



North Pacific Fisheries Commission

## 6<sup>th</sup> Meeting of the North Pacific Fisheries Commission

### REPORT

23-25 February 2021  
Video conference

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**North Pacific Fisheries Commission**  
**6<sup>th</sup> Commission Meeting**

**09:00-13:00, 23-25 February 2021, Tokyo time**  
**Virtual Meeting**

**REPORT**

Agenda Item 1. Opening of the Meeting

1. The 6<sup>th</sup> 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 5<sup>th</sup> 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 5<sup>th</sup> 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 5<sup>th</sup> 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 5<sup>th</sup> 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 5<sup>th</sup> 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 4<sup>th</sup> 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 4<sup>th</sup> 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**

<b>Annex A</b>	Agenda
<b>Annex B</b>	List of Documents
<b>Annex C</b>	List of Participants
<b>Annex D</b>	Japan's Position on Conditions to be attached to EU Fishing Operation
<b>Annex E</b>	6th Annual Meeting of the NPFC – EU Statement on Accession to the Convention
<b>Annex F</b>	Scientific Committee Meeting Reports
<b>Annex G</b>	Technical and Compliance Committee Report
<b>Annex H</b>	Finance and Administration Committee Report
<b>Annex I</b>	NPFC IUU Vessel List - 2021
<b>Annex J</b>	NPFC Data Sharing and Data Security Protocol for VMS
<b>Annex K</b>	NPFC Compliance Monitoring Report
<b>Annex L</b>	List of Reporting Obligations for 2022
<b>Annex M</b>	Introduction of a Boarding Ladder for High Seas Boarding & Inspection
<b>Annex N</b>	CMM 2021-01 On Information Requirements for Vessel Registration
<b>Annex O</b>	CMM 2021-09 For High Seas Boarding and Inspection Procedures for the NPFC
<b>Annex P</b>	CMM 2021-12 On the Vessel Monitoring System (VMS)
<b>Annex Q</b>	CMM 2021-05 For Bottom Fisheries and Protection of Vulnerable Marine Ecosystems in the Northwestern Pacific Ocean
<b>Annex R</b>	CMM 2021-11 For Japanese Sardine, Neon Flying Squid and Japanese Flying Squid
<b>Annex S</b>	CMM 2021-08 For Pacific Saury

## Agenda

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- 1.2 Adoption of Agenda

### Agenda Item 2. Membership of the Commission

- 2.1 Status of the Membership
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- 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 5<sup>th</sup> 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 4<sup>th</sup> 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

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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

## List of Documents

### MEETING INFORMATION PAPERS

Document Number	Title
NPFC-2021-COM06-MIP01	Meeting Information
NPFC-2021-COM06-MIP02	Provisional Agenda
NPFC-2021-COM06-MIP03	Annotated Provisional Agenda
NPFC-2021-COM06-MIP04 (Rev. 3)	Indicative Schedule

### WORKING PAPERS

Document Number	Title
NPFC-2021-AR	Secretariat's Annual Report
NPFC-2021-COM06-WP01 (Rev. 2)	Proposed Amendment to CMM 2019-05
NPFC-2021-COM06-WP02	Proposed amendment to CMM 2019-11
NPFC-2021-COM06-WP03	Cooperation with Other Organizations
NPFC-2021-COM06-WP04	Review of Performance Review undertaken by other RFMOs
NPFC-2021-COM06-WP05 (Rev. 1)	Amendment to CMM for Pacific Saury
NPFC-2021-COM06-WP06	Proposed amendment to CMM 2019-07 for Chub Mackerel

### INFORMATION PAPERS

Document Number	Title
NPFC-2021-COM06-IP01	Meeting Schedules for other organizations
NPFC-2021-COM06-IP02	Status of the Convention
NPFC-2021-COM06-IP03	NPFC meeting schedule proposed by Japan
NPFC-2021-COM06-IP04	Vanuatu Statement on NPFC Pacific Saury CMM
NPFC-2021-COM06-IP05	China's response to NPFC-2021-TCC05-IP11
NPFC-2021-COM06-IP06	AIS Tracks for DAFENG MARINER
NPFC-2021-COM06-IP07	Additional Information from Panama
NPFC-2021-COM06-IP08	Balance of NPFC Funds
NPFC-2021-COM06-IP09 (Rev 1)	TCC05 Issues for Commission
NPFC-2021-COM06-IP10	Draft Press Release COM06 2021

## **REFERENCE DOCUMENTS**

<b>Document Number</b>	<b>Title</b>
NPFC-2021-TCC05-WP02	Panama Application for Renewal of CNCP Status
NPFC-2021-TCC05-WP04 (Rev 1)	NPFC Data Sharing and Data Security Protocol for VMS
NPFC-2021-TCC05-WP10 (Rev 2)	CMR List of Obligations for Consideration
NPFC-2021-TCC05-IP02	IT Initiatives for 2020 and 2021
NPFC-2021-TCC05-OP01	EU Application to accede to NPFC

## **OBSERVER PAPERS**

<b>Document Number</b>	<b>Title</b>
NPFC-2021-COM06-OP01	Proposed MoU between SPRFMO and NPFC
NPFC-2021-COM06-OP02	NGO letter to NPFC Members
NPFC-2021-COM06-OP03	The Pew Charitable Trusts Statement
NPFC-2021-COM06-OP04	Analysis of AIS-detected Transshipment and Port Activity in NPFC CA 2019
NPFC-2021-COM06-OP05	Global 'light' fishing fleet
NPFC-2021-COM06-OP06	NPAFC invitation to join Pan-Pacific high seas expedition

## **MEETING REPORTS**

<b>Document number</b>	<b>Title</b>
NPFC-2020-SC05-Final Report	Report of the 5 <sup>th</sup> Scientific Committee
NPFC-2021-SCsm01-Final Report	Report of the 1 <sup>st</sup> Special Meeting of the Scientific Committee
NPFC-2021-TCC05 Final Report	Report of the 5 <sup>th</sup> Technical and Compliance Committee
NPFC-2021-FAC04 Final Report	Report of the 4 <sup>th</sup> Finance and Administration Committee

## List of Participants

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**Japan's Position on Conditions to be attached to EU Fishing Operation**

- The number of EU super-large-scale trawlers to be registered in the NPFC vessel registry shall be limited to one (1) . Once the super-large-scale trawler is registered in the NPFC vessel registry, the registered vessel shall not be replaced by another vessel during the year.
- The fishing operation by the EU super-large-scale trawler shall be restricted to mid-water trawling only.
- The fishing operation by the EU super-large-scale trawler shall be restricted in the Convention Area, east of 150°E and beyond 200 miles from the EEZ boundaries of coastal States.
- The catch limit of chub mackerel and other pelagic species for the EU super-large-scale trawler shall be determined in accordance with relevant provisions, including but not limited to Article 3, paragraph (h) and Article 7, subparagraphs 1 (g) and (h) of the Convention.

**6<sup>th</sup> Annual Meeting of the NPFC – EU Statement on Accession to the Convention**

The European Union (EU) would like to express its sincere gratitude to the North Pacific Fisheries Commission (NPFC) for agreeing to accept the EU's application to accede to the Convention on the Conservation and Management of High Seas Fisheries Resources in the North Pacific Ocean. In particular, we would like to thank delegations for their constructive engagement and flexibility. Ensuring 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 is a priority for the EU. As a Member, the EU will contribute actively to the NPFC's efforts in this regard, including the important work of the Scientific Committee. We will also cooperate fully in the implementation of NPFC conservation and management measures (CMMs), ensure compliance by our fishing vessels and nationals with the provisions of the Convention and the CMMs, and support the NPFC's efforts to combat illegal, unreported and unregulated fishing in the Convention Area.

The EU has taken note of the concerns expressed by some Members about the potential impact of future EU fishing activities on the fisheries resources under the purview of the NPFC. We stand ready to continue to engage with those Members and others in a spirit of openness and compromise to address these concerns.

We look forward to completing the accession process as soon as possible and to working with all Members to give effect to the objective of the Convention.

**North Pacific Fisheries Commission  
5<sup>th</sup> Meeting of the Scientific Committee**

**24-27 November 2020**

**Video conference**

**REPORT**

Agenda Item 1. Opening of the meeting

1. The 5<sup>th</sup> 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 1<sup>st</sup> 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 5<sup>th</sup> and 6<sup>th</sup> 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  $B_{msy}$ .
- (b) A majority of base case model comparisons indicate that recent harvest rates for Pacific saury were higher than  $F_{msy}$ .
- (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 3<sup>rd</sup> 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

## 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)

4.1 SSC on Bottom Fish and Marine Ecosystems

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

## List of Documents

**MEETING INFORMATION PAPERS**

Document Number	Title
NPFC-2020-SC05-MIP01 (Rev. 1)	Details for the virtual meetings of the Scientific Committee and its subsidiary bodies
NPFC-2020-SC05-MIP02	Provisional Agenda
NPFC-2020-SC05-MIP03 (Rev. 1)	Annotated Indicative Schedule

**REFERENCE DOCUMENTS**

Document Number	Title
NPFC-2020-SSC BFME01-WP02	A proposal to develop ‘Species Summary’ documents for the NPFC priority species
NPFC-2020-TWG CMSA03-WP11	Demonstration Management Strategy Evaluation for Chub Mackerel Using Open-Source Tools
NPFC-2020-SSC BFME01-IP02 (Rev. 1)	NPFC SC Project #10: International Course for NPFC Observers for VME Indicator Taxa Identification
NPFC CIRCULAR #006/2020	NPFC Circular #006/2020 Application of the EU to accede to the NPFC Convention
	Letter to Mr. V. Belyaev Ares 587988 of 30.01.20
	Annex 1 - EU Fisheries Operation Plan and impact assessment for Chub mackerel fishery in NPFC
	Interim Regulations for Management of Scientific Data and Information

**WORKING PAPERS**

Document Number	Title
NPFC-2020-SC05-WP01	North Pacific Fisheries Commission Scientific Committee 2021-2025 Research Plan
NPFC-2020-SC05-WP02	SC Five-Year Rolling Work Plan, 2020-2021 to 2024-2025
NPFC-2020-SC05-WP03	Revision of the Scientific Committee Terms of Reference
NPFC-2020-SC05-WP04	Cooperation between NPFC and NPAFC
NPFC-2020-SC05-WP05 (Rev. 1)	Scientific projects for 2017-2021
NPFC-2020-SC05-WP06	Draft - NPFC Data Sharing and Data Security Protocols

NPFC-2020-SC05-WP07	NPFC Data-Sharing and Data-Security Protocol for Vessel Monitoring System (VMS) Data
NPFC-2020-SC05-WP08	NPFC Data Management System

### **INFORMATION PAPERS**

<b>Document Number</b>	<b>Title</b>
NPFC-2020-SC05-IP01	Participants for priority species groups
NPFC-2020-SC05-IP02	A compiled list of cooperation opportunities and requests from other organizations

### **OBSERVER PAPERS**

<b>Document Number</b>	<b>Title</b>
NPFC-2020-SC05-OP01	Partnership with the Fisheries and Resources Monitoring System of FAO (FIRMS)
NPFC-2020-SC05-OP02	Concept note – a research collaboration proposal between FAO-NPFC-GFW on the use of AIS data technology to improve monitoring of high sea fisheries
NPFC-2020-SC05-OP03	Electronic Monitoring Toolkit
NPFC-2020-SC05-OP04	A proposal from PICES for support of 2022 SPF symposium by NPFC
NPFC-2020-SC05-OP05	ABNJ Deep- Sea Fisheries Project update for the NPFC 5th Scientific Committee Meeting
NPFC-2020-SC05-OP06	The International Year Of The Salmon Pan Pacific High Seas Expedition 2022: A Collaborative International Approach To Understanding How A Rapidly Changing Ocean Affects Pacific Salmon And High Seas Ecosystems

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CMM 2019-05 (Rev. 1)  
(Entered into force 29 November 2019)

**CONSERVATION AND MANAGEMENT MEASURE  
FOR BOTTOM FISHERIES AND PROTECTION OF VULNERABLE MARINE  
ECOSYSTEMS IN THE NORTHWESTERN PACIFIC OCEAN**

*The North Pacific Fisheries Commission (NPFC),*

*Strongly supporting* protection of vulnerable marine ecosystems (VMEs) and sustainable management of fish stocks based on the best scientific information available;

*Recalling* the United Nations General Assembly Resolutions (UNGA) on Sustainable Fisheries, particularly paragraphs 66 to 71 of the UNGA59/25 in 2004, paragraphs 69 to 74 of UNGA60/31 in 2005, and paragraphs 69 and 80 to 91 of UNGA61/105 in 2006;

*Noting*, in particular, paragraphs 66 and 69 of UNGA59/25 that call upon States to take action urgently to address the issue of bottom trawl fisheries on VMEs and to cooperate in the establishment of new regional fisheries management organizations or arrangements;

*Recognizing further* that fishing activities, including bottom fisheries, are an important contributor to the global food supply and that this must be taken into account when seeking to achieve sustainable fisheries and to protect VMEs;

*Recognizing* the importance of collecting scientific data to assess the impacts of these fisheries on marine species and VMEs;

*Concerned* about possible adverse impacts of unregulated expansion of bottom fisheries on marine species and VMEs in the western part of the Convention Area.

*Adopts* the following Conservation and Management Measure:

1. Scope

A. Coverage

These Measures are to be applied to all bottom fishing activities throughout the high seas

areas of the Northwestern Pacific Ocean, defined, for the purposes of this document, as those occurring in the Convention Area as set out in Article 4 of the Convention text to the west of the line of 175 degrees W longitude (here in after called “the western part of the Convention Area”) including all such areas and marine species other than those species already covered by existing international fisheries management instruments, including bilateral agreements and Regional Fisheries Management Organizations or Arrangements.

#### B. Management target

Bottom fisheries conducted by vessels operating in the western part of the Convention Area.

### 2. General purpose

Sustainable management of fish stocks and protection of VMEs in the western part of the Convention Area.

The objective of these Measures 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.

These measures shall set out to prevent significant adverse impacts on VMEs in the Convention Area of the North Pacific Ocean, acknowledging the complex dependency of fishing resources and species belonging to the same ecosystem within VMEs.

The Commission shall re-evaluate, and as appropriate, revise, the definition based on further consideration of the work done through FAO and by NPFC.

### 3. Principles

The implementation of this CMM shall:

- (a) be based on the best scientific information available,
- (b) be in accordance with existing international laws and agreements including UNCLOS and other relevant international instruments,
- (c) establish appropriate and effective conservation and management measures,
- (d) be in accordance with the precautionary approach, and
- (e) incorporate an ecosystem approach to fisheries management.

### 4. Measures

Members of the Commission shall take the following measures in order to achieve sustainable management of fish stocks and protection of VMEs in the western part of the Convention

Area:

- A. Limit fishing effort in bottom fisheries on the western part of the Convention Area to the level agreed in February 2007 in terms of the number of fishing vessels and other parameters which reflect the level of fishing effort, fishing capacity or potential impacts on marine ecosystems.
- B. Not allow bottom fisheries to expand into the western part of the Convention Area where no such fishing is currently occurring, in particular, by limiting such bottom fisheries to seamounts located south of 45 degrees North Latitude and refrain from bottom fisheries in other areas of the western part of the Convention Area covered by these measures and also not allow bottom fisheries to conduct fishing operation in areas deeper than 1,500m.
- C. Notwithstanding subparagraphs A and B above, exceptions to these restrictions may be provided in cases where it can be shown that any fishing activity beyond such limits or in any new areas would not have significant adverse impacts (SAIs) on marine species or any VME. Such fishing activity is subject to an exploratory fishery protocol (Annex 1).
- D. Any determinations pursuant to subparagraph C that any proposed fishing activity will not have SAIs on marine species or any VME are to be in accordance with the Science-based Standards and Criteria (Annex 2), which are consistent with the FAO International Guidelines for the Management of Deepsea Fisheries in the High Seas.
- E. Any determinations, by any flag State or pursuant to any subsequent arrangement for the management of the bottom fisheries in the areas covered by these measures, that fishing activity would not have SAIs on marine species or any VMEs, shall be made publicly available through agreed means.
- F. Prohibit its vessels from engaging in directed fishing on the following taxa: *Alcyonacea*, *Antipatharia*, *Gorgonacea*, and *Scleractinia* as well as any other indicator species for VMEs as may be identified from time to time by the SC and approved by the Commission.
- G. Further, considering accumulated information regarding fishing activities in the western part of the Convention Area, in areas where, in the course of fishing operations, cold water corals more than 50Kg are encountered in one gear retrieval, Members of the Commission shall require vessels flying their flag to cease bottom fishing activities in

that location. In such cases, the vessel shall not resume fishing activities until it has relocated a sufficient distance, which shall be no less than 2 nautical miles, so that additional encounters with VMEs are unlikely. All such encounters, including the location, gear type, date, time and the species name and weight of the VME indicator species in question, shall be reported to the Secretariat, through the Member, as soon as possible [within one business day], who shall immediately notify the other Members of the Commission so that appropriate measures can be adopted in respect of the relevant site. It is agreed that the cold water corals include: *Alcyonacea*, *Antipatharia*, *Gorgonacea*, and *Scleractinia*.

- H. C-H seamount and Southeastern part of Koko seamount, specifically for the latter seamount, the area South of 34 degrees 57 minutes North, East of the 400m isobaths, East of 171 degrees 54 minutes East, North of 34 degrees 50 minutes North, are closed precautionary for potential VME conservation. Fishing in these areas requires exploratory fishery protocol (Annex 1).
- I. Ensure that the distance between the footrope of the gill net and sea floor is greater than 70 cm.
- J. Apply a bottom fisheries closure from November to December.
- K. Limit annual catch of North Pacific armorhead to 15,000 tons for Japan.
- L. Development of new fishing activity for the North Pacific armorhead and splendid alfonsino in the Convention Area by Members without documented historical catch for North Pacific armorhead and splendid alfonsino in the Convention Area shall be determined in accordance with relevant provisions, including but not limited to Article 3, paragraph (h) and Article 7, subparagraphs 1(g) and (h) of the Convention.
- M. In years when strong recruitment of North Pacific armorhead is not detected (Annex 6), the Commission encourages Japan to limit the annual catch of North Pacific armorhead by vessels flying its flag to 500 tons, and encourages Korea to limit the annual catch of North Pacific armorhead by vessels flying its flag to 200 tons. The Commission encourages that catch overages for any given year be subtracted from the applicable annual catch limit in the following year, and that catch underages during any given year not be added to the applicable annual catch limit during the following year.

- N. Notwithstanding subparagraph K, when a strong recruitment of North Pacific armorhead is detected through the monitoring surveys as specified in Annex 6, the Commission encourages that Japan limit the annual catch of North Pacific armorhead by vessels flying its flag to 10,000 tons, and that Korea limit the annual catch of North Pacific armorhead by vessels flying its flag to 2,000 tons. The Commission encourages that catch overages for any given year be subtracted from the applicable annual catch limit in the following year, and that catch underages during any given year not be added to the applicable annual catch limit during the following year. During a year when high recruitment is detected, bottom fishing with trawl gear shall be prohibited in specific areas in the Emperor seamounts where half of the catch occurred in 2010 and 2012 (Annex 6). Determination of a strong recruitment year and of the specific areas where bottom fishing with trawl gear is prohibited shall be communicated to all Members and Cooperating Non-Contracting parties following the procedure specified in Annex 6.
- O. Catch in the monitoring surveys shall not be included in the catch limits specified in paragraphs M and N but shall be reported to the Secretariat.
- P. Fishing activity for the North Pacific armorhead and splendid alfonsino in the Convention Area by Members with documented historical catch for North Pacific armorhead and splendid alfonsino in the Convention Area is not precluded.
- Q. Members shall require vessels flying their flags to use trawl nets with mesh size greater than or equal to 130mm of stretched mesh with 5kg tension in the codend when conducting fishing activities for North Pacific armorhead or splendid alfonsino.
- R. Task the Scientific Committee with reviewing the appropriate methods for establishing catch limits, and the adequacy and practicability of the adaptive management plan described in subparagraphs K, L, M, N, O, P, Q and Annex 6 from time to time and recommending revisions and actions, if necessary.

#### 5. Contingent Action

Members of the Commission shall submit to the SC their assessments of the impacts of fishing activity on marine species or any VMEs, including the proposed management measures to prevent such impact. Such submissions shall include all relevant data and information in support of any such assessment. Procedures for such reviews including procedures for the provision of advice and recommendations from the SC to the submitting Member are attached (Annex 3). Members will only authorize bottom fishing activity pursuant to para 4 (C).

6. Scientific Information

To facilitate the scientific work associated with the implementation of these measures, each Member of the Commission shall undertake:

A. Collection-Reporting of information for purposes of defining the footprint

In implementing paragraphs 4A and 4B, the Members of the Commission shall provide for each year, the number of vessels by gear type, size of vessels (tons), number of fishing days or days on the fishing grounds, total catch by species, and areas fished (names of seamounts) to the Secretariat. The Secretariat shall circulate the information received to the other Members consistent with the approved Regulations for Management of Scientific Data and Information~~Interim Data Handling and Data Sharing Protocol~~. To support assessments of the fisheries and refinement of conservation and management measures, Members of the Commission are to provide update information on an annual basis.

B. Collection of information

(i) Collection of scientific information from each bottom fishing vessel operating in the western part of the Convention Area.

(a) Catch and effort data

(b) Related information such as time, location, depth, temperature, etc.

(ii) As appropriate the collection of information from research vessels operating in the western part of the Convention Area.

(a) Physical, chemical, biological, oceanographic, meteorological, etc.

(b) Ecosystem surveys.

(c) Seabed mapping (e.g. multibeam or other echosounder); seafloor images by drop camera, remotely operated underwater vehicle (ROV) and/or autonomous underwater vehicle (AUV).

(iii) Collection of observer data

Duly designated observers from the flag member shall collect information from bottom fishing vessels operating in the western part of the Convention Area. Observers shall collect data in accordance with Annex 5. Each Member of the Commission shall submit the reports to the Secretariat in accordance with Annex 4. The Secretariat shall compile this information on an annual basis and make it available to the Members of the Commission.

