. Dae-Yeon Moon, reported on the income and expenses in 2019, expenses to date in 2020, the status of Member contributions, and the status of the other funds, including the Working Capital Fund, the Special Project Fund, and Voluntary Contributions (NPFC-2021-FAC04-IP01; NPFC-2021-FAC04-WP01 (Rev. 1)).

Agenda Item 5. Secretariat's Work Plan; Budget Estimates for 2021-2024

5. The Executive Secretary presented the Secretariat's Work Plan for 2021 (NPFC-2021-FAC04-WP02 (Rev. 2)). The FAC reviewed and endorsed the work plan.
   Recommendation: That the Commission adopt the Secretariat's Work Plan for 2021 (Annex D).

6. The Executive Secretary presented the budget estimates for 2021-2024 (NPFC-2021-FAC04-WP01 (Rev. 1)) for the review of the FAC. The FAC endorsed the proposed budgets for 2021 and 2022, and considered the estimated budgets for 2023 and 2024.
   Recommendation: That the Commission adopt the proposed budgets for 2021 and 2022 (Annex E).

7. In the absence of a representative from the North Pacific Anadromous Fish Commission (NPAFC), the FAC considered an invitation for the NPFC to join the International Year of the Salmon Pan-Pacific High Seas Expedition in 2022 and to provide financial support for the expedition (NPFC-2021-FAC04-OP01). The FAC noted the value of the expedition and endorsed the recommendation by the Scientific Committee to provide financial support of 10,000 USD. However, the FAC noted the need for additional information to be able to fully review the request for an additional 250,000 CAD in financial support. As the expedition is scheduled to begin in early 2022, the FAC noted the need to expedite such a review.
   Recommendation: That the Commission provide financial support of 10,000 USD to International Year of the Salmon Pan-Pacific High Seas Expedition.
   Recommendation: That the Commission review the request for an additional 250,000 CAD in financial support and invite the Executive Director of the NPAFC to provide further details about the expedition at COM06.

Agenda Item 6. Administration Matters

6.1 NPFC Secondment and Internship programs

8. The Executive Secretary reported on the outcomes of the 2019 Internship Program and presented one candidate for the 2021 Internship Program for the consideration of the FAC (NPFC-2019-FAC03-WP03). The FAC recognized the contributions of the 2019 interns and noted the benefits of the NPFC Internship Program for both interns and the Secretariat. The FAC reviewed the proposed candidate for the 2021 Internship Program.
   Recommendation: That the Commission hire the candidate proposed in NPFC-2019-FAC03-WP03 for the 2021 NPFC Internship Program.
   Recommendation: That the Commission continue the NPFC Internship Program with at

least two interns annually as budget and circumstances allow.

9. The FAC noted that no Members have proposed candidates for the NPFC Secondment Program.

6.2 Implementation of 360-degree Performance Review

10. The Executive Secretary reported on the process and status of implementing the 360-degree Performance Review for the Secretariat staff in the 2019 fiscal year (NPFC-2021-FAC04-IP02). The FAC noted the value of the 360-degree Performance Review. To ensure the transparency of the results among the Secretariat staff, the FAC agreed that the individual assessments be shared between the NPFC Chair, NPFC Vice-Chair and the individual staff member, prior to release of the further analyses to heads of delegation. The FAC agreed that the Secretariat should continue to conduct the review.

    Recommendation: That the individual assessments of the 360-degree Performance Review for the 2019 fiscal year be shared between the NPFC Chair, NPFC Vice-Chair and the individual staff member, prior to release of the further analyses to the heads of delegation.

    Recommendation: That the summary analyses then be released to the heads of delegation to assist in capacity development of the Secretariat staff.

    Recommendation: That the Commission task the Secretariat with implementing the 360-degree Performance Review for the 2020 fiscal year.

6.3 Proposed amendment to Staff Regulations

11. The Executive Secretary presented proposed amendments to Regulations 7.8, 7.9, and 7.10 of the Staff Regulations to align the Staff Regulations with local (Japanese) labor regulations on childcare and nursing care leaves (NPFC-2021-FAC04-WP04). The FAC endorsed the proposed amendments.

    Recommendation: That the Commission adopt the proposed amendments to Regulations 7.8, 7.9, and 7.10 of the Staff Regulations (Annex F).

12. Japan requested that, in the event of future changes to the Japanese labor regulations, the Secretariat work in consultation with a labor expert to propose further amendments to the Staff Regulations as appropriate and present them to future meetings of the FAC.

Agenda Item 7. Other matters

13. No other matters were discussed.

Agenda Item 8. Recommendations to the Commission

14. The FAC recommended the following to the Commission:

(Agenda Item 5)

(a) That the Commission adopt the Secretariat's Work Plan for 2021 (Annex D).

(b) That the Commission adopt the proposed budgets for 2021 and 2022 (Annex E).

(c) That the Commission provide financial support of 10,000 USD to International Year of the Salmon Pan-Pacific High Seas Expedition.

(d) That the Commission review the request for an additional 250,000 CAD in financial support and invite the Executive Director of the NPAFC to provide further details about the expedition at COM06.

(Agenda Item 6)

(e) That the Commission hire the candidate proposed in NPFC-2019-FAC03-WP03 for the 2021 NPFC Internship Program.

(f) That the Commission continue the NPFC Internship Program with at least two interns annually as budget and circumstances allow.

(g) That the individual assessments of the 360-degree Performance Review for the 2019 fiscal year be shared between the NPFC Chair, NPFC Vice-Chair and the individual staff member, prior to release of the further analyses to the heads of delegation.

(h) That the summary analyses then be released to the heads of delegation to assist in capacity development of the Secretariat staff.

(i) That the Commission task the Secretariat with implementing the 360-degree Performance Review for the 2020 fiscal year.

(j) That the Commission adopt the proposed amendments to Regulations 7.8, 7.9, and 7.10 of the Staff Regulations (Annex F).

(Agenda Item 9)

(k) That the 5th FAC meeting be held in conjunction with COM07 (location and date TBD).

(l) That the Commission consider the selection of the FAC Chair and Vice-Chair.

Agenda Item 9. Next Meeting

9.1 Date and place of 5th FAC meeting

15. ***Recommendation:*** That the 5th FAC meeting be held in conjunction with COM07 (location and date TBD).

9.2 Selection of the Chair and Vice-Chair

16. The FAC noted the need for further discussion on the selection of the Chair and Vice-Chair and agreed to seek the guidance of the Commission on this matter.

Recommendation: That the Commission consider the selection of the FAC Chair and Vice-Chair.

Agenda Item 10. Adoption of the Report

17. The report was adopted by consensus.

Agenda Item 11. Close of the Meeting

18. The FAC meeting closed at noon, Tokyo time, on 22 February 2021.

Annexes:

Annex A – Agenda
Annex B – List of Documents
Annex C – List of Participants
Annex D – Secretariat's Work Plan for 2021
Annex E – Commission Budgets for 2021-2024
Annex F – Amendments to Staff Regulations

Please refer to the NPFC website for the complete annexes.

NPFC

6th Commission Meeting

23-25 February 2021
Virtual
Meeting Report

Agenda

Agenda Item 1. Opening of Meeting
- 1.1 Welcome Address
- 1.2 Adoption of Agenda

Agenda Item 2. Membership of the Commission
- 2.1 Status of the Membership
- 2.2 EU application
- 2.3 Other applications for membership or CNCP status

Agenda Item 3. Report from the Secretariat

Agenda Item 4. Report of the Scientific Committee
- 4.1 Review of SC05 Report
- 4.2 Review of the SC special meeting Report

Agenda Item 5. Report of the 5th Technical and Compliance Committee meeting
- 5.1 Review of TCC Report*, and as needed:*
  - 5.1.1 Consideration and adoption of the IUU Vessel List
  - 5.1.2 Consideration of VMS approach including the data security and confidentiality protocol
  - 5.1.3 Consideration and adoption of the compliance monitoring report and associated considerations for obligations to be assessed in 2021
  - 5.1.4 Other TCC issues as identified during TCC 5 or by COM 6