7. Control of bottom fishing vessels

To strengthen its control over bottom fishing vessels flying its flag, each Member of the

Commission shall ensure that all such vessels operating in the western part of the Convention Area be equipped with an operational vessel monitoring system.

8. Observers

All vessels authorized to bottom fishing in the western part of the Convention Area shall carry an observer on board.

**EXPLORATORY FISHERY PROTOCOL IN THE NORTH PACIFIC OCEAN**

1. From 1 January 2009, all bottom fishing activities in new fishing areas and areas where fishing is prohibited in a precautionary manner or with bottom gear not previously used in the existing fishing areas, are to be considered as “exploratory fisheries” and to be conducted in accordance with this protocol.
2. Precautionary conservation and management measures, including catch and effort controls, are essential during the exploratory phase of deep sea fisheries. Implementation of a precautionary approach to sustainable exploitation of deep sea fisheries shall include the following measures:
  - (i) precautionary effort limits, particularly where reliable assessments of sustainable exploitation rates of target and main by-catch species are not available;
  - (ii) precautionary measures, including precautionary spatial catch limits where appropriate, to prevent serial depletion of low-productivity stocks;
  - (iii) regular review of appropriate indices of stock status and revision downwards of the limits listed above when significant declines are detected;
  - (iv) measures to prevent significant adverse impacts on vulnerable marine ecosystems; and
  - (v) comprehensive monitoring of all fishing effort, capture of all species and interactions with VMEs.
3. When a member of the Commission would like to conduct exploratory fisheries, it is to follow the following procedure:
  - (i) Prior to the commencement of fishing, the member of the Commission is to circulate the information and assessment in Appendix 1.1 to the members of the Scientific Committee (SC) for review and to all members of the Commission for information, together with the impact assessment. Such information is to be provided to the other members at least 30 days in advance of the meeting at which the information shall be reviewed.
  - (ii) The assessment in (i) above is to be conducted in accordance with the procedure set forth in “Science-based Standards and Criteria for Identification of VMEs and Assessment of Significant Adverse Impacts on VMEs and Marine Species (Annex 2)”, with the understanding that particular care shall be taken in the evaluation of risks of the significant adverse impact on vulnerable marine ecosystems (VMEs), in line with the precautionary approach.
  - (iii) The SC is to review the information and the assessment submitted in (i) above in accordance with “SC Assessment Review Procedures for Bottom Fishing Activities (Annex 3).”
  - (iv) The exploratory fisheries are to be permitted only where the assessment concludes that they would not have significant adverse impacts (SAIs) on marine species or any VMEs and on the

basis of comments and recommendations of SC. Any determinations, by any Member of the Commission or the SC, that the exploratory fishing activities would not have SAIs on marine species or any VMEs, shall be made publicly available through the NPFC website.

4. The member of the Commission is to ensure that all vessels flying its flag conducting exploratory fisheries are equipped with a satellite monitoring device and have an observer on board at all times.
5. Within 3 months of the end of the exploratory fishing activities or within 12 months of the commencement of fishing, whichever occurs first, the member of the Commission is to provide a report of the results of such activities to the members of the SC and all members of the Commission. If the SC meets prior to the end of this 12-month period, the member of the Commission is to provide an interim report 30 days in advance of the SC meeting. The information to be included in the report is specified in Appendix 1.2.
6. The SC is to review the report in 5 above and decide whether the exploratory fishing activities had SAIs on marine species or any VME. The SC then is to send its recommendations to the Commission on whether the exploratory fisheries can continue and whether additional management measures shall be required if they are to continue. The Commission is to strive to adopt conservation and management measures to prevent SAIs on marine species or any VMEs. If the Commission is not able to reach consensus on any such measures, each fishing member of the Commission is to adopt measures to avoid any SAIs on VMEs.
7. Members of the Commission shall only authorize continuation of exploratory fishing activity, or commencement of commercial fishing activity, under this protocol on the basis of comments and recommendations of the SC.

## **Appendix 1.1**

### **Information to be provided before exploratory fisheries start**

1. A harvesting plan
  - Name of vessel
  - Flag member of vessel
  - Description of area to be fished (location and depth)
  - Fishing dates
  - Anticipated effort
  - Target species

- Bottom fishing gear-type used
- Area and effort restrictions to ensure that fisheries occur on a gradual basis in a limited geographical area.

2. A mitigation plan

- Measures to prevent SAIs to VMEs that may be encountered during the fishery

3. A catch monitoring plan

- Recording/reporting of all species brought onboard to the lowest possible taxonomic level
- 100% satellite monitoring
- 100% observer coverage

4. A data collection plan

- Data is to be collected in accordance with “Type and Format of Scientific Observer Data to be Collected” (Annex 5)

**Appendix 1.2**

**Information to be included in the report**

- Name of vessel
- Flag member of vessel
- Description of area fished (location and depth)
- Fishing dates
- Total effort
- Bottom fishing gear-type used
- List of VME encountered (the amount of VME indicator species for each encounter specifying the location: longitude and latitude)
- Mitigation measures taken in response to the encounter of VME
- List of all organisms brought onboard
- List of VMEs indicator species brought onboard by location: longitude and latitude

## **SCIENCE-BASED STANDARDS AND CRITERIA FOR IDENTIFICATION OF VMES AND ASSESSMENT OF SIGNIFICANT ADVERSE IMPACTS ON VMES AND MARINE SPECIES**

### 1. Introduction

Members of the Commission have hereby established science-based standards and criteria to guide their implementation of United Nations General Assembly (UNGA) Resolution 61/105 and the measures adopted by the Members in respect of bottom fishing activities in the North Pacific Ocean (NPO). In this regard, these science-based standards and criteria are to be applied to identify vulnerable marine ecosystems (VMEs) and assess significant adverse impacts (SAIs) of bottom fishing activities on such VMEs or marine species and to promote the long-term sustainability of deep sea fisheries in the Convention Area. The science-based standards and criteria are consistent with the FAO International Guidelines for the Management of Deep-Sea Fisheries in the High Seas, taking into account the work of other RFMOs implementing management of deep-sea bottom fisheries in accordance with UNGA Resolution 61/105. The standards and criteria are to be modified from time to time as more data are collected through research activities and monitoring of fishing operations.

### 2. Purpose

- (1) The purpose of the standards and criteria is to provide guidelines for each member of the Commission in identifying VMEs and assessing SAIs of individual bottom fishing activities<sup>1</sup> on VMEs or marine species in the Convention Area. Each member of the Commission, using the best information available, is to decide which species or areas are to be categorized as VMEs, identify areas where VMEs are known or likely to occur, and assess whether individual bottom fishing activities would have SAIs on such VMEs or marine species. The results of these tasks are to be submitted to and reviewed by the Scientific Committee with a view to reaching a common understanding among the members of the Commission.
- (2) For the purpose of applying the standards and criteria, the bottom fisheries are defined as follows:
  - (a) The fisheries are conducted in the Convention Area;

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<sup>1</sup> “individual bottom fishing activities” means fishing activities by each fishing gear. For example, if ten fishing vessels operate bottom trawl fishing in a certain area, the impacts of the fishing activities of these vessels on the ecosystem are to be assessed as a whole rather than on a vessel-by-vessel basis. It should be noted that if the total number or capacity of the vessels using the same fishing gear has increased, the impacts of the fishing activities are to be assessed again.

- (b) The total catch (everything brought up by the fishing gear) includes species that can only sustain low exploitation rates; and
- (c) The fishing gear is likely to contact the seafloor during the normal course of fishing operations.

### 3. Definition of VMEs

- (1) Although Paragraph 83 of UNGA Resolution 61/105 refers to seamounts, hydrothermal vents and cold-water corals as examples of VMEs, there is no definitive list of specific species or areas that are to be regarded as VMEs.
- (2) Vulnerability is related to the likelihood that a population, community or habitat will experience substantial alteration by fishing activities and how much time will be required for its recovery from such alteration. The most vulnerable ecosystems are those that are both easily disturbed and are very slow to recover or may never recover. The vulnerabilities of populations, communities and habitats are to be assessed relative to specific threats. Some features, particularly ones that are physically fragile or inherently rare may be vulnerable to most forms of disturbance, but the vulnerability of some populations, communities and habitats may vary greatly depending on the type of fishing gear used or the kind of disturbance experienced. The risks to a marine ecosystem are determined by its vulnerability, the probability of a threat occurring and the mitigation means applied to the threat. Accordingly, the FAO Guidelines only provide examples of potential vulnerable species groups, communities and habitats as well as features that potentially support them (Annex 2.1).
- (3) A marine ecosystem is to be classified as vulnerable based on its characteristics. The following list of characteristics is used as criteria in the identification of VMEs.
  - (a) Uniqueness or rarity - an area or ecosystem that is unique or that contains rare species whose loss could not be compensated for by other similar areas. These include:
    - (i) Habitats that contain endemic species;
    - (ii) Habitats of rare, threatened or endangered species that occur in discrete areas;
    - (iii) Nurseries or discrete feeding, breeding, or spawning areas.
  - (b) Functional significance of the habitat – discrete areas or habitats that are necessary for the survival, function, spawning/reproduction or recovery of fish stocks, particular life-history stages (e.g. nursery grounds or rearing areas), or of rare, threatened or endangered marine species.
  - (c) Fragility – an ecosystem that is highly susceptible to degradation by anthropogenic activities
  - (d) Life-history traits of component species that make recovery difficult – ecosystems that are characterized by populations or assemblages of species with one or more of

the following characteristics:

- (i) Slow growth rates
  - (ii) Late age of maturity
  - (iii) Low or unpredictable recruitment
  - (iv) Long-lived
- (e) Structural complexity – an ecosystem that is characterized by complex physical structures created by significant concentrations of biotic and abiotic features. In these ecosystems, ecological processes are usually highly dependent on these structured systems. Further, such ecosystems often have high diversity, which is dependent on the structuring organisms.
- (4) Management response may vary, depending on the size of the ecological unit in the Convention Area. Therefore, the spatial extent of the ecological unit is to be decided first. That is, whether the ecological unit is the entire Area, or the current fishing ground, namely, the Emperor Seamount and Northern Hawaiian Ridge area (hereinafter called “the ES-NHR area”), or a group of the seamounts within the ESNHR area, or each seamount in the ES-NHR area, is to be decided using the above criteria.

#### 4. Identification of potential VMEs

##### (1) Fished seamounts

##### (a) Identification of fished seamounts

It is reported that four types of fishing gear are currently used by the members of the Commission in the ES-NHR area, namely, bottom trawl, bottom gillnet, bottom longline and pot. A fifth type of fishing gear (coral drag) was used in the ES-NHR area from the mid-1960s to the late 1980s and is possibly still used by non-members of the Commission. These types of fishing gear are usually used on the top or slope of seamounts, which could be considered VMEs. It is therefore necessary to identify the footprint of the bottom fisheries (fished seamounts) based on the available fishing record. The following seamounts have been identified as fished seamounts: Suiko, Showa, Youmei, Nintoku, Jingu, Ojin, Northern Koko, Koko, Kinmei, Yuryaku, Kammu, Colahan, and CH. Since the use of most of these gears in the ES-NHR area dates back to the late 1960s and 1970s, it is important to establish, to the extent practicable, a time series of where and when these gears have been used in order to assess potential long-term effects on any existing VMEs.

Fishing effort may not be evenly distributed on each seamount since fish aggregation may occur only at certain points of the seamount and some parts of the seamount may be physically unsuitable for certain fishing gears. Thus, it is important to know actual fished areas within the same seamount so as to know the gravity of the impact

of fishing activities on the entire seamount.

Due consideration is to be given to the protection of commercial confidentiality when identifying actual fishing grounds.

(b) Assessment on whether a specific seamount that has been fished is a VME

After identifying the fished seamounts or fished areas of seamounts, it is necessary to assess whether each fished seamount is a VME or contains VMEs in accordance with the criteria in 3 above, individually or in combination using the best available scientific and technical information as well as Annex 2.1. A variety of data would be required to conduct such assessment, including pictures of seamounts taken by an ROV camera or drop camera, biological samples collected through research activities and observer programs, and detailed bathymetry map. Where site-specific information is lacking, other information that is relevant to inferring the likely presence of VMEs is to be used.

(2) New fishing areas

Any place other than the fished seamounts above is to be regarded as a new fishing area. If a member of the Commission is considering fishing in a new fishing area, such a fishing area is to be subject to, in addition to these standards and criteria, an exploratory fishery protocol (Annex 1).

## 5. Assessment of SAIs on VMEs or marine species

(1) Significant adverse impacts are those that compromise ecosystem integrity (i.e., ecosystem structure or function) in a manner that: (i) impairs the ability of affected populations to replace themselves; (ii) degrades the long-term natural productivity of habitats; or (iii) causes, on more than a temporary basis, significant loss of species richness, habitat or community types. Impacts are to be evaluated individually, in combination and cumulatively.

(2) When determining the scale and significance of an impact, the following six factors are to be considered:

- (a) The intensity or severity of the impact at the specific site being affected;
- (b) The spatial extent of the impact relative to the availability of the habitat type affected;
- (c) The sensitivity/vulnerability of the ecosystem to the impact;
- (d) The ability of an ecosystem to recover from harm, and the rate of such recovery;
- (e) The extent to which ecosystem functions may be altered by the impact; and
- (f) The timing and duration of the impact relative to the period in which a species needs the habitat during one or more life-history stages.

(3) Temporary impacts are those that are limited in duration and that allow the particular ecosystem to recover over an acceptable timeframe. Such timeframes are to be decided on a case-by-case basis and be on the order of 5-20 years, taking into account the specific features

of the populations and ecosystems.

(4) In determining whether an impact is temporary, both the duration and the frequency with which an impact is repeated is to be considered. If the interval between the expected disturbances of a habitat is shorter than the recovery time, the impact is to be considered more than temporary.

(5) Each member of the Commission is to conduct assessments to establish if bottom fishing activities are likely to produce SAIs in a given seamount or other VMEs. Such an impact assessment is to address, *inter alia*:

- (a) Type of fishing conducted or contemplated, including vessel and gear types, fishing areas, target and potential bycatch species, fishing effort levels and duration of fishing;
- (b) Best available scientific and technical information on the current state of fishery resources, and baseline information on the ecosystems, habitats and communities in the fishing area, against which future changes are to be compared;
- (c) Identification, description and mapping of VMEs known or likely to occur in the fishing area;
- (d) The data and methods used to identify, describe and assess the impacts of the activity, identification of gaps in knowledge, and an evaluation of uncertainties in the information presented in the assessment;
- (e) Identification, description and evaluation of the occurrence, scale and duration of likely impacts, including cumulative impacts of activities covered by the assessment on VMEs and low-productivity fishery resources in the fishing area;
- (f) Risk assessment of likely impacts by the fishing operations to determine which impacts are likely to be SAIs, particularly impacts on VMEs and low-productivity fishery resources (Risk assessments are to take into account, as appropriate, differing conditions prevailing in areas where fisheries are well established and in areas where fisheries have not taken place or only occur occasionally);
- (g) The proposed mitigation and management measures to be used to prevent SAIs on VMEs and ensure long-term conservation and sustainable utilization of low-productivity fishery resources, and the measures to be used to monitor effects of the fishing operations.

(6) Impact assessments are to consider, as appropriate, the information referred to in these Standards and Criteria, as well as relevant information from similar or related fisheries, species and ecosystems.

(7) Where an assessment concludes that the area does not contain VMEs or that significant adverse impacts on VMEs or marine species are not likely, such assessments are to be repeated when there have been significant changes to the fishery or other activities in the area, or when natural processes are thought to have undergone significant changes.

**6. Proposed conservation and management measures to prevent SAIs**

As a result of the assessment in 5 above, if it is considered that individual fishing activities are causing or likely to cause SAIs on VMEs or marine species, the member of the Commission is to adopt appropriate conservation and management measures to prevent such SAIs. The member of the Commission is to clearly indicate how such impacts are expected to be prevented or mitigated by the measures.

**7. Precautionary approach**

If after assessing all available scientific and technical information, the presence of VMEs or the likelihood that individual bottom fishing activities would cause SAIs on VMEs or marine species cannot be adequately determined, members of the Commission are only to authorize individual bottom fishing activities to proceed in accordance with:

- (a) Precautionary, conservation and management measures to prevent SAIs;
- (b) Measures to address unexpected encounters with VMEs in the course of fishing operations;
- (c) Measures, including ongoing scientific research, monitoring and data collection, to reduce the uncertainty; and
- (d) Measures to ensure long-term sustainability of deep sea fisheries.

**8. Template for assessment report**

Annex 2.2 is a template for individual member of the Commission to formulate reports on identification of VMEs and impact assessment.

**Annex 2.1**

**Examples of potential vulnerable species groups, communities and habitats as well as features that potentially support them**

The following examples of species groups, communities, habitats and features often display characteristics consistent with possible VMEs. Merely detecting the presence of an element itself is not sufficient to identify a VME. That identification is to be made on a case-by-case basis through application of relevant provisions of the Standards and Criteria, particularly Sections 3, 4 and 5.

Examples of species groups, communities and habitat forming species that are documented or considered sensitive and potentially vulnerable to deep-sea fisheries
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in the high-seas, and which may contribute to forming VMEs:	
a.	certain cold-water corals, e.g., reef builders and coral forest including: stony corals (scleractinia), alcyonaceans and gorgonians (octocorallia), black corals (antipatharia), and hydrocorals (stylasteridae),
b.	Some types of sponge dominated communities,
c.	communities composed of dense emergent fauna where large sessile protozoans (xenophyphores) and invertebrates (e.g., hydroids and bryozoans) form an important structural component of habitat, and
d.	seep and vent communities comprised of invertebrate and microbial species found nowhere else (i.e., endemic).

Examples of topographical, hydrophysical or geological features, including fragile geological structures, that potentially support the species groups or communities referred to above:

- a. submerged edges and slopes (e.g., corals and sponges)
- b. summits and flanks of seamounts, guyots, banks, knolls, and hills (e.g., corals, sponges and xenophyphores)
- c. canyons and trenches (e.g., burrowed clay outcrops, corals),
- d. hydrothermal vents (e.g., microbial communities and endemic invertebrates), and
- e. cold seeps (e.g., mud volcanoes, microbes, hard substrates for sessile invertebrates).

## Annex 2.2

### Template for reports on identification of VMEs and assessment of impacts caused by individual fishing activities on VMEs or marine species

1. Name of the member of the Commission
2. Name of the fishery (e.g., bottom trawl, bottom gillnet, bottom longline, pot)
3. Status of the fishery (existing fishery or exploratory fishery)
4. Target species
5. Bycatch species
6. Recent level of fishing effort (every year at least since 2002)
  - (1) Number of fishing vessels
  - (2) Tonnage of each fishing vessel
  - (3) Number of fishing days or days on the fishing ground

- (4) Fishing effort (total operating hours for trawl, # of hooks per day for long-line, # of pots per day for pot, total length of net per day for gillnet)
- (5) Total catch by species
- (6) Names of seamounts fished or to be fished
- 7. Fishing period
- 8. Analysis of status of fishery resources
  - (1) Data and methods used for analysis
  - (2) Results of analysis
  - (3) Identification of uncertainties in data and methods, and measures to overcome such uncertainties
- 9. Analysis of status of bycatch species resources
  - (1) Data and methods used for analysis
  - (2) Results of analysis
  - (3) Identification of uncertainties in data and methods, and measures to overcome such uncertainties
- 10. Analysis of existence of VMEs in the fishing ground
  - (1) Data and methods used for analysis
  - (2) Results of analysis
  - (3) Identification of uncertainties in data and methods, and measures to overcome such uncertainties
- 11. Impact assessment of fishing activities on VMEs or marine species including cumulative impacts, and identification of SAIs on VMEs or marine species, as detailed in Section 5 above, Assessment of SAIs on VMEs or marine species
- 12. Other points to be addressed
- 13. Conclusion (whether to continue or start fishing with what measures, or stop fishing).

**SCIENTIFIC COMMITTEE ASSESSMENT REVIEW PROCEDURES FOR BOTTOM  
FISHING ACTIVITIES**

1. The Scientific Committee (SC) is to review identifications of vulnerable marine ecosystems (VMEs) and assessments of significant adverse impact on VMEs, including proposed management measures intended to prevent such impacts submitted by individual Members.
2. Members of the Commission shall submit their identifications and assessments to members of the SC at least 21 days prior to the SC meeting at which the review is to take place. Such submissions shall include all relevant data and information in support of such determinations.
3. The SC will review the data and information in each assessment in accordance with the Science-based Standards and Criteria for Identification of VMEs and Assessment of Significant Adverse Impacts on VMEs and Marine Species (Annex 2), previous decisions of the Commission, and the FAO Technical Guidelines for the Management of Deep Sea Fisheries in the High Seas, paying special attention to the assessment process and criteria specified in paragraphs 47-49 of the Guidelines.
4. In conducting the review above, the SC will give particular attention to whether the deep-sea bottom fishing activity would have a significant adverse impact on VMEs and marine species and, if so, whether the proposed management measures would prevent such impacts.
5. Based on the above review, the SC will provide advice and recommendations to the submitting Members on the extent to which the assessments and related determinations are consistent with the procedures and criteria established in the documents identified above; and whether additional management measures will be required to prevent SAIs on VMEs.
6. Such recommendations will be reflected in the report of the SC meeting at which the assessments are considered.

## **FORMAT OF NATIONAL REPORT SECTIONS ON DEVELOPMENT AND IMPLEMENTATION OF SCIENTIFIC OBSERVER PROGRAMMES**

### **Report Components**

Annual Observer Programme implementation reports should form a component of annual National Reports submitted by members to the Scientific Committee. These reports should provide a brief overview of observer programmes conducted in the NPFC Convention Area. Observer programme reports should include the following sections:

#### **A. Observer Training**

An overview of observer training conducted, including:

- Overview of training programme provided to scientific observers.
- Number of observers trained.