Agenda Item 6. Report of the 4th Finance and Administration Committee meeting
- 6.1 Review of FAC Report
- 6.2 Adoption of the proposed budget for 2021 and 2022

Agenda Item 7. Conservation and Management Measures
- 7.1 Review of the CMMs, amendments or new CMMs recommended by the Committees
- 7.2 Allocation of Total Allowable Catch (TAC) of Pacific saury in the Convention Area

Agenda Item 8. Data Management and Security
- 8.1 Progress in Development of NPFC Data Management System

8.2 NPFC Data Sharing and Data Security Protocols

Agenda Item 9. Cooperation with other organizations

Agenda Item 10. Other matters

10.1 Performance Review of the Commission

10.2 Selection of a new Executive Secretary

10.3 Press Release

10.4 Others

Agenda Item 11. Date and Place of next meeting of the Commission and its Committees

Agenda Item 12. Adoption of the report

Agenda Item 13. Close of Meeting

MEETING REPORT

Agenda Item 1. Opening of the Meeting

1. The 6th Meeting of the North Pacific Fisheries Commission (NPFC) took place as a virtual meeting via WebEx, on 23-25 February 2021, and was attended by Members from Canada, China, Japan, the Republic of Korea, the Russian Federation, Chinese Taipei, the United States of America, and Vanuatu. The European Union, Panama, the North Pacific Anadromous Fish Commission (NPAFC), the South Pacific Regional Fisheries Management Organisation (SPRFMO), the Deep Sea Conservation Coalition (DSCC), the Pew Charitable Trusts (Pew), Global Fishing Watch (GFW), World Wildlife Fund (WWF), the Australian National Centre for Ocean Resources and Security (ANCORS), and the Organization for Regional and Inter-regional Studies (ORIS) of Waseda University attended as observers. The meeting was opened by Dr. Vladimir Belyaev (Russia), who served as the Commission Chair.

1.1 Welcome Address

2. The Chair welcomed the participants to the meeting. He noted that, despite the difficulties posed by the COVID-19 pandemic, the Commission and Secretariat have worked actively to hold meetings in a virtual format, while meetings of the heads of delegation have also been held to discuss regulations on important issues. The Chair then outlined the key issues up for discussion and concluded his address by wishing for the good health of all participants and the success of the meeting.

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

1.2 Adoption of Agenda

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

Agenda Item 2. Membership of the Commission

2.1 Status of membership

5. The report on the status of the Convention by the Republic of Korea, the Depositary of the

NPFC, was taken as read (NPFC-2021-COM06-IP02). Since the previous Commission meeting, the total number of Members remains at eight.

2.2 EU application

6. The Chair explained that the EU's application for accession to the NPFC Convention and its updated fisheries operation plan have been reviewed by the Scientific Committee (SC) and the Technical and Compliance Committee (TCC). The latest version of the EU's fisheries operation plan is described in NPFC-2021-TCC05-OP1.

7. The EU expressed its continued interest in fishing in the NPFC Convention Area and its wish to give effect to its duty to cooperate with the NPFC by becoming a Member under Article 8 of UNFSA. The EU reported that it has continued to submit updated versions of its application and fisheries operation plan with the additional information requested by the Commission and its subsidiary bodies.

8. The Commission considered the EU's application. Members invited the EU to accede to the NPFC Convention by consensus, and requested the EU to deposit the instruments of ratification with the Depositary.

9. The Commission noted continued concerns among some Members regarding the EU's fisheries operation plan, including the size and capacity of the proposed EU trawler, the potential impact of the EU's proposed fishing activities on the chub mackerel stock and potentially on other pelagic species, and the proposed area of fishing operations. The Commission tasked the SC, the TCC, and any of their relevant subsidiary bodies to continue to consider and provide advice on the EU's fisheries operation plan.