#### **B. Scientific Observer Programme Design and Coverage**

Details of the design of the observer programme, including:

- Which fleets, fleet components or fishery components were covered by the programme.
- How vessels were selected to carry observers within the above fleets or components.
- How was observer coverage stratified: by fleets, fisheries components, vessel types, vessel sizes, vessel ages, fishing areas and seasons.

Details of observer coverage of the above fleets, including:

- Components, areas, seasons and proportion of total catches of target species, specifying units used to determine coverage.
- Total number of observer employment days, and number of actual days deployed on observation work.

#### **C. Observer Data Collected**

List of observer data collected against the agreed range of data set out in Annex 5, including:

- Effort Data: Amount of effort observed (vessel days, net panels, hooks, etc), by area and season and % observed out of total by area and seasons
- Catch Data: Amount of catch observed of target and by-catch species, by area and season, and % observed out of total estimated catch by species, area and seasons
- Length Frequency Data: Number of fish measured per species, by area and season.
- Biological Data: Type and quantity of other biological data or samples (otoliths, sex, maturity, etc.) collected per species.

- The size of length-frequency and biological sub-samples relative to unobserved quantities.

#### **D. Detection of Fishing in Association with Vulnerable Marine Ecosystems**

- Information about VME encounters (species and quantity in accordance with Annex 5, H, 2).

#### **E. Tag Return Monitoring**

- Number of tags returns observed, by fish size class and area.

#### **F. Problems Experienced**

- Summary of problems encountered by observers and observer managers that could affect the NPFC Observer Programme Standards and/or each member's national observer programme developed under the NPFC standards.

**NPFC BOTTOM FISHERIES OBSERVER PROGRAMME STANDARDS: SCIENTIFIC  
COMPONENT**

**TYPE AND FORMAT OF SCIENTIFIC OBSERVER DATA TO BE COLLECTED**

**A. Vessel & Observer Data to be collected for Each Trip**

1. Vessel and observer details are to be recorded only once for each observed trip.
2. The following observer data are to be collected for each observed trip:
  - (a) NPFC vessel ID.
  - (b) Observer's name.
  - (c) Observer's organisation.
  - (d) Date observer embarked (UTC date).
  - (e) Port of embarkation.
  - (f) Date observer disembarked (UTC date).
  - (g) Port of disembarkation.

**B. Catch & Effort Data to be collected for Trawl Fishing Activity**

1. Data are to be collected on an un-aggregated (tow by tow) basis for all observed trawls.
2. The following data are to be collected for each observed trawl tow:
  - (a) Tow start date (UTC).
  - (b) Tow start time (UTC).
  - (c) Tow end date (UTC).
  - (d) Tow end time (UTC).
  - (e) Tow start position (Lat/Lon, 1 minute resolution).
  - (f) Tow end position (Lat/Lon, 1 minute resolution).
  - (g) Type of trawl, bottom or mid-water.
  - (h) Type of trawl, single, double or triple.
  - (i) Height of net opening (m).
  - (j) Width of net opening (m).
  - (k) Mesh size of the cod-end net (stretched mesh, mm) and mesh type (diamond, square, etc).
  - (l) Gear depth (of footrope) at start of fishing (m).
  - (m) Bottom (seabed) depth at start of fishing (m).
  - (n) Gear depth (of footrope) at end of fishing (m).
  - (o) Bottom (seabed) depth at end of fishing (m).

- (p) Status of the trawl operation (no damage, lightly damaged\*, heavily damaged\*, other (specify)).  
\*Degree may be evaluated by time for repairing ( $\leq 1$ hr or  $> 1$ hr).
- (q) Duration of estimated period of seabed contact (minute)
- (r) Intended target species.
- (s) Catch of all species retained on board, split by species, in weight (to the nearest kg).
- (t) Estimate of the amount (weight or volume) of all living marine resources discarded, split by species.
- (u) Record of the numbers by species of all marine mammals, seabirds or reptiles caught.

### **C. Catch & Effort Data to be collected for Bottom Gillnet Fishing Activity**

1. Data are to be collected on an un-aggregated (set by set) basis for all observed bottom gillnet sets.
2. The following data are to be collected for each observed bottom gillnet set:
  - (a) Set start date (UTC).
  - (b) Set start time (UTC).
  - (c) Set end date (UTC).
  - (d) Set end time (UTC).
  - (e) Set start position (Lat/Lon, 1 minute resolution).
  - (f) Set end position (Lat/Lon, 1 minute resolution).
  - (g) Net panel (“tan”) length (m).
  - (h) Net panel (“tan”) height (m).
  - (i) Net mesh size (stretched mesh, mm) and mesh type (diamond, square, etc)
  - (j) Bottom depth at start of setting (m).
  - (k) Bottom depth at end of setting (m).
  - (l) Number of net panels for the set.
  - (m) Number of net panels retrieved.
  - (n) Number of net panels actually observed during the haul.
  - (o) Actually observed catch of all species retained on board, split by species, in weight (to the nearest kg).
  - (p) An estimation of the amount (numbers or weight) of marine resources discarded, split by species, during the actual observation.
  - (q) Record of the actually observed numbers by species of all marine mammals, seabirds or reptiles caught.
  - (r) Intended target species.
  - (s) Catch of all species retained on board, split by species, in weight (to the nearest kg).

- (t) Estimate of the amount (weight or volume) of all marine resources discarded\* and dropped off, split by species. \* Including those retained for scientific samples.
- (u) Record of the numbers by species of all marine mammals, seabirds or reptiles caught (including those discarded and dropped-off).

#### **D. Catch & Effort Data to be collected for Bottom Long Line Fishing Activity**

1. Data are to be collected on an un-aggregated (set by set) basis for all observed longline sets.
2. The following fields of data are to be collected for each set:
  - (a) Set start date (UTC).
  - (b) Set start time (UTC).
  - (c) Set end date (UTC).
  - (d) Set end time (UTC).
  - (e) Set start position (Lat/Lon, 1 minute resolution).
  - (f) Set end position (Lat/Lon, 1 minute resolution).
  - (g) Total length of longline set (m).
  - (h) Number of hooks or traps for the set.
  - (i) Bottom (seabed) depth at start of set.
  - (j) Bottom (seabed) depth at end of set.
  - (k) Number of hooks or traps actually observed during the haul.
  - (l) Intended target species.
  - (m) Actually observed catch of all species retained on board, split by species, in weight (to the nearest kg).
  - (n) An estimation of the amount (numbers or weight) of marine resources discarded\* or dropped-off, split by species, during the actual observation. \* Including those retained for scientific samples.
  - (o) Record of the actually observed numbers by species of all marine mammals, seabirds or reptiles caught (including those discarded and dropped-off).

#### **E. Length-Frequency Data to Be Collected**

1. Representative and randomly distributed length-frequency data (to the nearest mm, with record of the type of length measurement taken) are to be collected for representative samples of the target species and other main by-catch species. Total weight of length-frequency samples should be recorded, and observers may be required to also determine sex of measured fish to generate length-frequency data stratified by sex. The length-frequency data may be used as potential indicators of ecosystem changes (for example, see: Gislason, H. et al. (2000. ICES J Mar Sci 57: 468-475), Yamane et al. (2005. ICES J Mar Sci, 62: 374-379), and Shin, Y-J. et al. (2005. ICES J Mar Sci, 62: 384-396)).

2. The numbers of fish to be measured for each species and distribution of samples across area and month strata should be determined, to ensure that samples are properly representative of species distributions and size ranges.

#### **F. Biological sampling to be conducted (optional for gillnet and long line fisheries)**

1. The following biological data are to be collected for representative samples of the main target species and, time permitting, for other main by-catch species contributing to the catch:
  - (a) Species
  - (b) Length (to the nearest mm), with record of the type of length measurement used.
  - (c) Length and depth in case of North Pacific armorhead.
  - (d) Sex (male, female, indeterminate, not examined)
  - (e) Maturity stage (immature, mature, ripe, ripe-running, spent)
2. Representative stratified samples of otoliths are to be collected from the main target species and, time permitting, from other main by-catch species regularly occurring in catches. All otoliths to be collected are to be labelled with the information listed in 1 above, as well as the date, vessel name, observer name and catch position.
3. Where specific trophic relationship projects are being conducted, observers may be requested to also collect stomach samples from certain species. Any such samples collected are also to be labelled with the information listed in 1 above, as well as the date, vessel name, observer name and catch position.
4. Observers may also be required to collect tissue samples as part of specific genetic research programmes implemented by the SC.
5. Observers are to be briefed and provided with written length-frequency and biological sampling protocols and priorities for the above sampling specific to each observer trip.

#### **G. Data to be collected on Incidental Captures of Protected Species**

1. Flag members operating observer programs are to develop, in cooperation with the SC, lists and identification guides of protected species or species of concern (seabirds, marine mammals or marine reptiles) to be monitored by observers.
2. The following data are to be collected for all protected species caught in fishing operations:
  - (a) Species (identified as far as possible, or accompanied by photographs if identification is difficult).
  - (b) Count of the number caught per tow or set.
  - (c) Life status (vigorous, alive, lethargic, dead) upon release.
  - (d) Whole specimens (where possible) for onshore identification. Where this is not possible, observers may be required to collect sub-samples of identifying parts, as specified in biological sampling protocols.

## **H. Detection of Fishing in Association with Vulnerable Marine Ecosystems**

1. The SC is to develop a guideline, species list and identification guide for benthic species (e.g. sponges, sea fans, corals) whose presence in a catch will indicate that fishing occurred in association with a vulnerable marine ecosystem (VME). All observers on vessels are to be provided with copies of this guideline, species list and ID guide.
2. For each observed fishing operation, the following data are to be collected for all species caught, which appear on the list of vulnerable benthic species:
  - (a) Species (identified as far as possible or accompanied by a photograph where identification is difficult).
  - (b) An estimate of the quantity (weight (kg) or volume (m<sup>3</sup>)) of each listed benthic species caught in the fishing operation.
  - (c) An overall estimate of the total quantity (weight (kg) or volume (m<sup>3</sup>)) of all invertebrate benthic species caught in the fishing operation.
  - (d) Where possible, and particularly for new or scarce benthic species which do not appear in ID guides, whole samples should be collected and suitable preserved for identification on shore.

## **I. Data to be collected for all Tag Recoveries**

1. The following data are to be collected for all recovered fish, seabird, mammal or reptile tags:
  - (a) Observer name.
  - (b) Vessel name.
  - (c) Vessel call sign.
  - (d) Vessel flag.
  - (e) Collect, label (with all details below) and store the actual tags for later return to the tagging agency.
  - (f) Species from which tag recovered.
  - (g) Tag colour and type (spaghetti, archival).
  - (h) Tag numbers (The tag number is to be provided for all tags when multiple tags were attached to one fish. If only one tag was recorded, a statement is required that specifies whether or not the other tag was missing)
  - (i) Date and time of capture (UTC).
  - (j) Location of capture (Lat/Lon, to the nearest 1 minute)
  - (k) Animal length / size (to the nearest cm) with description of what measurement was taken (such as total length, fork length, etc).
  - (l) Sex (F=female, M=male, I=indeterminate, D=not examined)
  - (m) Whether the tags were found during a period of fishing that was being observed (Y/N)

(n) Reward information (e.g. name and address where to send reward)

(It is recognised that some of the data recorded here duplicates data that already exists in the previous categories of information. This is necessary because tag recovery information may be sent separately to other observer data.)

## **J. Hierarchies for Observer Data Collection**

1. Trip-specific or programme-specific observer task priorities may be developed in response to specific research programme requirements, in which case such priorities should be followed by observers.
2. In the absence of trip- or programme-specific priorities, the following generalised priorities should be followed by observers:
  - (a) Fishing Operation Information
    - All vessel and tow / set / effort information.
  - (b) Monitoring of Catches
    - Record time, proportion of catch (e.g. proportion of trawl landing) or effort (e.g. number of hooks), and total numbers of each species caught.
    - Record numbers or proportions of each species retained or discarded.
  - (c) Biological Sampling
    - Length-frequency data for target species.
    - Length-frequency data for main by-catch species.
    - Identification and counts of protected species.
    - Basic biological data (sex, maturity) for target species.
    - Check for presence of tags.
    - Otoliths (and stomach samples, if being collected) for target species.
    - Basic biological data for by-catch species.
    - Biological samples of by-catch species (if being collected)
    - Photos
3. The monitoring of catches and biological sampling procedures should be prioritised among species groups as follows:

<b>Species</b>	<b>Priority (1 highest)</b>
Primary target species (such as North Pacific armorhead and splendid alfonsino)	1
Other species typically within top 10 in the fishery (such as mirror dory, and oreos)	2

Protected species	3
All other species	4

The allocation of observer effort among these activities will depend on the type of operation and setting. The size of sub-samples relative to unobserved quantities (e.g. number of hooks/panels examined for species composition relative to the number of hooks/panels retrieved) should be explicitly recorded under the guidance of member country observer programmes.

### **K. Coding Specifications to be used for Recording Observer Data**

1. Unless otherwise specified for specific data types, observer data are to be collected in accordance with the same coding specifications as specified in this Annex.
2. Coordinated Universal Time (UTC) is to be used to describe times.
3. Degrees and minutes are to be used to describe locations.
4. The following coding schemes are to be used:
  - (a) Species are to be described using the FAO 3 letter species codes or, if species do not have a FAO code, using scientific names.
  - (b) Fishing methods are to be described using the International Standard Classification of Fishing Gear (ISSCFG - 29 July 1980) codes.
  - (c) Types of fishing vessel are to be described using the International Standard Classification of Fishery Vessels (ISSCFV) codes.
5. Metric units of measure are to be used, specifically:
  - (a) Kilograms are to be used to describe catch weight.
  - (b) Metres are to be used to describe height, width, depth, beam or length.
  - (c) Cubic metres are to be used to describe volume.
  - (d) Kilowatts are to be used to describe engine power.

**Implementation of the Adaptive Management for North Pacific armorhead**  
(in ~~2019 and 2020~~2021)

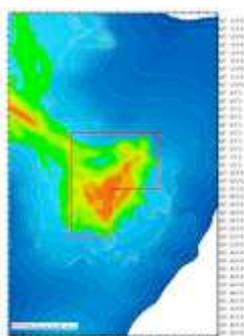
**1. Monitoring survey for the detection of strong recruitment of North Pacific armorhead**

**(1) Location of monitoring surveys**

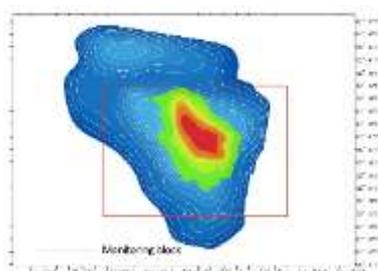
Monitoring surveys for the detection of strong recruitment of North Pacific armorhead will be conducted by trawl fishing vessels in the pre-determined ~~two~~four (24) monitoring blocks of Koko (South eastern), Yuryaku, ~~and~~ Kammu (North western) and/or Colahan seamounts.

**Monitoring blocks**

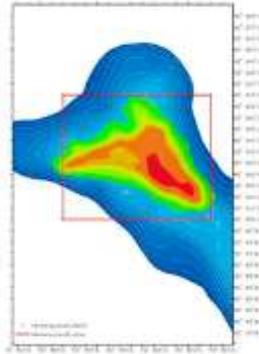
(1) Koko seamount (34°51' –35°04'N, 171°49' –172°00' E)



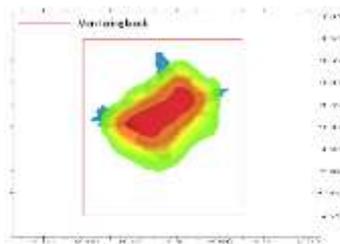
(2) Yuryaku seamount (32°35' –32°45'N, 172°10' –172°24'E)



(3) Kammu seamount (32°10' –32°21'N, 172°44' –172°57'E)



(4) Colahan seamount (30°57'–31°05'N, 175°50'–175°57'E)



## (2) Schedule for monitoring surveys

Monitoring surveys will be conducted from March 1<sup>st</sup> to June 30<sup>th</sup> each year, with at least a one-week interval between monitoring surveys ~~in the same monitoring block~~. For each survey, a trawl fishing vessel will conduct a monitoring survey in one of the four monitoring blocks that is the nearest from the location of the trawl fishing vessel at the time of prior notification in (4) below. The base schedule for monitoring surveys will be notified to the Executive Secretary by the end of February of each year. ~~is shown in the table below. In total, sixteen (16) monitoring surveys will be conducted each year.~~ The base schedule may be revised during the year subject to prior notification to the Executive Secretary.

## (3) Data to be collected during monitoring surveys

For each monitoring survey, a trawl net will be towed for one hour. A scientific observer onboard the trawl fishing vessel will calculate nominal-CPUE (kg/hour) of North Pacific armorhead. The scientific observer will also calculate fat index\* (FI) of randomly sampled 100 individuals of North Pacific armorhead by measuring fork length (FL) and body height (BH) of each individual.

(\*fat index (FI) = body height (BH) / fork length (FL) )

## (4) Prior notifications and survey results

At least three (3) days before each survey, a prior notification with monitoring date/time, location and trawl fishing vessel name will be provided by the flag state of the trawl fishing vessel to the Executive Secretary.

No later than three (3) days after each survey, the survey result including date/time, location, catch, nominal-CPUE (kg/hour) and percentage of fish with fat index (FI)>0.3 will be provided by the flag state to the Executive Secretary.

The Executive Secretary will circulate these prior notifications and survey results to all Members of the Commission without delay.

## **2. Areas where bottom fishing with trawl gear is prohibited when high recruitment is detected**

### **(1) Criteria for a high recruitment**

It is considered that high recruitment has occurred if the following criteria are met in four (4) consecutive monitoring surveys ~~in each of the two (2) monitoring blocks.~~

- Nominal CPUE > 10t/h
- Individuals of fat index (FI)> 0.3 account for 80% or more

### **(2) Areas where bottom fishing with trawl gear is prohibited**

Bottom fishing with trawl gear shall be prohibited in the following two (2) seamount areas (\*) during the year when high recruitment is detected. In such a case, all monitoring surveys scheduled during the year will be cancelled.

- Northern part of Kammu seamount (north of 32°10.0' N)
- Yuryaku seamount

(\*) The catch of North Pacific armorhead in the above two seamounts accounts for a half of the total catch in the entire Emperor Seamounts area based on the catch records in 2010 and 2012.

### **(3) Notification by the Secretariat**

When the criteria for high recruitment are met as defined in 2(1) above, the Executive Secretary will notify all Members of the Commission of the fact with a defined date/time from which bottom fishing with trawl gear is prohibited in the areas as defined in 2(2) above until the end of the year.

**Stock Assessment Report for Pacific Saury**

**Abstract:**

This report presents results of stock assessment work at the 6th meeting of the Small Scientific Committee on Pacific Saury (SSC-PS), held virtually during November 19-23, 2020.

## EXECUTIVE SUMMARY

### Data

Pacific saury (*Cololabis saira*) is widely distributed from the subarctic to the subtropical regions of the North Pacific Ocean. The fishing grounds are west of 180° E but differ among Members (China, Japan, Korea, Russia, Chinese Taipei, and Vanuatu). Figure 1 shows the historical catches of Pacific saury by Member. Figure 2 shows CPUE and Japanese survey biomass indices used in the stock assessment.

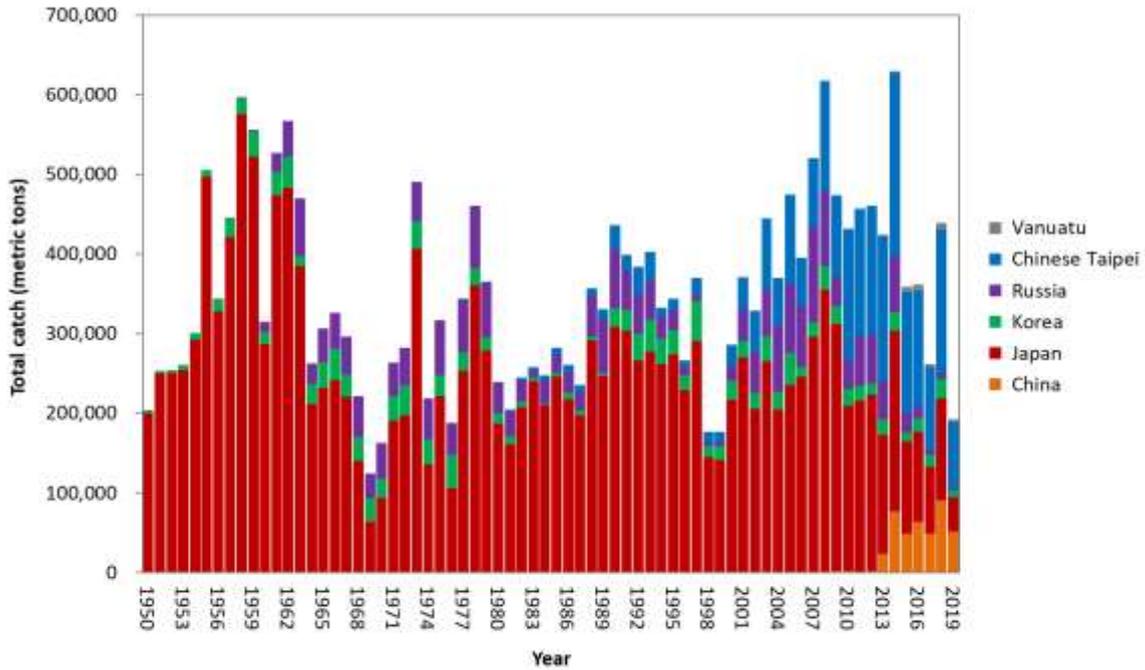


Figure 1. Time series of catch by Member during 1950-2019. The catch data for 1950-1979 and 2019 are shown but not used in stock assessment modeling.