10. Japan made a statement regarding its position on conditions to be attached to EU fishing operation (Annex D), which was supported by China.

11. The EU made a statement on its accession to the NPFC Convention (Annex E).

2.3 Other applications for membership or CNCP status

12. The Chair explained the status of Panama's application for renewal of cooperating non-contracting party (CNCP) status.

13. Panama reiterated its firm commitment to combatting illegal, unreported and unregulated (IUU) fishing and complying with all NPFC regulations and Conservation and Management

Measures (CMMs). Panama explained that it has made significant efforts to enhance compliance and improve fleet monitoring, including strengthened domestic regulations, and structural and technological improvements.

14. The Commission considered the application. Some Members noted Panama's commitment to combatting IUU fishing and complying with the NPFC's regulations and CMMs. Some Members expressed continued concern about Panama's capacity to control its carrier vessels, but were willing to support the application with the expectation that Panama would improve said capacity and report on its progress at the next Commission meeting. The Commission approved the renewal of Panama's CNCP status until the next Commission meeting, which is supposed to be held in the early part of 2022, subject to intersessional decision. Panama's CNCP status shall enter into force upon the conclusion of this meeting and shall be reviewed at the next Commission meeting.

15. Japan pointed out that, unlike many other RFMOs, the NPFC has yet to design and implement a scheme for monitoring and controlling at-sea transshipment activities. Japan expressed its hope that the Commission would be able to adopt a scheme that is equivalent to that of other RFMOs at its next meeting. Without such a mechanism, it would be difficult for Japan to consider the extension of the CNCP status for Panama at the next Commission meeting.

Agenda Item 3. Report from the Secretariat

16. The annual report on the Commission's activities for the intersessional period between the 5th Commission Meeting of July 2019 and this current Commission meeting was taken as read and there were no comments from Members (NPFC-2021-AR (Rev. 1)).

Agenda Item 4. Report of the 5th Scientific Committee meeting

4.1 Review of SC05 Report

4.2 Review of the SC special meeting Report

17. The Chair of the SC, Dr. Janelle Curtis (Canada), summarized the outcomes of the 5th SC meeting (NPFC-2020-SC05-Final Report) and the Special Meeting of the SC (NPFC-2021-SCsm01-Final Report) for discussion by the Commission.

18. Regarding the recommendation by the SC that the Commission revise CMM 2019-06 For Bottom Fisheries and Protection of VMEs in the NE Pacific Ocean to revise the requirements for reporting of an encounter of VME indicator taxa and the collection of supplementary information, the Commission agreed to defer discussions to its next meeting, due to time limitations.

19. Regarding the recommendation by the SC that reporting requirements be changed such that Convention Area chub mackerel fisheries be required to report bycatch of pelagic species (in weight or numbers, by species), the Commission agreed to defer discussions to its next meeting, due to time limitations.

20. The Commission adopted the reports and the recommendations of the SC and Special Meeting (Annex F).

Agenda Item 5. Report of the 5th Technical and Compliance Committee meeting

5.1 Review of TCC Report, and as needed:

5.1.1 Consideration and adoption of the IUU Vessel List

21. The Chair of the TCC, Dr. Robert Day (Canada), summarized the outcomes of the 5th TCC meeting (NPFC-2021-TCC05-Final Report) for discussion by the Commission.

22. The Commission endorsed the inclusion of three stateless vessels on the NPFC IUU Vessel List, as recommended by the TCC.

23. Regarding the six vessels from the provisional IUU vessel list that had not been registered at the time of commencement of fishing activities, China provided an update on its discussions with other Members following TCC05 and explained that this was the result of an internal process error and that all vessels were legally authorized, as well as the actions it has taken in relation to those vessels. Based on this update, the Commission agreed to not include the vessels on the NPFC IUU Vessel List.

24. Regarding F/V ZHOU YU 807, which appeared significantly different in its picture on the NPFC Vessel Registry and the photographs at sea, China provided additional information, as detailed in NPFC-2021-COM06-IP05, to address the points raised in NPFC-2021-TCC05-IP11. The Commission considered the additional information and the follow-up actions taken by China and agreed to not include the vessel on the NPFC IUU Vessel List.

25. The Commission discussed whether to include the Panamanian carrier vessel M/V DA FENG MARINER, which had no IRCS and had data reporting gaps, on the NPFC IUU Vessel List. Panama explained that it has taken actions to address the situation. Japan presented an analysis showing the inconsistencies between the vessel's transshipment locations as reported by Panama, and the vessel's track lines for the same period according to satellite AIS (NPFC-2021-COM06-IP06). Panama explained that this was due to an internal error whereby it mistakenly reported the September and October data of GLOBAL MARINER, instead of that for M/V DA FENG MARINER, to the NPFC. Panama provided revised data for the

transshipment activities of M/V DA FENG MARINER as described in NPFC-2021-COM06-IP07. The Commission considered the additional information and the follow-up actions taken by Panama and agreed to not include the vessel on the NPFC IUU Vessel List.

26. One Member expressed continued concern about the fishing activities of M/V DA FENG MARINER. The Commission requested that Panama continue its investigation of the activities of the vessel and provide updates as appropriate.

27. The Commission decided to retain all previously recorded IUU vessels and the additional ones noted above and adopted the NPFC IUU Vessel List for 2021 (Annex I).

5.1.2 Consideration of VMS approach including the data security and confidentiality protocol

28. The Commission developed and adopted the NPFC Data Sharing and Data Security Protocol for the Vessel Monitoring System (Annex J), taking into account the progress made by TCC05.

29. The Commission noted the concerns of one Member that the provisions of 14 c), regarding how data would be shared for use while undertaking HSBI operations, would solely be for the purpose of the NPFC Data Sharing and Data Security Protocol for the Vessel Monitoring System.

5.1.3 Consideration and adoption of the compliance monitoring report and associated considerations for obligations to be assessed in 2021

30. The Commission adopted the Provisional Compliance Report (Annex K).

31. The Commission reviewed the progress made by TCC05 to develop future reporting obligations for the Compliance Monitoring Scheme, and advanced the work further through additional discussion. The Commission agreed that all obligations making use of the word "shall" would be considered for assessment. The CMR would comprise those for which data is available to the Secretariat. The remaining obligations would be assessed to identify the data gaps that disallow an assessment. The list of obligations is attached as Annex L.

5.1.4 Other TCC issues as identified during TCC 5 or by COM 6

32. The Commission reviewed the progress made by TCC05 to include specifications for a standard boarding ladder for inspector safety in the rough northern Pacific Ocean in CMM 2017-09 for High Seas Boarding and Inspection Procedures for the NPFC. The Commission advanced the work further through additional discussion.

33. Many Members recognized that NPFC Member inspectors are at risk of serious injury during

the boarding process and that minimum standards for boarding ladders should be implemented to minimize this risk. The Commission agreed to amend the CMM to include an annex to encourage adoption of boarding ladders that meet minimum standards and adopted the revised CMM (Annex M). Members are encouraged to ensure, to the extent possible, that their authorized vessels adopt the specifications in the annex while discussions and evaluations continue intersessionally. The Commission tasked the TCC to monitor the issue of boarding ladder use during high seas boarding and inspection, and consider implementation of requirements and means to ensure the safety at sea.

34. Due to time limitations, the Commission agreed to discuss the selection of the TCC Vice-Chair intersessionally.

35. The Commission adopted the report and the recommendations of the TCC (Annex G).

Agenda Item 6. Report of the 4th Finance and Administration Committee meeting

6.1 Review of FAC Report

36. The Vice-Chair of the Finance and Administration Committee (FAC), Mr. Takumi Fukuda, who served as the Acting Chair of the 4th FAC meeting due to the resignation of the FAC Chair in the intersessional period, summarized the outcomes of the meeting (NPFC-2021-FAC04 Final Report) for discussion by the Commission.