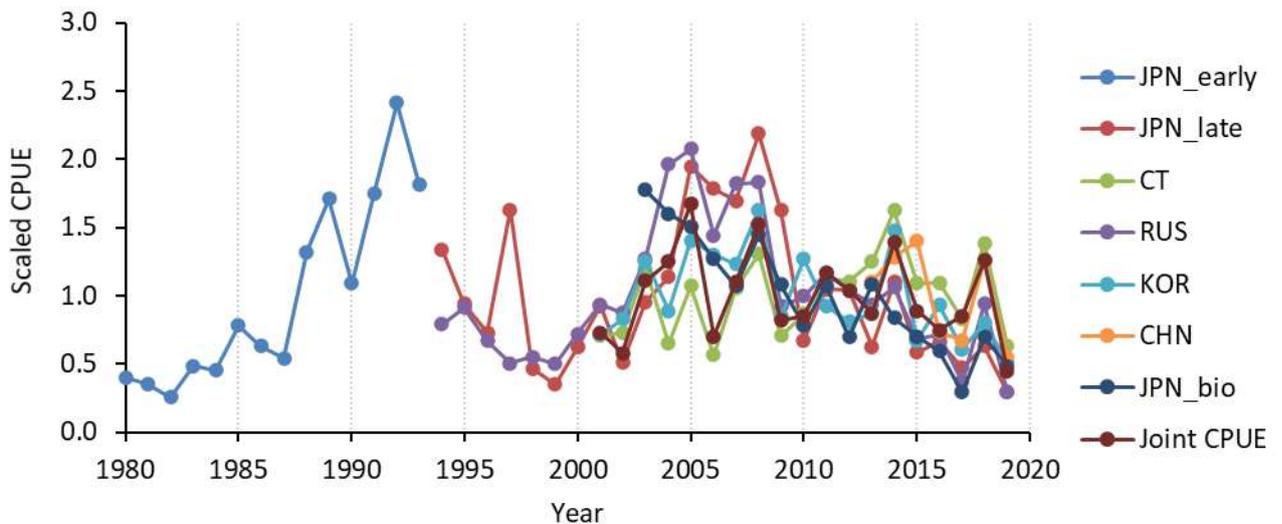


Figure 2. Time series of standardized CPUE and Japanese survey biomass indices (JPN\_bio) during 1980-2019. Survey data for 2019 were used in assessment modeling but CPUE data for 2019 were not.

## **Brief description of specification of analysis and models**

A Bayesian state-space production model used in previous stock assessments was employed as an agreed provisional stock assessment model for Pacific saury during 1980-2019. Scientists from three Members (China, Japan and Chinese Taipei) each conducted analyses following the agreed specification which called for two base case scenarios and four sensitivity scenarios (see Annex G, SSC PS05 report for more details). The two base case scenarios differ in using Japanese early CPUE (base case NB1) or not (base case NB2). Time-varying catchability for Japanese CPUE was assumed in NB1 to account for potential increases in catchability between 1980 and 1994. A higher weight was given to the Japanese survey biomass indices than to Members' CPUEs. The CPUE data were modeled as nonlinear indices of biomass. Members used similar approaches with some differences in the assumption of the time-varying catchability and prior distributions for the free parameters in the model.

## **Summary of stock assessment results**

The SSC PS considered the BSSPM results and noted dissimilarities among Members' results for base case 2. The SSC PS was unable to clarify the reason for the dissimilarities and agreed that it would not be advisable to aggregate Members' stock results.

All six base case model runs (two scenarios from each of three members) indicate that recent Pacific saury stock size was less than  $B_{msy}$  (Figure 3). In particular, median estimates from five out of six runs indicate that 2019 Pacific saury biomass was less than  $B_{msy}$ . Results from all six model runs indicate that average 2017-2019 biomass was less than  $B_{msy}$  (see also Figure 4).

A majority of base case model comparisons indicate that recent harvest rates for Pacific saury were higher than  $F_{msy}$  (Figure 3). In particular, median estimates from five runs indicate that the harvest rate during 2019 and average rates during 2017-2019 were higher than  $F_{msy}$  (see Figures 3 and 4).

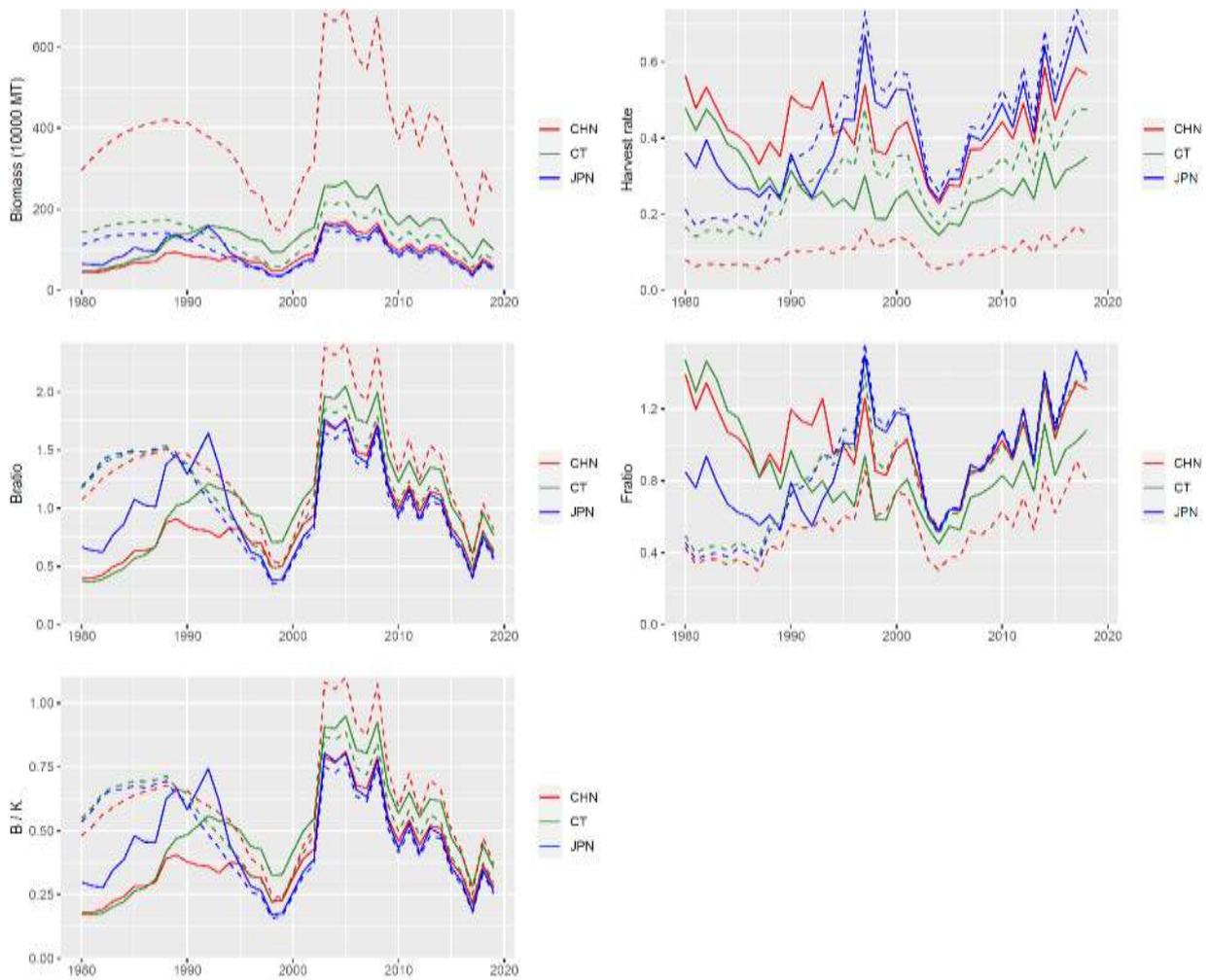


Figure 3. Time series of median estimated values of six runs for biomass, harvest rate, B-ratio, F-ratio, and depletion level relative to the carrying capacity. The solid and shaded lines correspond to NB1 and NB2, respectively.

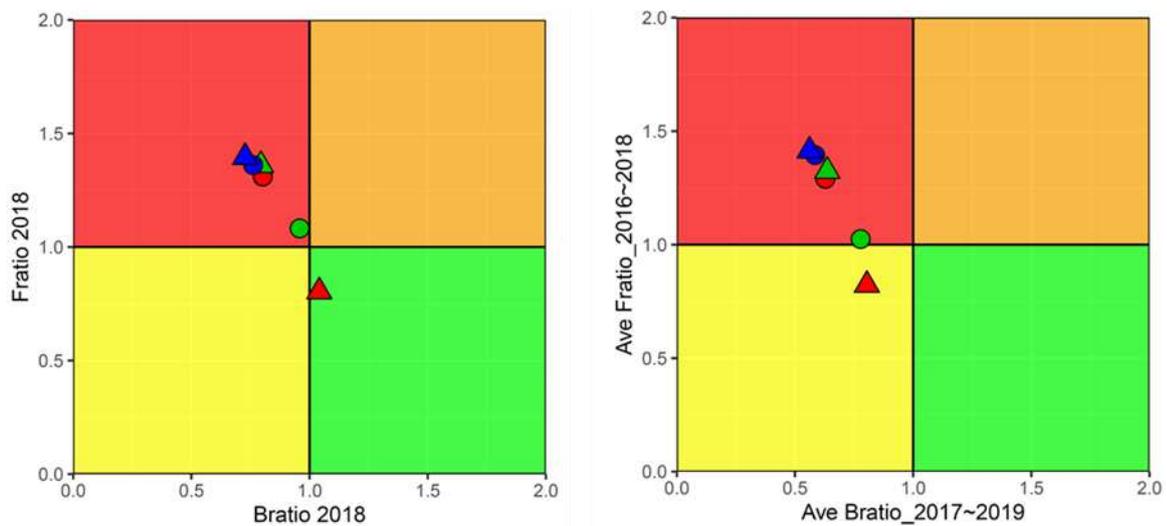


Figure 4. Kobe plots for six runs for NB1 (circle) and NB2 (triangle) by three members' scientists (red for China, blue for Japan and green for Chinese Taipei).

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 October 2020 and Japanese survey data for 2020 were presented and discussed but could not be included in BSSPM analysis (there were also concerns about the plausibility of the very low biomass estimate, see below). The additional fishery data for 2019 has no additional uncertainty but the 2020 fishery and survey data include increased uncertainty due to effects of Covid-19 which delayed the start of the commercial fishery for some members, may have affected commercial operations and reduced the Japanese survey to a smaller area and narrower SST range than usual. The additional uncertainty for 2020 must be clearly described and considered carefully.

SSC PS members indicate that Covid-19 effects on catches were likely stronger than effects on CPUE. Nominal CPUE for 2020 calculated by Members using data through October were not comparable to data for previous years based on the entire fishing season. For the sake of comparability, nominal CPUE was recalculated for all years based on fishing through October. Trends in the seasonally truncated data through were similar to original CPUE trends and to standardized CPUE used in assessment modeling (Figure xx). The adjusted data show that 2020 CPUE for each Member was at historical low levels. CPUE declines more slowly than stock biomass as demonstrated in all BSSPM results for Pacific saury. Thus, the decline in stock biomass was probably greater than the decline in CPUE.

Preliminary catch data for 2020 through the end of October totaled only about 67 thousand mt (CHECK). Fishing continues but most Members do not expect catch to increase substantially based on seasonal trends and low CPUE (Figure B=seasonal cumulative catch by Member). Thus, 2020 catches are expected to be low.

The Japanese fishery-independent survey is important in Pacific saury stock assessments. Survey catches during 2020 were very low and the original swept-area biomass estimate was only about 10 thousand mt (CHECK). However, sampling did not cover the traditional survey area outside the 13° isotherm where one-year-old Pacific saury may be encountered in large numbers and east of 170° W where zero-year-old fish are most common (about 50% of total biomass is typically in the area not sampled based on historical records). The SSC PS reviewed a result from VAST model to extrapolate over the unsampled area. VAST model estimates were similar to survey swept-area-biomass in recent years but appeared less accurate for early years when stock biomass was highest. The VAST model estimate for Pacific saury biomass in 2002 was only 51 thousand MT (CV 98%, 95% CI 7-180 thousand mt CHECK) compared to the average swept-area biomass of 383 thousand mt during 2015-2019. The SSC PS did not endorse the VAST point estimate in 2020 due to high uncertainty and some doubt about plausibility of the very low estimates. However, they agreed that the VAST estimates as a whole captured the declining trend in the stock during recent years.

Table 1. Summary of estimates of reference quantities. Median values are reported.

	China		Japan		Chinese Taipei	
	Base case 1	Base case 2	Base case 1	Base case 2	Base case 1	Base case 2
C2018 (10,000tons)	43.91	43.91	43.91	43.91	43.91	43.91
AveC2016-2018 (10,000tons)	35.45	35.45	35.45	35.45	35.45	35.45
AveF2016-2018	0.56	0.15	0.64	0.69	0.40	0.63
F2018	0.57	0.15	0.62	0.68	0.43	0.65
FMSY	0.44	0.21	0.46	0.48	0.40	0.45
MSY(10,000tons)	43.18	54.81	42.9	44.1	43.04	41.56
F2018/FMSY	1.31	0.80	1.36	1.40	1.11	1.55
AveF2016-2018/FMSY	1.30	0.83	1.40	1.42	1.04	1.52

K (10,000tons)	221.10	689.00	207.6	206.0	287.80	251.30
B2018 (10,000tons)	77.27	295.85	70.5	65.0	125.50	92.25
B2019 (10,000tons)	59.61	231.10	54.0	50.2	100.30	74.19
AveB2017-2019 (10,000tons)	60.81	228.73	55.9	51.8	102.29	74.07
BMSY (10,000tons)	98.05	305.70	92.9	91.7	131.60	116.35
BMSY/K	0.43	0.43	0.44	0.44	0.46	0.46
B2018/K	0.37	0.47	0.35	0.33	0.44	0.37
B2019/K	0.28	0.37	0.27	0.25	0.35	0.30
B2017-2019/K	0.29	0.37	0.28	0.27	0.36	0.30
B2018/BMSY	0.80	1.04	0.76	0.73	0.96	0.79
B2019/BMSY	0.62	0.82	0.58	0.56	0.77	0.64
B2017-2019/BMSY	0.63	0.81	0.61	0.58	0.78	0.64

## Current stock condition

All six base case model runs (two scenarios from each of three members) indicate that recent Pacific saury stock size was less than Bmsy. In particular, median estimates from five out of six runs indicate that 2019 Pacific saury biomass was less than Bmsy. Results from all six model runs indicate that average 2017-2019 biomass was less than Bmsy. Relative abundance indices indicated that Pacific saury stock biomass may have been near record low levels during 2019 and 2020. The 2020 biomass index from the Japanese survey has large uncertainties but dropped to the historical lowest level.

A majority of base case model comparisons indicate that recent harvest rates for Pacific saury were higher than Fmsy. In particular, median estimates from five runs indicate that the harvest rate during 2019 and average rates during 2017-2019 were higher than Fmsy.

## Special comments regarding the procedures and stock assessment results

The SSC-PS worked collaboratively to produce this consensus stock assessment, which includes significant technical improvements.

- 1) CPUE data were assumed to change more slowly than biomass and were down-weighted relative to the Japanese survey. The estimates of a nonlinear parameter in the assessment model support this modeling decision.
- 2) Retrospective analyses showed that BSSPM model projections for Pacific saury were less useful than expected and the SSC-PS agreed results were likely to be misinterpreted. The issue was discussed and further explained in the report. Additional research or age-structured assessment modelling may be required to provide projection results for use by managers, to enhance projection capability and support potential MSE (Management Strategy Evaluation) work.
- 3) The SSC-PS noted that an internal computation of  $q$  for the Japanese survey used in calculating predicted survey values and prior probability might improve model performance. However, there was no evidence of a problem in the current model formulation.
- 4) The SSC PS reviewed promising approach for spatial/temporal model-based survey biomass estimation using Japanese survey data and the VAST model. The SSC-PS agreed that the approach was useful and decided to continue work on the topic.
- 5) Certain key BSSPM parameter estimates (i.e. intrinsic growth rate and shape) reached the upper bound of their

- prior ranges in some models indicating that their priors should be refined before the next assessment.
- 6) Results for scenario NB2 in one Member's analysis were significantly higher than from results of other runs but the reason could not be determined given the time constraint and meeting format. The SSC PS noted that the scales of estimated biomass among previous base case scenarios from the three Members have shown some discrepancies.
  - 7) The Invited Expert and some Members pointed out scale instability in the NB2 model run may have been due to or exacerbated by specification of prior distributions, computer code or other correctable problem in addition to lack of information about scale in the available data. All of these potential causes are very common and should be expected to occur from time to time in practical fishery work with statistically or computationally complex models and fishery data. In any case, it seems premature to conclude that the BSSPM is inherently or unusually unstable given that such pathological patterns were not observed in other base case models used in this assessment or previous assessments.
  - 8) Member scientists agreed to exchange the code and input data files and work collaboratively to explain the differences.
  - 9) Nominal and standardized CPUE data were available for 2019 but not used in assessment models because they were not included in the terms of reference. However, the data for 2019 indicate that Pacific saury biomass for all Members declined by an average of about 50% during 2018-2019. For example, the decline based on GLM standardized joint CPUE was 59%.
  - 10) It would be easier to maintain computer code and ensure correct calculations if one program were used by all Members, particularly as more complicated age/size-structured models are introduced.
  - 11) It may be possible to increase efficiency of stock assessment work by reducing duplicate work by Members. For example, CPUE standardization, model development and assessment modeling might be done by single subgroups. The time saved could be used to develop harvest control rules and implement age-structured models, for example.
  - 12) Transparency and reproducibility could be enhanced by submitting computer programs, code and input data files used for assessment modeling and standardizing CPUE data by each Member.
  - 13) This executive summary for Pacific saury stock assessment results is an attempt to enhance communication with managers, other scientists and interested persons who may not want to read the full assessment report with complete technical details. Such reports are typically short and include agreed sets of tables and figures in standard formats. The NPFC should discuss a common format of the executive summary over species with respect to information requirements and effective communication.
  - 14) Members report that the fishing grounds have shifted further offshore over the last decade. Japanese survey results indicate possible changes in spatial distribution of Pacific saury habitat. Potential effects on productivity are unknown.
  - 15) Pacific saury stock size has declined over the last two decades due to climatic and human factors acting together in a manner that is not understood. There is an urgent need to determine if ongoing environmental changes are likely to be reducing productivity of the fishery. The SSC-PS should routinely devote time to investigating the biological and ecological mechanisms linking population dynamics and the environment. The recent paper by Members (Hsu, J., Chang, Y.J., Kitakado, T., Kai, M., Li, B., Hashimoto, M., Hsieh, C.H, Kulik, V., Park, K. J. (2020). Evaluating the spatiotemporal dynamics of Pacific saury in the Northwestern Pacific Ocean by using a geostatistical modelling approach. Fisheries Research (accepted)) demonstrates the success and importance of working on this topic.
  - 16) An Fmsy approach was used to calculate a TAC for 2020 and the SSC-PS recognizes this as an important step in management. However, it can be difficult to estimate current Fmsy from historical data when the environment is changing. It is therefore important to further evaluate the Fmsy approach for Pacific saury. For example, historical TAC values could be calculated using the Fmsy estimate and historical biomass estimates from the BSSPM for comparison to actual catches after 2000 while the stock was declining. Calculations of this sort could be completed this year as a prelude to a more extensive MSE effort

## 1. INTRODUCTION

### 1.1 Distribution

Pacific saury (*Cololabis saira* Brevoort, 1856) has a wide distribution extending in the subarctic and subtropical North Pacific Ocean from inshore waters of Japan and Kuril Islands to eastward to Gulf of Alaska and southward to Mexico. Pacific saury is a commercially important fish in the Western North Pacific Ocean (Parin 1968; Hubbs and Wisner 1980).

### 1.2 Migration

Saury migrates extensively between the northern feeding grounds in the Oyashio waters around Hokkaido and the Kuril Islands in summer and the spawning areas in the Kuroshio waters off southern Japan in winter (Fukushima 1979; Kosaka 2000). Pacific saury in offshore regions (east of 160E) also migrate westward toward the coast of Japan after October every year (Suyama et al. 2012).

### 1.3 Population structure

Genetic evidence suggests there are no distinct stocks in the Pacific saury population based on 141 individuals collected from five distant locales (East China Sea, Sea of Okhotsk, northwest Pacific, central North Pacific, and northeast Pacific) (Chow et al. 2009).

### 1.4 Spawning season and grounds

The spawning season of Pacific saury is relatively long, beginning in September and ending in June of the following year (Watanabe and Lo 1989). Pacific saury spawns over a vast area from the Japanese coastal waters to eastern offshore waters (Baitaliuk et al. 2013). The main spawning grounds are considered to be located in the Kuroshio-Oyashio transition region in fall and spring and in the Kuroshio waters and the Kuroshio Extension waters in winter (Watanabe and Lo 1989).

### 1.5 Food and feeding

The Pacific saury larvae prey on the nauplii of copepods and other small-sized zooplankton. As they grow, they begin to prey on larger zooplankton such as krill (Odate 1977). The Pacific saury is preyed on by large fish ranked higher in the food chain, such as *Thunnus alalunga* (Nihira 1988) and coho salmon, *Oncorhynchus kisutch* (Sato and Hirakawa 1976) as well as by animals such as minke whales *Balaenoptera acutorostrata* (Konishi et al. 2009) and sea birds (Ogi 1984).

### 1.6 Age and growth

Based on analysis of daily otolith increments, Pacific saury reaches approximately 20 cm in knob length (distance from the tip of lower jaw to the posterior end of the muscular knob at the base of a caudal peduncle; hereafter as body length) in 6 or 7 months after hatching (Watanabe et al. 1988; Suyama et al. 1992). There is some variation in growth rate depending on the hatching month during this long spawning season (Kurita et al. 2004) and geographical differences (Suyama et al. 2012b). The maximum lifespan is 2 years (Suyama et al. 2006). The age 1 fish grow to over 27 cm in body length in June and July when Japanese research surveys are conducted and reach over 29 cm in the fishing season between August and December (Suyama et al. 2006).

### 1.7 Reproduction

The minimum size of maturity of Pacific saury has been estimated at about 25 cm in the field (Hatanaka 1956) or rearing experiments (Nakaya et al. 2010). In rare cases, saury have been found to mature at 22 cm (Sugama 1957; Hotta 1960). Under rearing experiments, Pacific saury begins spawning 8 months after hatching, and spawning activity continues for about 3 months (Suyama et al. 2016). Batch fecundity is about 1,000 to 3,000 eggs per saury (Kosaka 2000).

## 2. FISHERY

### 2.1 Overview of fisheries

#### Western North Pacific

In Japan, the stick-held dip net fishery for Pacific saury was developed in the 1940s. Since then, the stick-held dip net gears have become the dominant fishing technic to catch Pacific saury in the northwest Pacific Ocean. Since 1995, more than 97% of Japan's total catch is caught by the stick-held dip net. The annual catch of Pacific saury for stick-held dip net fishery has fluctuated. Maximum and minimum catches of 355 thousand tons and 43 thousand tons were recorded in 2008 and 2019, respectively.

Pacific saury fisheries in Korea have been operated with gillnet since the late 1950s in Tsushima Warm Current region. Korean stick-held dip net fishery started from 1985 in the Northwest Pacific Ocean. The largest catch of 50 thousand tons was recorded in 1997 (Gong and Suh 2013).

Russian fishery for Pacific saury has been conducted using stick-held dip nets in the northwest Pacific Ocean in the area that includes national waters (mainly within the Russian EEZ) and adjacent NPFC Convention Areas. Russian catch statistics for saury fishery exists, beginning from 1956, and standardized CPUE indices from that fishery were calculated since 1994. Saury fishery traditionally occurred from August to November; however, in recent years, the onset of fishing for saury shifted to the early summer period. Peak catch of saury of over 100 thousand tons was in 2007. Since then, the annual catch has been decreasing, and was about 2 thousand tons in 2019.

China commenced its exploratory saury fishing using stick-held dip net in the high seas in 2003, but only started to develop this fishery in 2012. The fishing seasons mainly cover the period from June-November.

The Pacific saury fishery of Chinese Taipei was first developed in 1975 by a research vessel, thereafter two commercial fishing vessels started operating in the Northwest Pacific Ocean in the next year. Between the 1980s and the early 1990s, the Pacific saury caught by some fishing fleets including trawlers, drift net fishing vessels, squid jiggers and tuna longliners. The number of fishing vessels reached 43 in 1985, 1986, and 1989. However, only the squid jiggers harvest the Pacific saury after 1996. Since the Pacific saury fishing season is mainly in the second half of the year, most fishing vessels typically fish for Atlantic shortfin squid (*Illex argentinus*) in the Southwest Atlantic Ocean for the first 4 or 5 months of the year. After the end of squid fishing season, the fishing vessels return to homeport to change fishing gear and then proceed to harvest Pacific saury in the Northwest Pacific Ocean. Before 2005, most of the fishing vessels engaged in the Pacific saury fishery also conducted neon flying squid jigging operations in the Northwest Pacific Ocean. After then, as the catch of Pacific saury exceeded that of neon flying squid, the fishing vessels changed their fishing practices to target Pacific saury only.

Vanuatu commenced its development of Pacific saury fishery by using stick-held dip net at the high seas in 2004. Currently there are four vessels operating in the Northwest Pacific targeting saury, but the total accumulative number of its authorized Pacific saury fishing vessels from 2004 to 2020 is 16. The fishing season mainly covers the period from July to November each year.

#### Eastern North Pacific

Although Pacific saury occur in the Canada EEZ, there is no targeted fishery for the species. There is no historical record of Canadian participation in international fisheries for saury. Domestic fisheries sometimes capture saury as bycatch in pelagic and bottom trawls and there are a handful of records from other gear types including commercial longlines. The most recently compiled estimates indicate only 224 kg of saury were captured by Canadian commercial fisheries over 17 years from 1997-2013 (Wade and Curtis 2015). There are also records of saury catches from research trawls (surface, pelagic and bottom trawls) in Canadian waters, but the catches have been minimal.

Management plans developed by the National Marine Fisheries Service currently prohibit targeted fishing on

marine forage species including the Pacific saury. In the 1950's to mid-1970's there were sporadic attempts to commercially fish for Pacific saury off of California with limited success using purse seines and light attraction (Kato 1992). Catches from 1969-1972 averaged 450 tons. Currently landings are only “occasionally” reported as bycatch in fisheries on the US west coast. Landings of Pacific saury as bycatch on the US west coast averaged 5.5 kg per year from 2011-2015 (NOAA Fisheries National Bycatch Report Database System, <https://www.st.nmfs.noaa.gov/>, accessed March 8, 2019)

While Japanese and Russian vessels operate mainly within their EEZ, Chinese, Korean and Chinese Taipei vessels operate mainly in the high seas of the North Pacific (Figure 1).

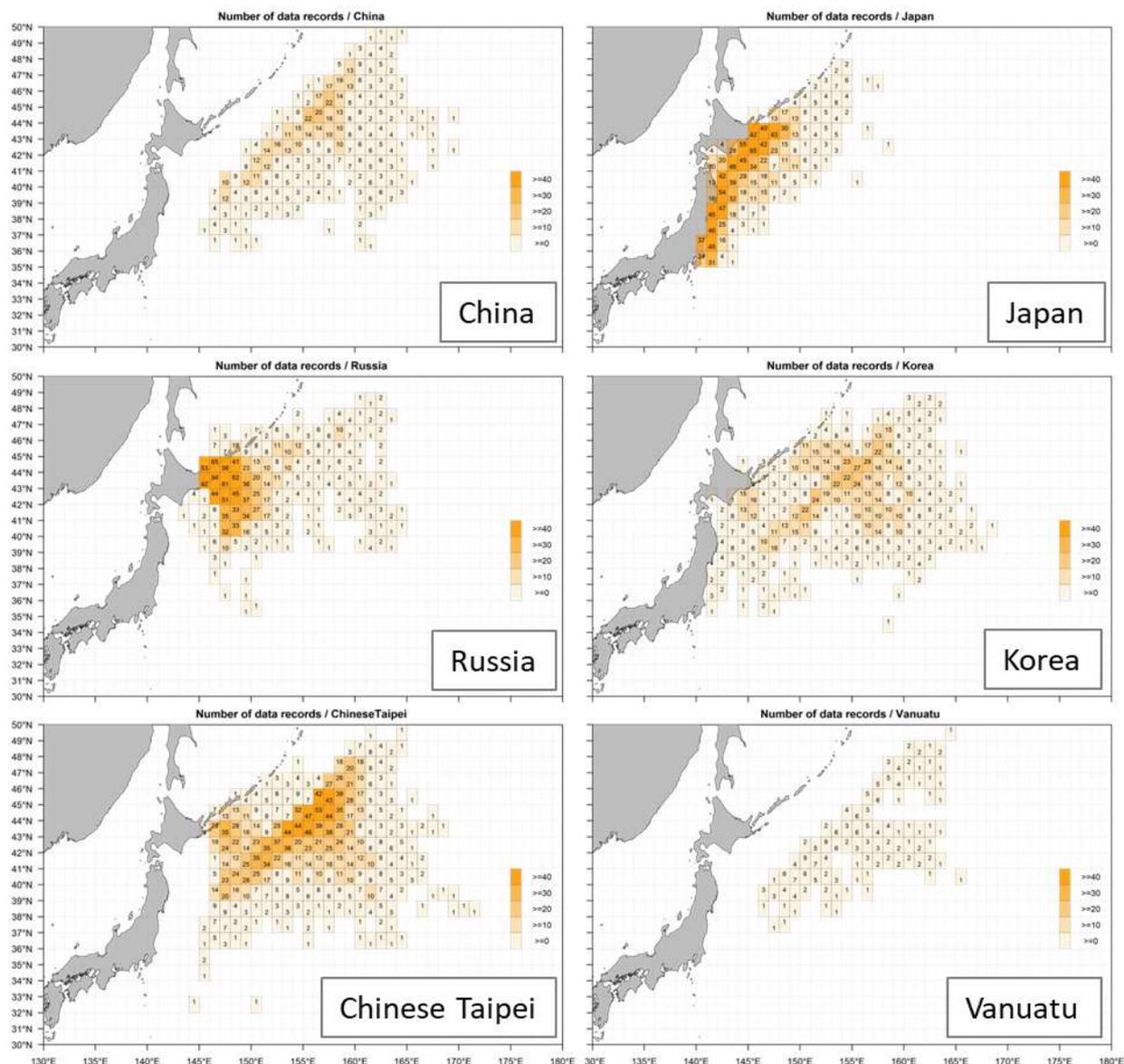


Figure 1. Main fishing grounds for Pacific saury by fishing members in the Western North Pacific Ocean. The legend shows the number of data records. This figure is based on the data shared by the Members for the development of a joint CPUE index (NPFC-2018-TWG PSSA03-WP02, NPFC-2018-TWG PSSA03-WP03, NPFC-2018-TWG PSSA03-WP04, NPFC-2018-TWG PSSA03-WP06b, NPFC-2018-TWG PSSA03-WP08, and NPFC-2018-TWG PSSA03-WP12; available at [www.npfc.int](http://www.npfc.int)).

## 2.2 Catch records

Figure 2 shows the historical catches of Pacific saury by Member.

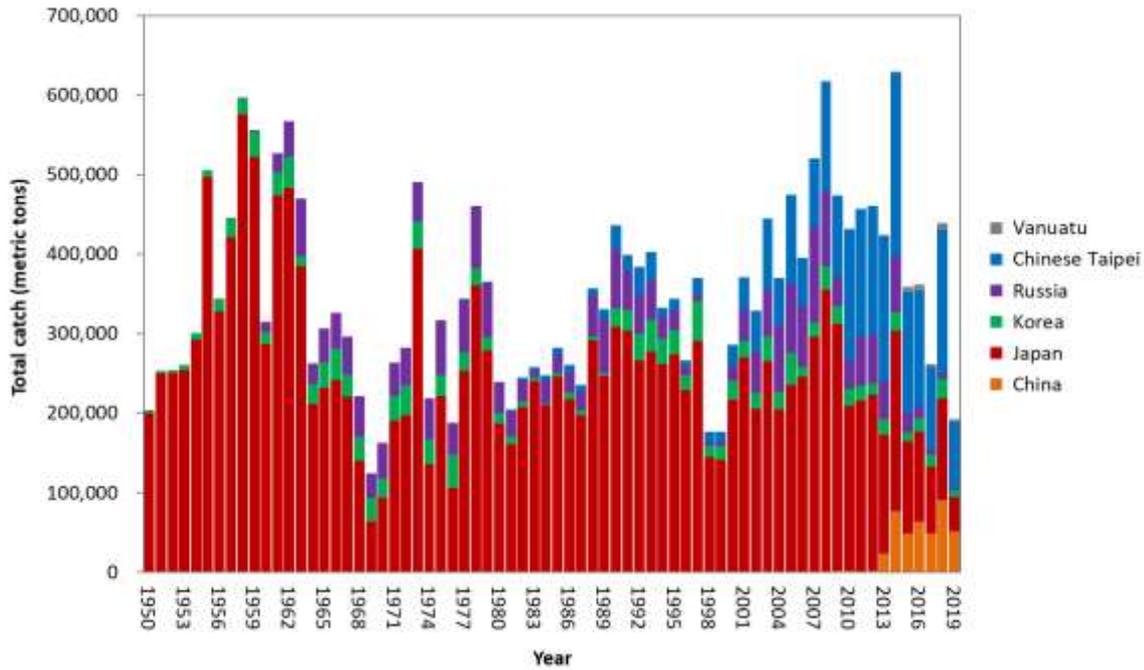


Figure 2. Time series of catch by Member during 1950-2019. The catch data for 1950-1979 and 2019 are shown but not used in stock assessment modeling.

## 3. SPECIFICATION OF STOCK ASSESSMENT

A Bayesian state-space production model used in previous stock assessments was employed as an agreed provisional stock assessment model for Pacific saury during 1980-2019. Scientists from three Members (China, Japan and Chinese Taipei) each conducted analyses following the agreed specification which called for two base case scenarios and four sensitivity scenarios (see Annex G, SSC PS05 report for more details). The two base case scenarios differ in using Japanese early CPUE (base case NB1) or not (base case NB2). Time-varying catchability for Japanese CPUE was assumed in NB1 to account for potential increases in catchability between 1980 and 1994. A higher weight was given to the Japanese biomass survey estimates than to Members' CPUEs. The CPUE data were modeled as nonlinear indices of biomass. Members used similar approaches with some differences in the assumption of the time-varying catchability and prior distributions for the free parameters in the model.

### 3.1 Bayesian state-space production model

The population dynamics is modelled by the following equations:

$$B_t = \{B_{t-1} + B_{t-1}f(B_{t-1}) - C_{t-1}\}e^{u_t}, \quad u_t \sim N(0, \tau^2)$$

$$f(B_t) = r \left[ 1 - \left( \frac{B_t}{K} \right)^z \right]$$

where

$B_t$  : the biomass at the beginning of year  $t$

$C_t$  : the total catch of year  $t$

- $u_t$  : the process error in year  $t$
- $f(B)$  : the production function (Pella-Tomlinson)
- $r$  : the intrinsic rate of natural increase
- $K$  : the carrying capacity
- $z$  : the degree of compensation (shape parameter; different symbols were used by 3 members)

The multiple biomass indices are modelled as follows:

### Survey biomass index

$$I_{t,biomass} = q_{biomass} B_t \exp(v_{t,biomass}), \quad \text{where } v_{t,biomass} \sim N(0, \sigma_{biomass}^2)$$

where

- $q_{biomass}$ : the relative bias in biomass estimate
- $v_{t,biomass}$ : the observation error term in year  $t$  for survey biomass estimate
- $\sigma_{biomass}^2$ : the observation error variance for survey biomass estimate

### CPUE series

$$I_{t,f} = q_f B_t^b \exp(v_{t,f}), \quad \text{where } v_{t,f} \sim N(0, \sigma_f^2)$$

where

- $I_{t,f}$  : the survey biomass index in year  $t$  for biomass index  $f$
- $q_f$  : the catchability coefficient for biomass index  $f$
- $b$ : the hyper-stability/depletion parameter
- $v_{t,f}$ : the observation error term in year  $t$  for biomass index  $f$
- $\sigma_f^2$ : the observation error in year  $t$  for biomass index  $f$

For the estimation of parameters, Bayesian methods were used with different own preferred assumption for the prior distributions for the free parameters. MCMC methods were employed for simulating the posterior distributions. For the assumptions of uniform priors used in China and Japan, see documents NPFC-2020-SSC PS-WP08 and NPFC-2020-SSC PS-WP10; for the non-uniform priors used in Chinese Taipei, see document NPFC-2020-SSC PS-WP17.

### 3.2 Agreed scenarios

Table 1. Definition of scenarios

	New base case (NB1)	New base case (NB2)	Sensitivity case (NS1, NS2)	Sensitivity case (NS3, NS4)
Initial year	1980	1980	1980	1980/2001
Biomass survey	$B_{obs} = B_{est} * q_1 \sim$ $LN(\log(q*B), s^2)$ $q \sim U(0, 1)$	Same as left	$q \sim U(0, 2)$	$q \sim U(0, 1)$ 2003-2019

CPUE	CHN(2013-2018) JPN_early(1980-1993) (with time-varying q) JPN_late(1994-2018) KOR(2001-2018) RUS(1994-2018) CT(2001-2018)	CHN(2013-2018) JPN_late(1994-2018) KOR(2001-2018) RUS(1994-2018) CT(2001-2018)	Two sets as on the left for NS1 and NS2 respectively	NS3: Joint CPUE 2001- 2017 (no JPN_early) NS4: Joint CPUE 2001- 2017 and JPN_early
Variance component	Variances of logCPUEs are assumed to be common and 6 times of that of logbiomass	Variances of logCPUEs are assumed to be common and 5 times of that of logbiomass	Same as base cases 1 and 2, respectively	Same weight between biomass and joint CPUE
Hyper- depletion/ stability	A common parameter for all fisheries but JPN_early, with a prior distribution, $b \sim U(0, 1)$ but [b_JPN_early=1]	A common parameter for all fisheries with a prior distribution, $b \sim$ $U(0, 1)$	Same as base cases 1 and 2, respectively	$b \sim U(0, 1)$
Prior for other than q_biomass	Own preferred options	Own preferred options	Own preferred options	Own preferred options

Table 2. Description of symbols used in the stock assessment

Symbol	Description
$C_{2018}$	Catch in 2018
$AveC_{2016-2018}$	Average catch for a recent period (2016–2018)
$AveF_{2016-2018}$	Average harvest rate for a recent period (2016–2018)
$F_{2018}$	Harvest rate in 2018
$F_{MSY}$	Annual harvest rate producing the maximum sustainable yield (MSY)
MSY	Equilibrium yield at FMSY
$F_{2018}/F_{MSY}$	Average harvest rate in 2018 relative to FMSY
$AveF_{2016-2018}/F_{MSY}$	Average harvest rate for a recent period (2016–2018) relative to FMSY
K	Equilibrium unexploited biomass (carrying capacity)
$B_{2018}$	Stock biomass in 2018 estimated in the model
$B_{2019}$	Stock biomass in 2019 estimated in the model <sup>b</sup>
$AveB_{2017-2019}$	Stock biomass for a recent period (2017–2019) estimated in the model <sup>b</sup>
$B_{MSY}$	Stock biomass that will produce the maximum sustainable yield (MSY)

$B_{MSY}/K$	Stock biomass that produces the maximum sustainable yield (MSY) relative to the equilibrium unexploited biomass <sup>a</sup>
$B_{2018}/K$	Stock biomass in 2018 relative to $K^a$
$B_{2019}/K$	Stock biomass in 2019 relative to $K^{a,b}$
$B_{2017-2019}/K$	Stock biomass in the latest time period (2017-2019) relative to the equilibrium unexploited stock biomass <sup>a,b</sup>
$B_{2018}/B_{MSY}$	Stock biomass in 2018 relative to $B_{MSY}^a$
$B_{2019}/B_{MSY}$	Stock biomass in 2019 relative to $B_{MSY}^{a,b}$
$B_{2017-2019}/B_{MSY}$	Stock biomass for a recent period (2017–2019) relative to the stock biomass that produces maximum sustainable yield (MSY) <sup>a,b</sup>

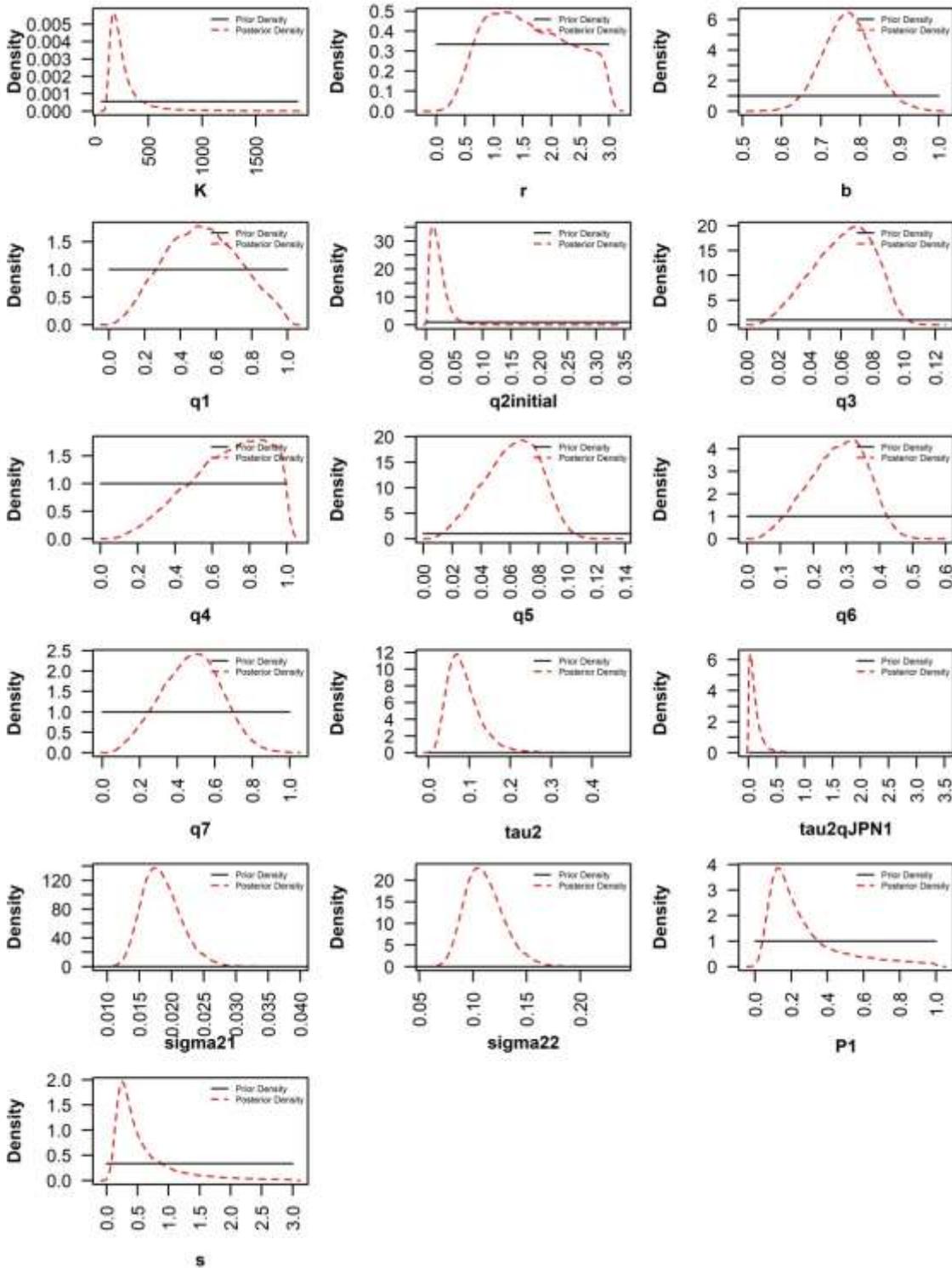
<sup>a</sup>calculated as the average of the ratios,

<sup>b</sup>Japanese biomass survey available but no CPUE available in 2019.