37. The Executive Director of NPAFC, Dr. Vladimir Radchenko, provided additional information about the NPAFC's invitation for the NPFC to join the International Year of the Salmon Pan-Pacific High Seas Expedition in 2022 and provide financial support for the expedition. Dr. Radchenko provided a financial breakdown for the expedition and explained that there is currently a 1.3 million CAD shortfall in the necessary fundraising. He explained that the expedition will yield scientific information about NPFC priority species, and that the NPFC's participation will promote scientific cooperation between NPFC and NPAFC on a socially and scientifically important project, provide valuable experience for NPFC scientists, and strengthen NPFC and NPAFC's positioning on the ICES & PICES program for the UN Decade of Ocean Science for Sustainable Development.

38. The Commission noted the scientific benefits of the proposed project. Upon reviewing the status of its funds, the Commission determined that it could not make a decision on the NPAFC's request for financial support at this meeting. The Commission agreed that the Secretariat shall produce a document detailing the status on surplus in the Commission budget, including the status of voluntary contribution from a CNCP and contribution from a new Member, and circulate it to Members. The Commission agreed that a decision on this will be

made through the intersessional decision-making process before August 31, 2021.

39. China noted that such funding should not pose additional burden to the budget and will not affect future works of this Commission. China requested that the joint survey shall be reviewed by the subsidiary bodies of this Commission on a yearly basis and reported to the Commission.

40. Due to time limitations, the Commission agreed to discuss the selection of the FAC Chair and Vice-Chair intersessionally.

6.2 Adoption of the proposed budget for 2021 and 2022

41. The Commission adopted the proposed budgets for 2021 and 2022 as submitted by the FAC (NPFC-2021-FAC04 Final Report).

42. The Commission considered the indicative budgets for 2023 and 2024 as submitted by the FAC (NPFC-2021-FAC04 Final Report).

43. The Commission adopted the report and the recommendations of the FAC (Annex H).

Agenda Item 7. Conservation and Management Measures

7.1 Review of the CMMs, amendments or new CMMs recommended by the Committees

44. Based on a review of the CMMs and the recommendations by the SC and the TCC, the Commission adopted CMM 2021-01 On Information Requirements for Vessel Registration (Annex N), CMM 2021-09 For High Seas Boarding and Inspection Procedures for the NPFC (Annex O), and CMM 2021-12 On the Vessel Monitoring System (VMS) (Annex P).

45. Japan presented a proposal to amend CMM 2019-05 For Bottom Fisheries and Protection of VMEs in the NW Pacific Ocean to revise requirements for reporting of an encounter of VME indicator taxa and the collection of supplementary information, amend monitoring survey protocols for North Pacific armorhead, and introduce measures to protect two areas identified as potential VME sites by the SC (NPFC-2021-COM06-WP01 (Rev. 2)).

46. The Commission reviewed and revised the proposal. The Commission adopted the revised CMM (Annex Q) with the understanding that this CMM shall become effective 90 calendar days after the date of transmittal specified in the Chairperson's notification of the adoption of the decision by the Commission, except its Annex 6 that shall become effective on March 1, 2021.

47. Japan presented a proposal to amend CMM 2019-11 For Japanese Sardine and Japanese Flying

Squid to add neon flying squid to its scope (NPFC-2021-COM06-WP02).

48. The Commission reviewed and endorsed the proposal and adopted the revised CMM (Annex R).

7.2 Allocation of Total Allowable Catch (TAC) of Pacific saury in the Convention Area

49. Japan presented a proposal to amend CMM 2019-08 For Pacific Saury to set the total allowable catch (TAC), to reduce Members' annual total catch of Pacific saury by 40% from the amount they reported in 2018, to introduce a notification mechanism if a Member reaches 70% and 100% of its catch limit, and to establish a joint SC-TCC-COM Small Working Group in 2021 toward the establishment of harvest control rules for Pacific saury and establishment of a management procedure to be formulated through an MSE process (NPFC-2021-COM06-WP05 Rev. 1).