## 4. RESULTS by CHINA, JAPAN and CHINESE TAIPEI

### 4.1 CHINA

#### 4.1.1 Prior and posterior distributions for Base case model 1 (as an illustrative example)

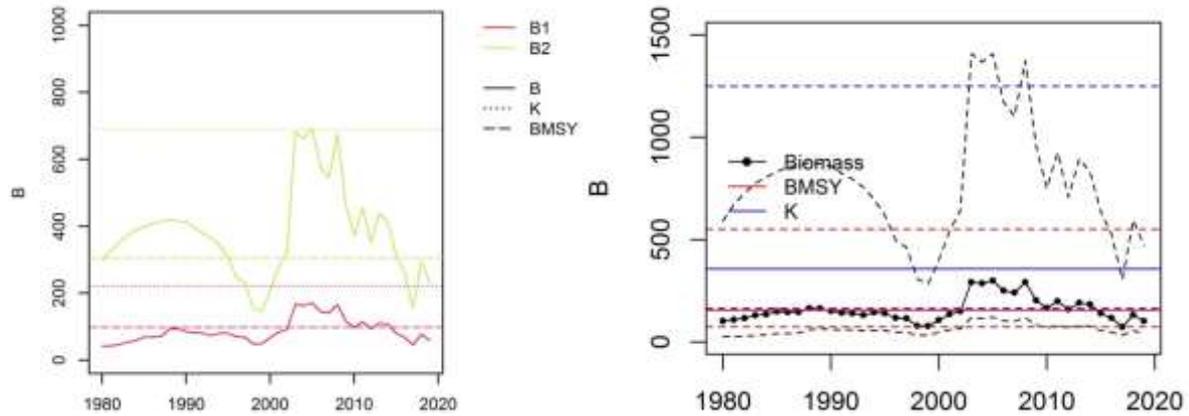


#### 4.1.2 Summary of estimates of parameters and reference points

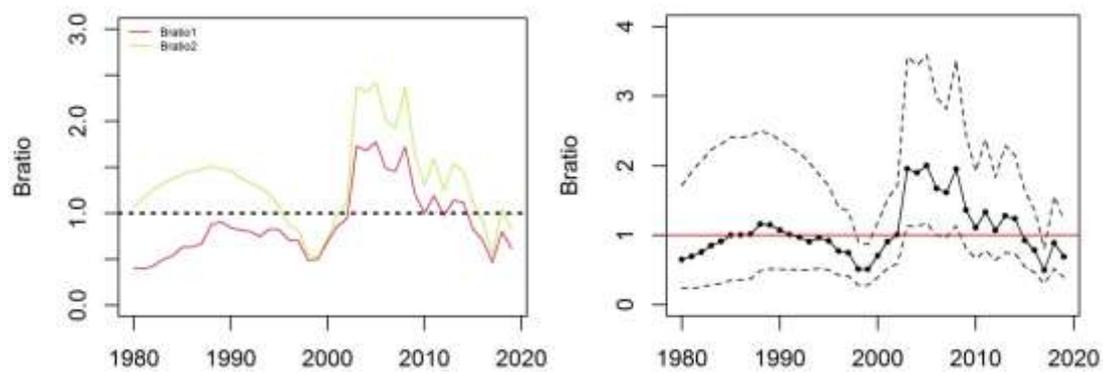
	Base case 1	Base case 2	Over all 2
C2018	43.91	43.91	43.91
AveC2016-2018	35.45	35.45	35.45
AveF2016-2018	0.56	0.15	0.33
F2018	0.57	0.15	0.33
FMSY	0.44	0.21	0.32
MSY	43.18	54.81	45.93
F2018/FMSY	1.31	0.80	1.13
AveF2016-2018/FMSY	1.30	0.83	1.13
K	221.10	689.00	357.10
B2018	77.27	295.85	132.90
B2019	59.61	231.10	103.00
AveB2017-2019	60.81	228.73	103.47
BMSY	98.05	305.70	155.95
BMSY/K	0.43	0.43	0.43
B2018/K	0.37	0.47	0.40
B2019/K	0.28	0.37	0.31
B2017-2019/K	0.29	0.37	0.32
B2018/BMSY	0.80	1.04	0.89
B2019/BMSY	0.62	0.82	0.69
B2017-2019/BMSY	0.63	0.81	0.69

### 4.1.3 Time series plots for base case models and aggregated results

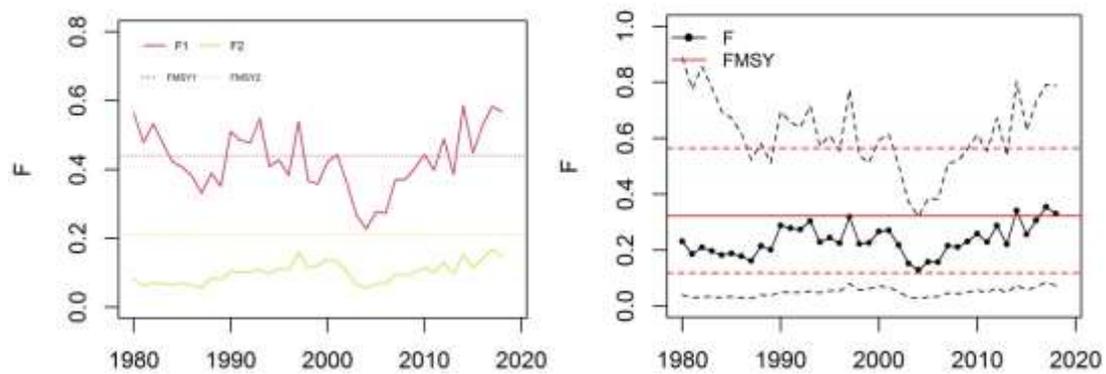
#### (a) Biomass



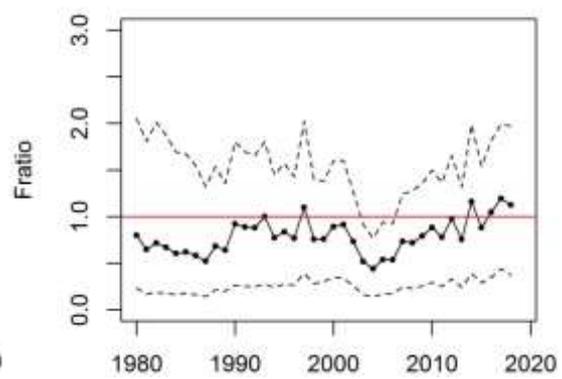
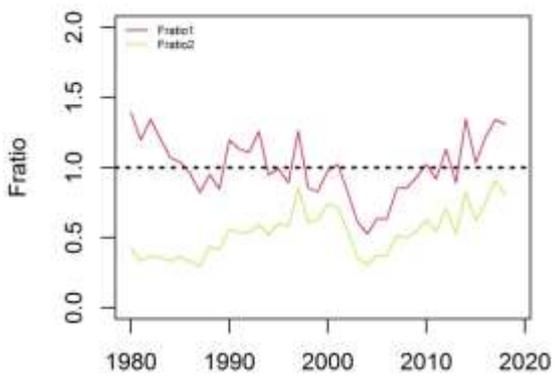
#### (b) B-ratio (B/Bmsy)



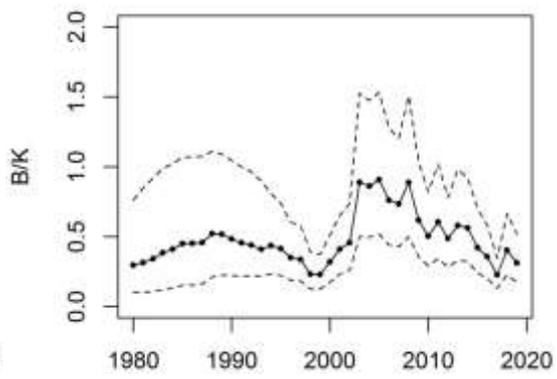
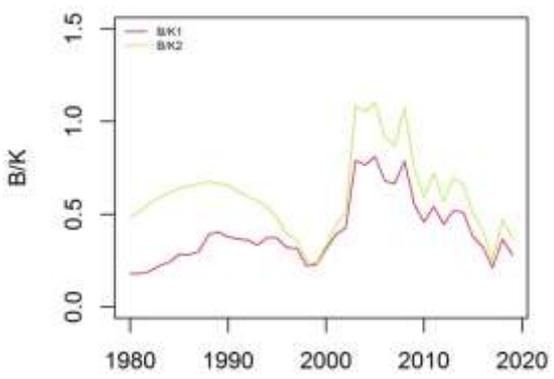
#### (c) Exploitation rate (F)



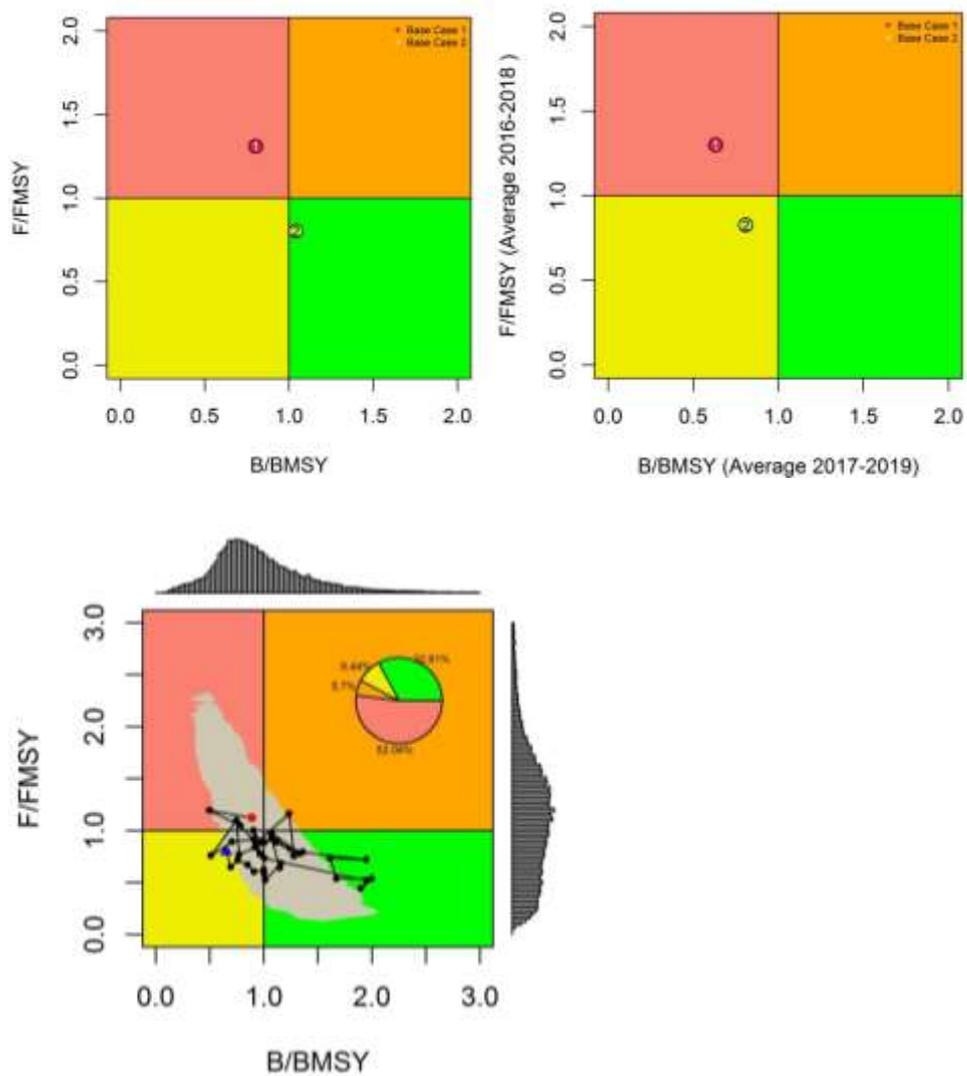
(d) F-ratio (F/F<sub>msy</sub>)



(d) B/K



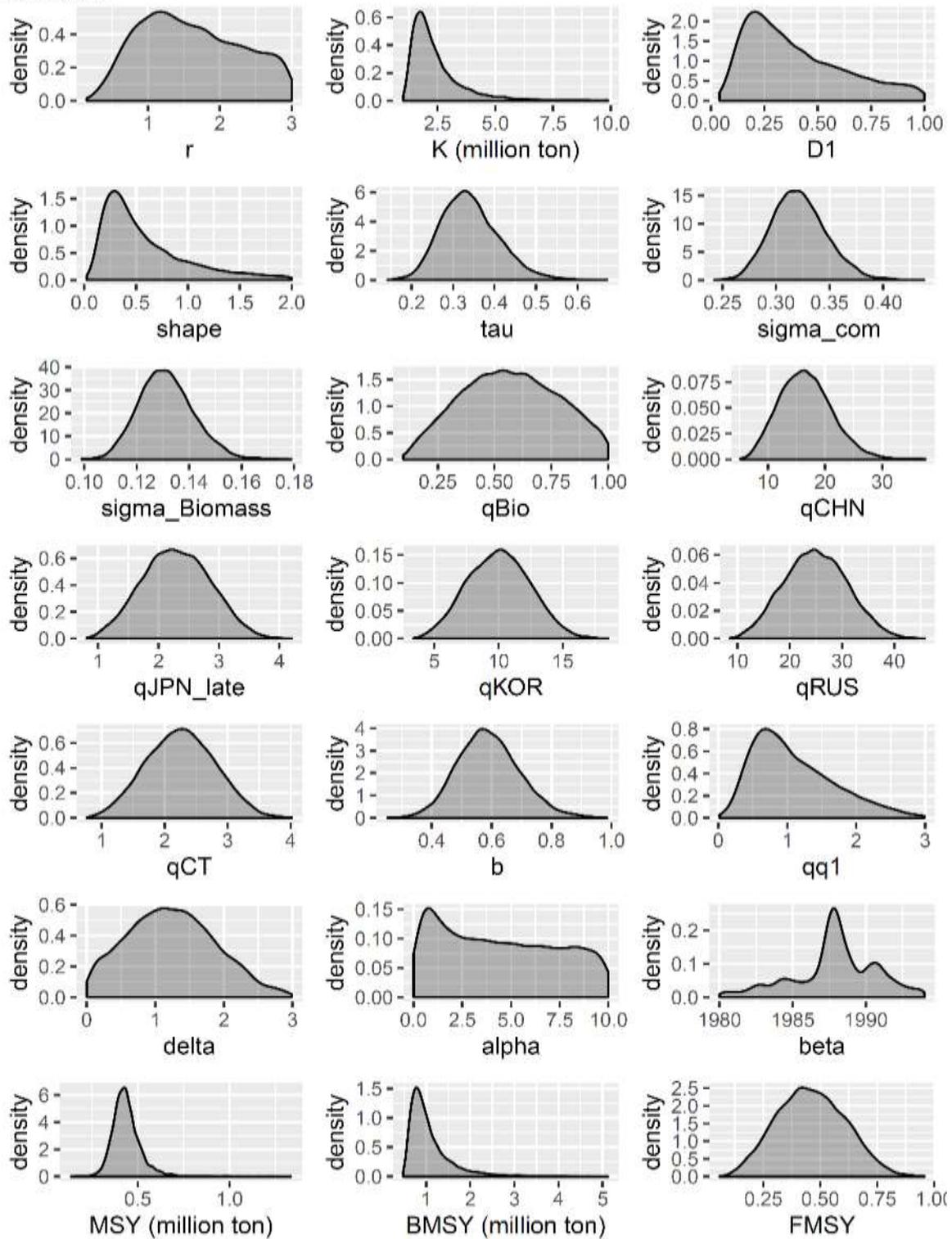
#### 4.1.4 Kobe plots



## 4.2 JAPAN

### 4.2.1 Prior and posterior distributions for Base case model 1 (as an illustrative example)

Base case 1



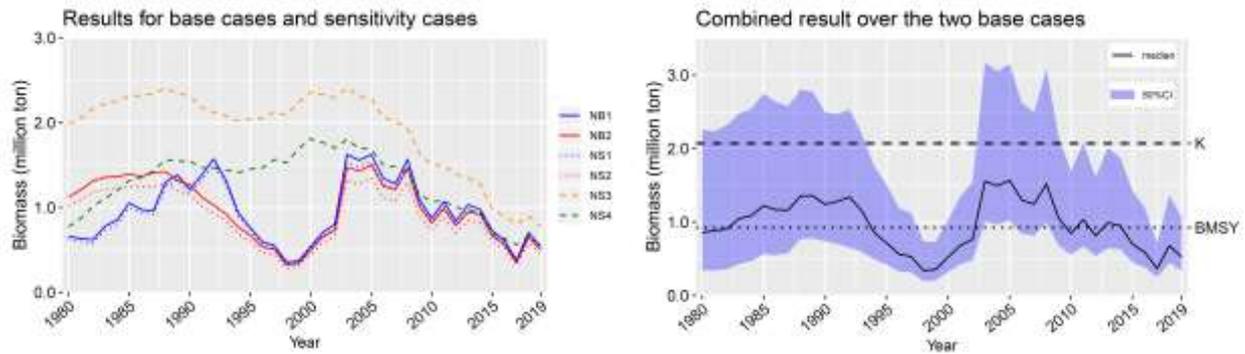
Note: Prior for each free parameter is assumed to be uniform over the shown horizontal range.

#### 4.2.2 Summary of estimates of parameters and reference points

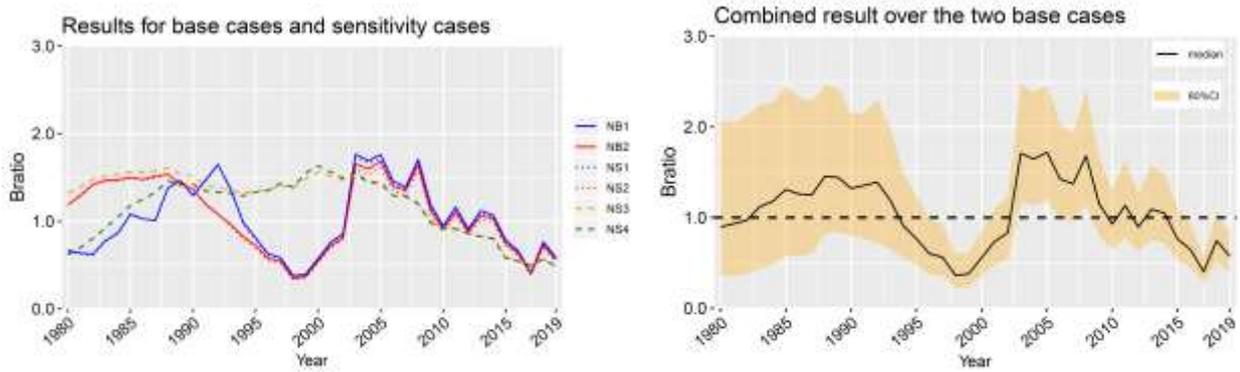
	NB1 Median	NB2 Median	Overall Median
C_2018	0.439	0.439	0.439
AveC_2016_2018	0.354	0.354	0.354
AveF_2016_2018	0.642	0.690	0.664
F_2018	0.623	0.676	0.649
FMSY	0.456	0.484	0.470
MSY	0.429	0.441	0.435
F_2018/FMSY	1.361	1.396	1.377
AveF_2016_2018/FMSY	1.402	1.422	1.412
K	2.076	2.06	2.070
B_2018	0.705	0.650	0.677
B_2019	0.540	0.502	0.521
AveB_2017_2019	0.559	0.518	0.539
BMSY	0.929	0.917	0.924
BMSY/K	0.438	0.439	0.439
B_2018/K	0.347	0.331	0.339
B_2019/K	0.265	0.254	0.26
AveB_2017_2019/K	0.277	0.265	0.271
B_2018/BMSY	0.761	0.727	0.745
B_2019/BMSY	0.584	0.560	0.572
AveB_2017_2019/BMSY	0.606	0.583	0.594

### 4.2.3 Time series plots for base case models and aggregated results

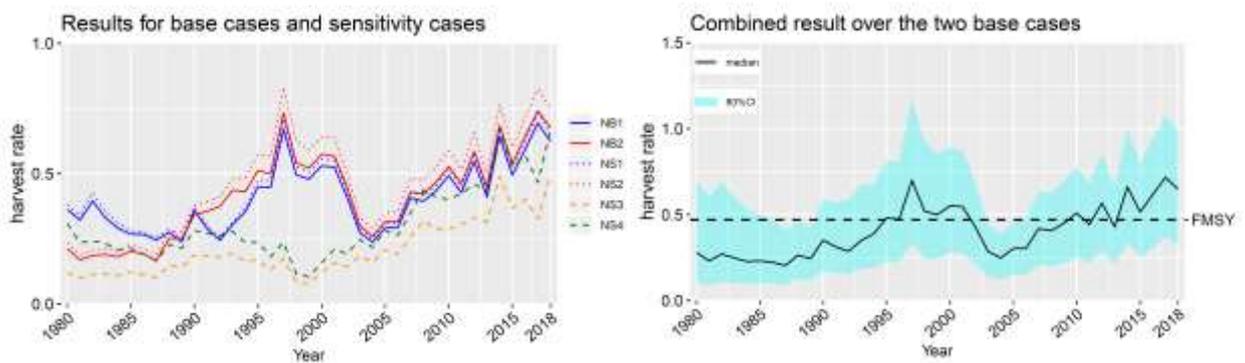
#### (a) Biomass



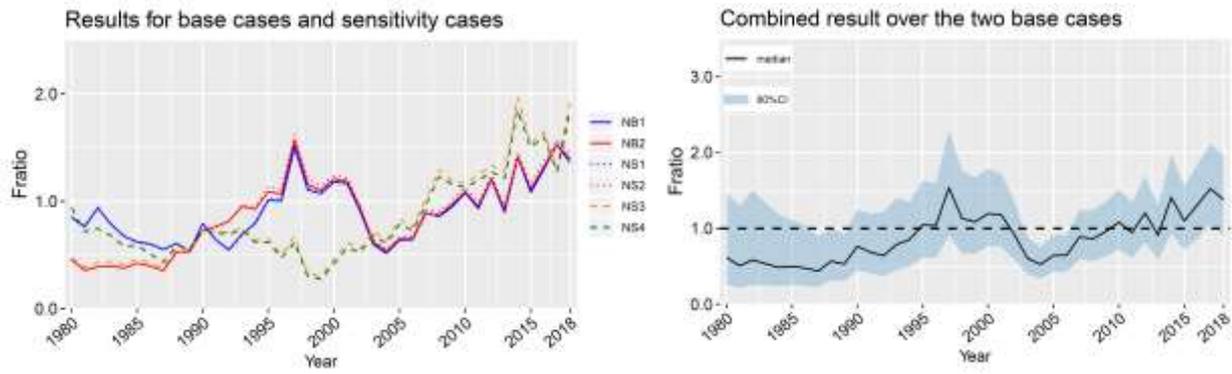
#### (b) B-ratio (B/Bmsy)



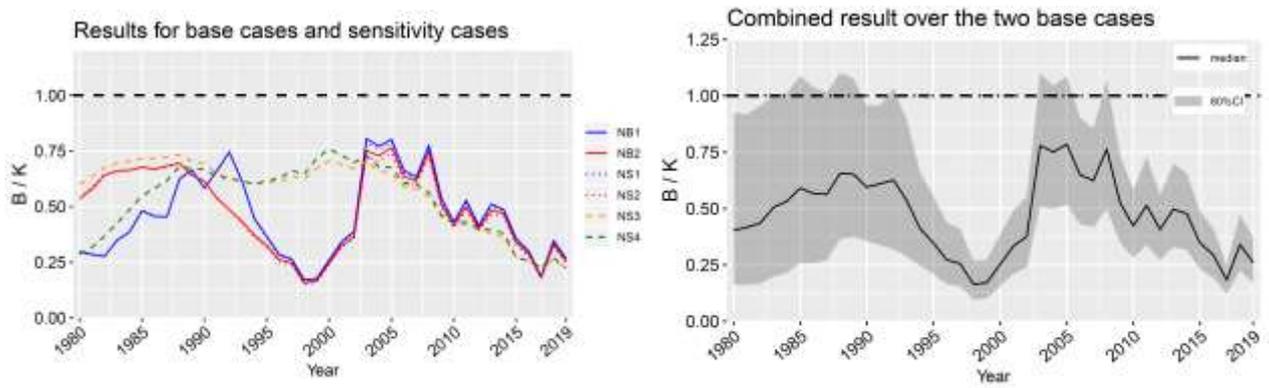
#### (c) Exploitation rate (F)



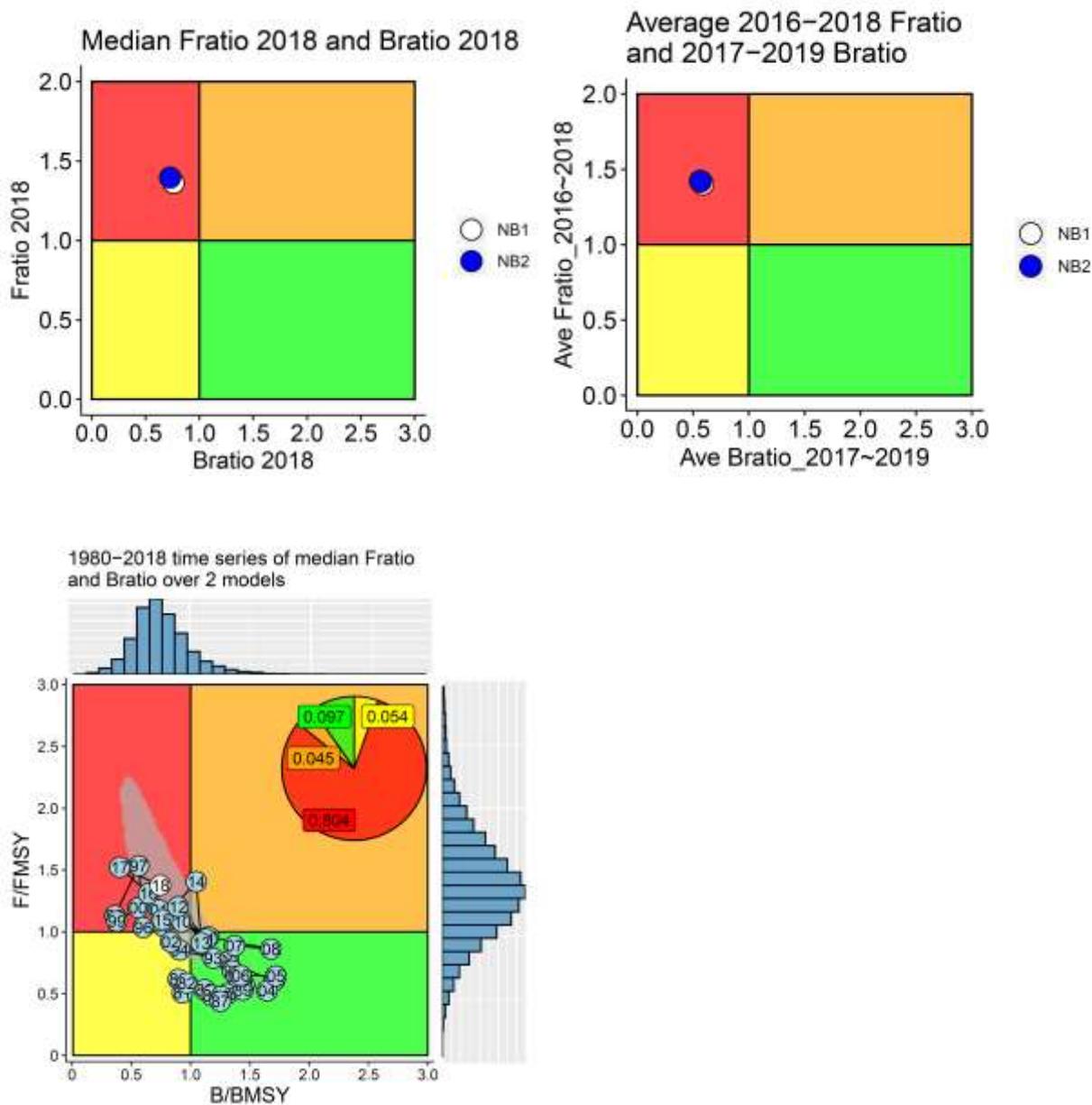
(d) F-ratio (F/F<sub>msy</sub>)



(e) B/K

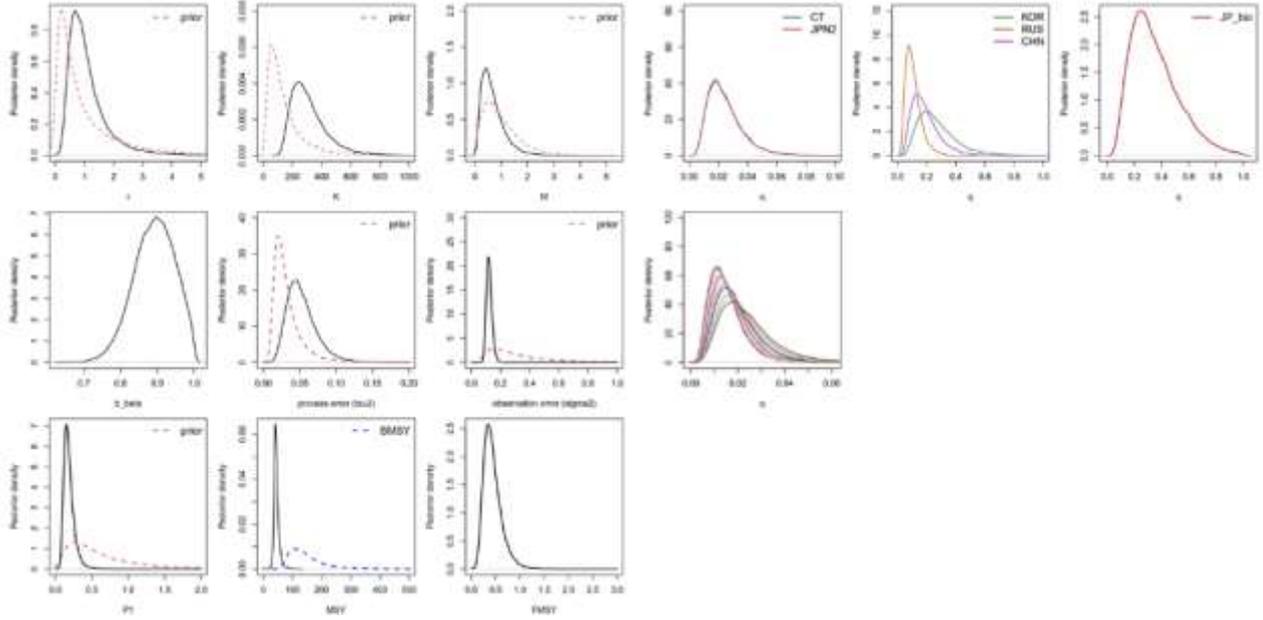


4.2.4 Kobe plots



### 4.3 CHINESE TAIPEI

#### 4.3.1 Prior and posterior distributions for Base case model 1 (as an illustrative example)

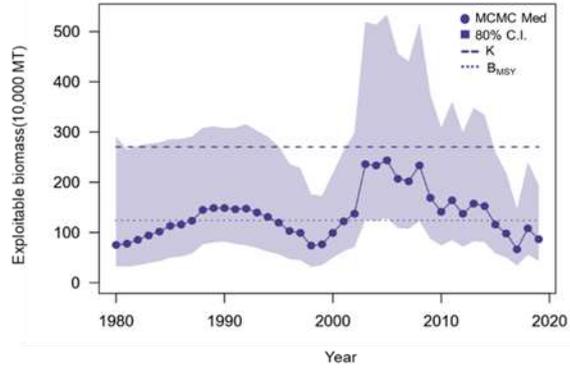
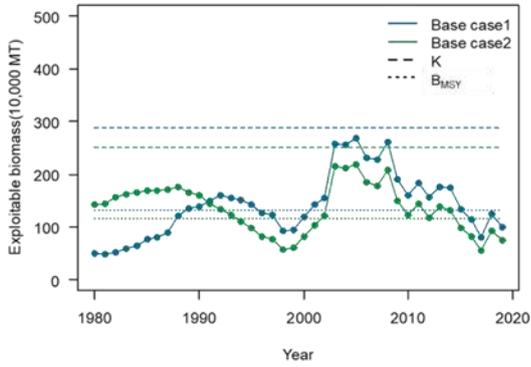


#### 4.3.2 Summary of estimates of parameters and reference points

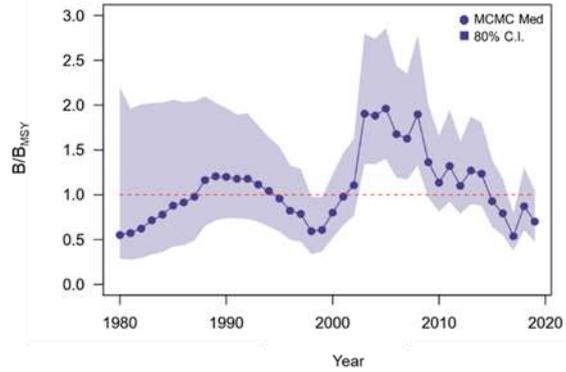
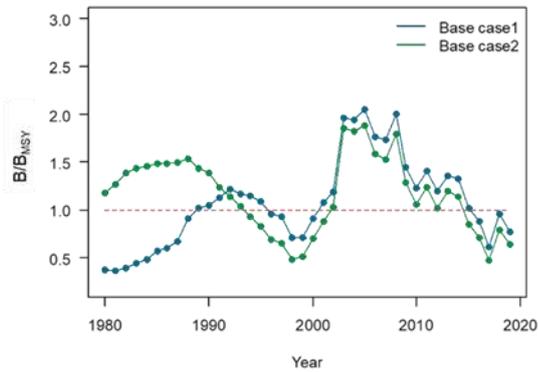
	Base case1	Base case2	Overall
	Median		
$C_{2018}$	43.91	43.91	43.91
$AveC_{2016-2018}$	35.45	35.45	35.45
$AveF_{2016-2018}$	0.40	0.63	0.50
$F_{2018}$	0.43	0.65	0.52
$F_{MSY}$	0.40	0.45	0.42
$MSY$	43.04	41.56	42.32
$F_{2018}/F_{MSY}$	1.11	1.55	1.31
$AveF_{2016-2018}/F_{MSY}$	1.04	1.52	1.26
$K$	287.80	251.30	270.20
$B_{2018}$	125.50	92.25	108.10
$B_{2019}$	100.30	74.19	86.96
$AveB_{2017-2019}$	102.29	74.07	87.57
$B_{MSY}$	131.60	116.35	124.10
$B_{MSY}/K$	0.46	0.46	0.46
$B_{2018}/K$	0.44	0.37	0.41
$B_{2019}/K$	0.35	0.30	0.35
$B_{2017-2019}/K$	0.36	0.30	0.33
$B_{2017}/B_{MSY}$	0.61	0.48	0.54
$B_{2018}/B_{MSY}$	0.96	0.79	0.87
$B_{2019}/B_{MSY}$	0.77	0.64	0.70
$B_{2017-2019}/B_{MSY}$	0.78	0.64	0.71

### 4.3.3 Time series plots for base case models and aggregated results

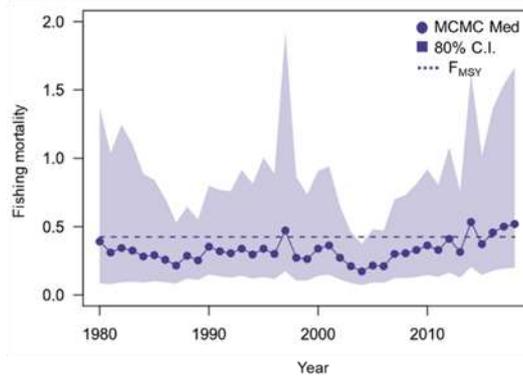
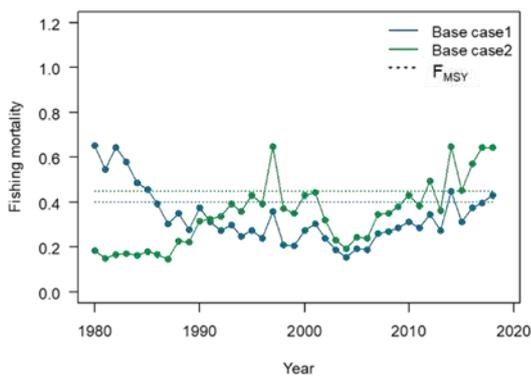
#### (a) Biomass



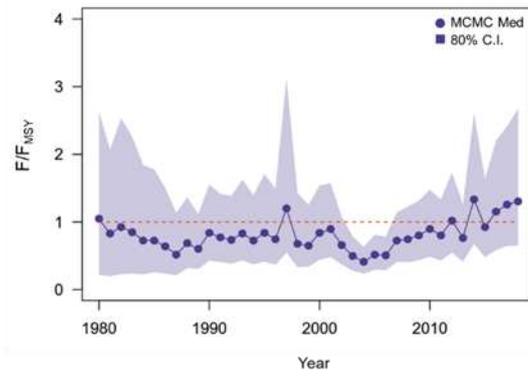
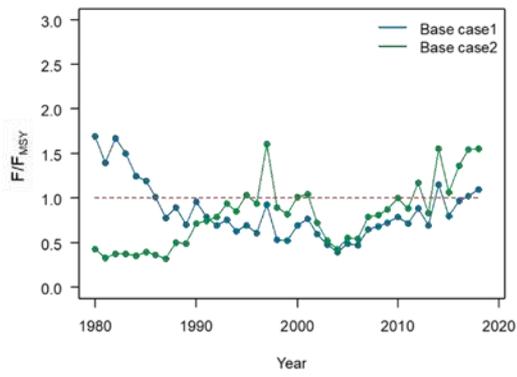
#### (b) B-ratio ( $B/B_{msy}$ )



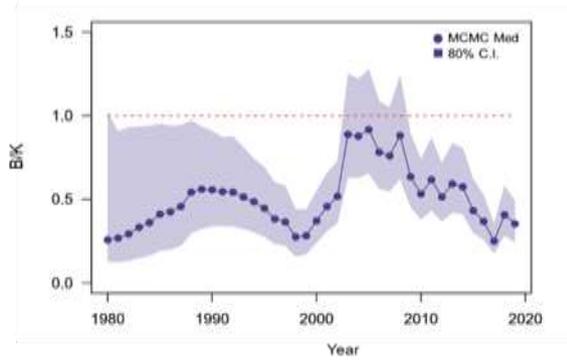
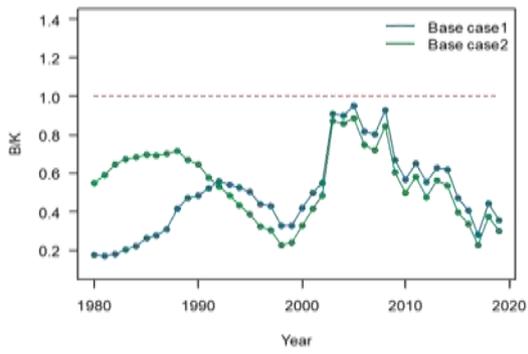
#### (c) Exploitation rate (F)



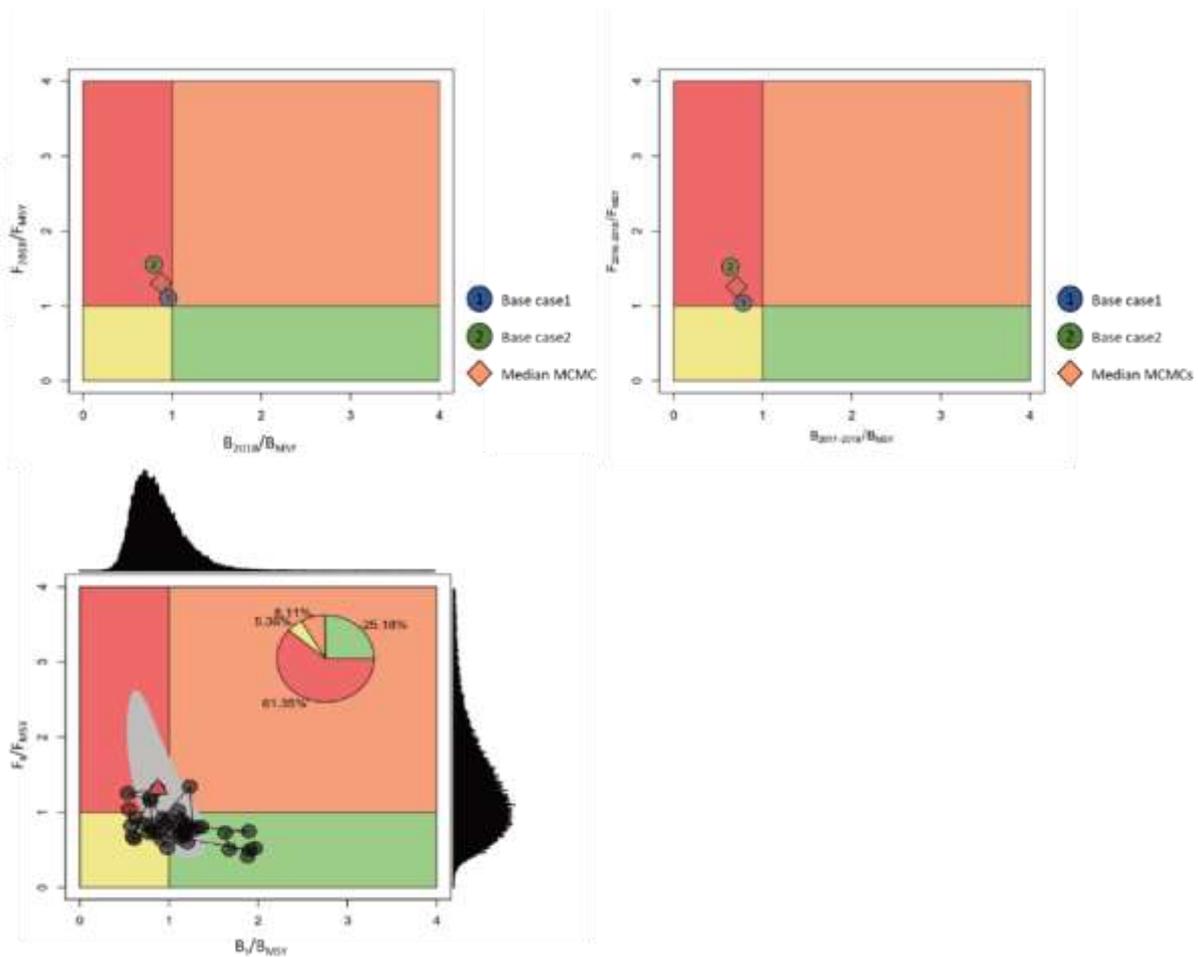
(d) F-ratio ( $F/F_{MSY}$ )



(e) B/K



### 4.3.4 Kobe plots



## 5 SOME AGGREGATED RESULTS FOR VISUALIZATION PURPOSE

### 5.1 Visual presentation of results

The graphical presentations for times series of biomass (B), B-ratio (=B/Bmsy), exploitation rate (F), F-ratio (F/Fmsy) and B/K are shown in Figure 3.