50. Vanuatu presented a proposal to amend CMM 2019-08 For Pacific Saury to take into consideration small island developing States when revising this CMM in future (NPFC-2021-COM06-IP04).

51. The Commission reviewed and revised the Japanese proposal, reviewed and revised Vanuatu's proposal, and adopted the revised CMM (Annex S), in which the catch limitation of Pacific saury in the entire area and the TAC in the Convention Area apply for the year 2021 and 2022.

52. Some Members remained concerned with the TAC agreed to for Pacific saury, which exceeds Fmsy determined by the joint stock assessment by the Small Scientific Committee on Pacific Saury. As well, Members noted their commitment to advance an MSE process for Pacific saury, given the urgent need for effective management of the stock.

Agenda Item 8. Data Management and Security

8.1 Progress in Development of NPFC Data Management System

53. The update on the progress in the development of the NPFC data management system was taken as read and there were no comments from Members (NPFC-2021-TCC05-IP02).

8.2 NPFC Data Sharing and Data Security Protocols

54. The update on the progress in the development of the NPFC Data Sharing and Data Security Protocol was taken as read and there were no comments from Members.

Agenda Item 9. Cooperation with Other Organizations

55. Due to time limitations, the Commission agreed to discuss cooperation with other organizations

intersessionally.

Agenda Item 10. Other Matters

10.1 Performance Review of the Commission

56. Due to time limitations, the Commission agreed to discuss the review of the methodologies applied by other RFMOs in conducting their performance reviews (NPFC-2021-COM06-WP04) intersessionally.

10.2 Selection of a new Executive Secretary

57. The Secretariat presented a proposed timeline for the selection of a new Executive Secretary. The Commission endorsed the timeline and agreed to hold further discussions about the selection process intersessionally.

10.3 Press Release

58. Due to time limitations, the Commission was not able to discuss the drafting of a press release.

10.4 Others

59. Due to time limitations, the Commission agreed to defer the discussions of matters listed under this agenda item to the next Commission meeting (NPFC-2021-COM06-OP02 – 05).

Agenda Item 11. Date and Place of next meeting of the Commission and its Committees

60. Members expressed an interest in shifting the schedule of the Commission and its Committees from that of past years, specifically holding meetings of TCC, FAC, and the Commission early in the year, at the latest in April, and meetings of the SC and its subsidiary bodies later in the year, after the conclusion of the fishing season. The Commission agreed to continue discussions on the date and place of the next meetings intersessionally.

Agenda Item 12. Adoption of the Report

61. The report was adopted by consensus.

Agenda Item 13. Close of Meeting

62. The Commission meeting closed at 16:36 on 25 February 2021, Tokyo time.

Annexes:

Annex A – Agenda
Annex B – List of Documents
Annex C – List of Participants
Annex D – Japan's Position on Conditions to be attached to EU Fishing Operation
Annex E – 6th Annual Meeting of the NPFC – EU Statement on Accession to the Convention
Annex F – Scientific Committee Meeting Reports
Annex G – Technical and Compliance Committee Report
Annex H – Finance and Administration Committee Report
Annex I – NPFC IUU Vessel List - 2021
Annex J – NPFC Data Sharing and Data Security Protocol for VMS
Annex K – NPFC Compliance Monitoring Report
Annex L – List of Reporting Obligations for 2022
Annex M – Introduction of a Boarding Ladder for High Seas Boarding & Inspection
Annex N – CMM 2021-01 On Information Requirements for Vessel Registration
Annex O – CMM 2021-09 For High Seas Boarding and Inspection Procedures for the NPFC
Annex P – CMM 2021-12 On the Vessel Monitoring System (VMS)
Annex Q – CMM 2021-05 For Bottom Fisheries and Protection of Vulnerable Marine Ecosystems in the Northwestern Pacific Ocean
Annex R – CMM 2021-11 For Japanese Sardine, Neon Flying Squid and Japanese Flying Squid
Annex S – CMM 2021-08 For Pacific Saury

Please refer to the NPFC website for the complete annexes.

https://www.npfc.int