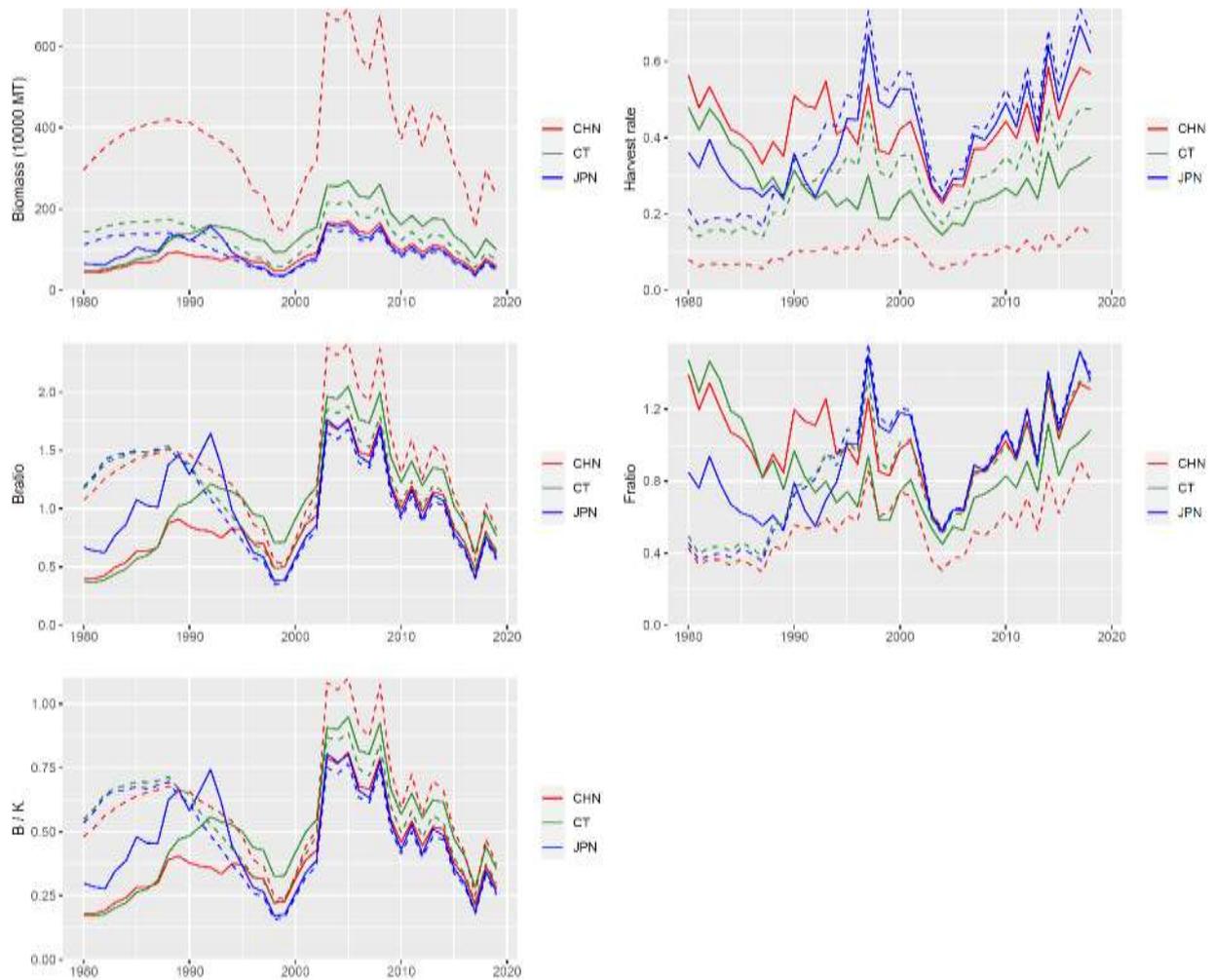


Figure 3. Time series of median estimated values of six runs for biomass, harvest rate, B-ratio, F-ratio, and depletion level relative to the carrying capacity. The solid and shaded lines correspond to NB1 and NB2, respectively.

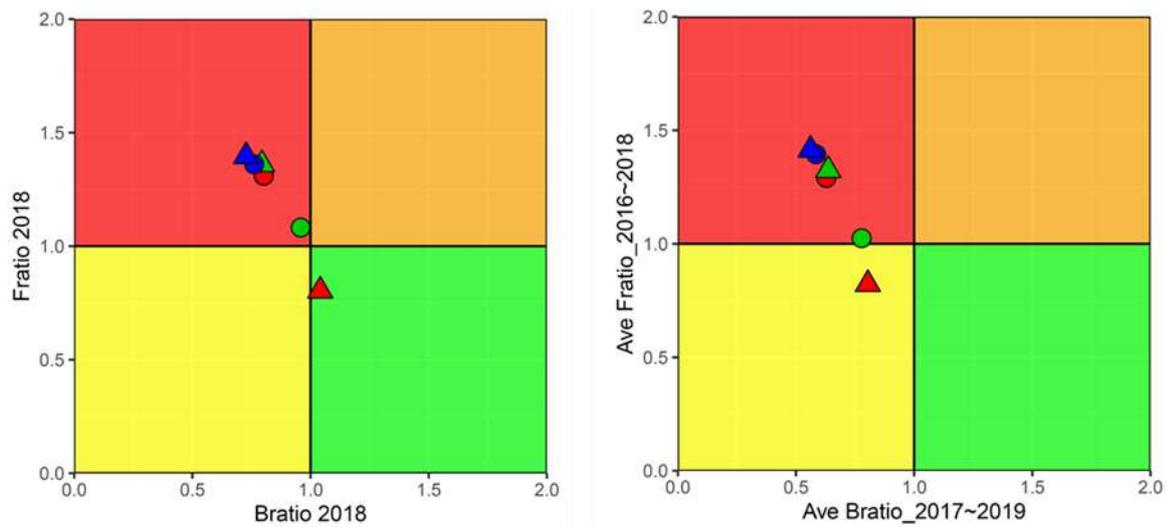


Figure 4. Kobe plots for six runs for NB1 (circle) and NB2 (triangle) by three members' scientists (red for China, blue for Japan and green for Chinese Taipei).

## 5.2 Summary table

Table 3. Summary of estimates of reference quantities. Median values are reported.

	China		Japan		Chinese Taipei	
	Base case 1	Base case 2	Base case 1	Base case 2	Base case 1	Base case 2
C2018 (10,000tons)	43.91	43.91	43.91	43.91	43.91	43.91
AveC2016-2018 (10,000tons)	35.45	35.45	35.45	35.45	35.45	35.45
AveF2016-2018	0.56	0.15	0.64	0.69	0.40	0.63
F2018	0.57	0.15	0.62	0.68	0.43	0.65
FMSY	0.44	0.21	0.46	0.48	0.40	0.45
MSY(10,000tons)	43.18	54.81	42.9	44.1	43.04	41.56
F2018/FMSY	1.31	0.80	1.36	1.40	1.11	1.55
AveF2016-2018/FMSY	1.30	0.83	1.40	1.42	1.04	1.52
K (10,000tons)	221.10	689.00	207.6	206.0	287.80	251.30
B2018 (10,000tons)	77.27	295.85	70.5	65.0	125.50	92.25
B2019 (10,000tons)	59.61	231.10	54.0	50.2	100.30	74.19
AveB2017-2019 (10,000tons)	60.81	228.73	55.9	51.8	102.29	74.07
BMSY (10,000tons)	98.05	305.70	92.9	91.7	131.60	116.35
BMSY/K	0.43	0.43	0.44	0.44	0.46	0.46
B2018/K	0.37	0.47	0.35	0.33	0.44	0.37

B2019/K	0.28	0.37	0.27	0.25	0.35	0.30
B2017-2019/K	0.29	0.37	0.28	0.27	0.36	0.30
B2018/BMSY	0.80	1.04	0.76	0.73	0.96	0.79
B2019/BMSY	0.62	0.82	0.58	0.56	0.77	0.64
B2017-2019/BMSY	0.63	0.81	0.61	0.58	0.78	0.64

## **6 CONCLUDING REMARKS**

The SSC PS considered the BSSPM results and noted dissimilarities among Members' results for base case 2. The SSC PS was unable to clarify the reason for the dissimilarities and agreed that it would not be advisable to aggregate Members' stock results.

All six base case model runs (two scenarios from each of three members) indicate that recent Pacific saury stock size was less than Bmsy. In particular, median estimates from five out of six runs indicate that 2019 Pacific saury biomass was less than Bmsy. Results from all six model runs indicate that average 2017-2019 biomass was less than Bmsy.

A majority of base case model comparisons indicate that recent harvest rates for Pacific saury were higher than Fmsy. In particular, median estimates from five runs indicate that the harvest rate during 2019 and average rates during 2017-2019 were higher than Fmsy.

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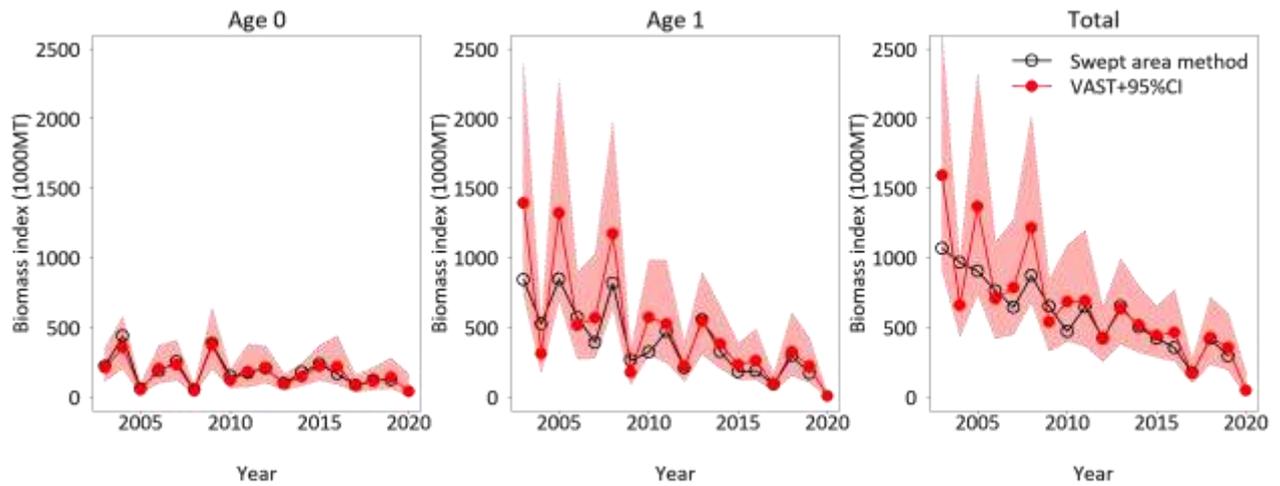
**Updated total catch, CPUE standardizations and survey biomass indices for the stock  
assessment of Pacific saury**

Year	Total catch (metric tons)	Biomass JPN (Observed biomass)*	CPUE_ CHN (metric tons per day)	CPUE JPN_early (metric ton per net haul)	CPUE JPN_late (metric tons per net haul)	CPUE KOR (metric tons per day)	CPUE RUS (metric tons per day)	CPUE CT (metric tons per net haul)	Joint CPUE
1980	238510			0.72					
1981	204263			0.63					
1982	244700			0.46					
1983	257861			0.87					
1984	247044			0.81					
1985	281860			1.4					
1986	260455			1.13					
1987	235510			0.97					
1988	356989			2.36					
1989	330592			3.06					
1990	435869			1.95					
1991	399017			3.13					
1992	383999			4.32					
1993	402185			3.25					
1994	332509				3.07		17.7		
1995	343743				2.16		20.4		
1996	266424				1.67		15.0		
1997	370017				3.74		11.3		
1998	176364				1.07		12.4		
1999	176498				0.80		11.2		
2000	286186				1.43		16.1		
2001	370823				2.12	7.29	20.9	1.58	0.73
2002	328362				1.17	8.43	19.6	1.63	0.58
2003	444642	1,068.6			2.19	12.75	28.5	2.68	1.11
2004	369400	965.4			2.61	9.05	43.9	1.46	1.25
2005	473907	905.9			4.47	14.27	46.4	2.40	1.67
2006	394093	764.0			4.09	13.23	32.3	1.27	0.70

2007	520207	647.1		3.89	12.50	40.7	2.36	1.10
2008	617509	871.8		5.02	16.54	41.0	2.92	1.52
2009	472177	651.7		3.73	8.63	20.6	1.58	0.82
2010	429808	471.0		1.55	12.88	22.3	1.94	0.85
2011	456263	648.6		2.40	9.40	26.1	2.51	1.17
2012	460544	421.6		2.39	8.21	23.2	2.47	1.04
2013	423790.3	654.1	13.96	1.44	8.89	20.9	2.80	0.87
2014	629576.4	505.5	16.22	2.52	15.01	23.8	3.64	1.39
2015	358882.7	422.0	17.74	1.34	6.86	15.3	2.44	0.89
2016	361687.6	357.5	9.31	1.52	9.47	15.9	2.45	0.75
2017	262639.4	176.6	8.53	1.08	6.16	8.3	1.85	0.85
2018	439079.0	420.0	15.90	1.45	8.12	21.0	3.10	1.26
2019	192377.0	294.7	6.91	0.68	5.30	6.6	1.41	0.45

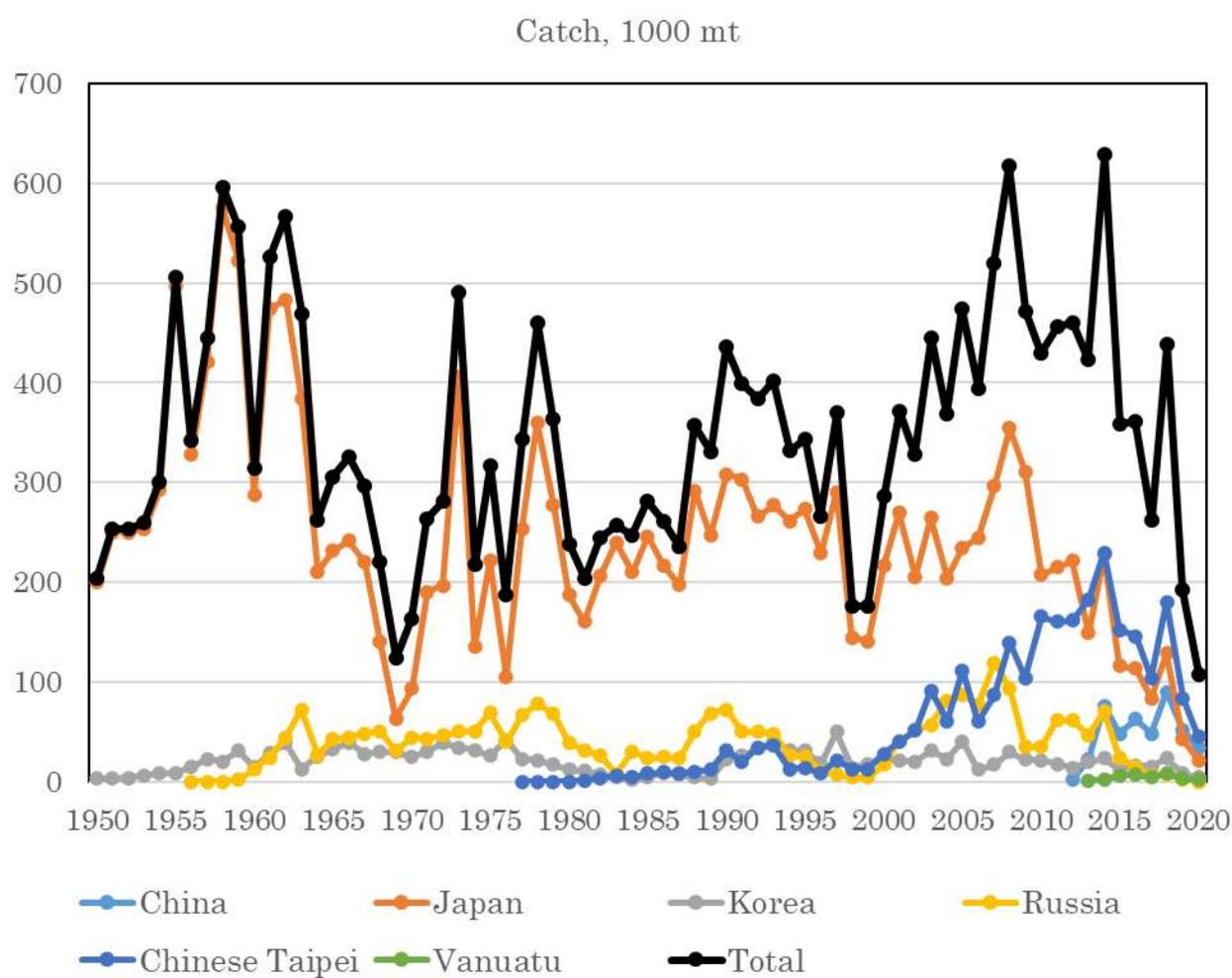
\* Observed biomass corresponds to  $\sum_i^N (d_i \cdot A_i)$ , where  $d_i$  and  $A_i$  denote mean density and area in stratum  $i$ .

### Japan's fishery-independent biomass index from 2003 to 2020



Note: red line shows year trends in estimated age 0, age 1 and total biomass index (with 95% confidence intervals shown by red polygons) derived from the VAST model incorporating a quadratic function of SST, compared to those from the swept area method (up to 2019).

**Members' Pacific saury catches up to 2020, with preliminary catch statistics as of 14 November 2020**



2020 catch of Pacific saury, as of 14 November:						
China	Japan	Korea	Russia	Chinese Taipei	Vanuatu	TOTAL
34,386	21,618	4,313	249*	45,433	2,160	108,158

\* Only in the Convention Area and does not include the catch in Russia's EEZ.

## Scientific projects for 2017-2021

#	Project	Time	Status	Next step: activities, required funds
1	VME taxa identification guide	2017-2021	<i>In progress</i> VME taxa ID guide has been printed out and distributed to Members.	Test the VME taxa ID guide by observers and revise if needed. <i>2020: 1,1mln JPY (10,000USD).</i> <i>Source: SC fund.</i>
2.1	GIS database/module as a part of NPFC database management system for spatial management of bottom fisheries and VMEs	2018-	<i>In progress</i> Fished seamounts and closed areas have been added to the map on the website. BF footprint data have been shared by Members.	Map bottom fishing footprint. <i>2020 FY: 0,55mln JPY (5,000USD).</i> <i>Source: SC fund.</i>
2.2	Joint spatial/temporal map of Members' catch and effort on Pacific saury with a spatial resolution of one-degree grids and a temporal resolution of one month	2018-	<i>In progress.</i> Spatial/temporal map of Members' Pacific saury catch and effort has been deployed.	Update the map. <i>2021 FY: 0,15mln JPY (1,500USD).</i>
3	Pacific saury stock assessment meeting (meeting costs)	Every year	<i>TWG PSSA meetings: Feb 2017, Dec 2017, Nov 2018, Mar 2019.</i> <i>SSC PS meetings: Nov 2019, Nov 2020.</i>	SSC PS07 meeting, TBD 2021. <i>2021 FY: 1.65mln JPY (15,000USD)</i> <i>Source: SC fund.</i>

4	Chub mackerel stock assessment meeting (meeting costs)	Every year	<i>TWG CMSA meetings: Dec 2017, Mar 2019, Nov 2020.</i>	TWG CMSA04 meeting, TBD 2021. <i>2020 FY: 1.65mln JPY (15,000USD)</i> <i>2021 FY: 1.65mln JPY (15,000USD)</i> <i>Source: SC fund.</i>
5	Expert to review Pacific saury stock assessment (consultant fee and travel costs)	TBD	Under consideration. SSC PS: to determine time and format.	<i>2020-2021 FY: No funds required.</i>
6	Observer Program	2018-	<i>In progress</i> A study on the existing observer programs of Members and those of other RFMOs has been done. Scientific data which can be collected and/or validated by at-sea observers, fishermen, electronic reporting systems and other means for Pacific saury have been reviewed.	Collect TWG CMSA Members' views regarding the necessity/objective of an observer program. Identify data gaps which can be fulfilled by an observer program. <i>2021 FY: No funds required.</i>
7	Promotion of cooperation with NPAFC including macro-scale multinational survey in the North Pacific in 2022	2021-2022	<i>In progress.</i> NPAFC-PICES-NPFC workshop Developing a collaborative, integrated ecosystem survey program ... has been attended by NPFC representatives (Canada, Oct 2019).	<i>2020 FY: 1,1mln JPY (10,000USD).</i> <i>Source: SC fund.</i>

8	Invited expert for the development of the operating model for chub mackerel stock assessment (consultant fee and travel costs)	2020-	External expert to be contracted.	2020 FY: 1,1mln JPY (10,000USD). 2021 FY: 1,1mln JPY (10,000USD) Source: SC fund.
9	Invited expert to stock assessment meetings of Pacific saury (consultant fee and travel costs)	2019-	External expert attended TWG PSSA/SSC PS meetings in 2019 and 2020.	2020 FY: 1,1mln JPY (10,000USD). 2021 FY: 1,1mln JPY (10,000USD) Source: SC fund.
10	International Course for NPFC observers for VME indicator taxa identification (consultant fees and travel costs for two lecturers, meeting costs)	2021	In preparation. PICES committed to 15,000USD to support the meeting logistics, travel support for 1-2 experts and travel support for ~10 students (subject to the format of the meeting).	Time and location: 3-4 days. Russia, Vladivostok. 2021 FY: 1,65mln JPY (15,000USD). Source: SC fund.
11	Standardization of bycatch species list and fish species identification guides (translation of the existing fish ID guide from Japanese to additional languages)	2019-2020	In progress.	2020 FY: 1.1mln JPY (10,000USD). Source: SC fund.
12	Invited expert to initiate the development of MSE for chub mackerel (consultant fee)	2020-	Proposed.	2020 FY: 0.55mln JPY (5,000USD). 2021 FY: 0.55mln JPY (5,000USD). Source: SC fund.

13	PICES-ICES Small Pelagic Fish Symposium, February 21–24, 2022, Lisbon, Portugal.	2022	<i>Proposed.</i>	<i>2021 FY: 1.65mln JPY (15,000USD) to the organizers for the symposium logistics and 1.3mln JPY (12,000USD) for travel support for three NPFC experts to attend the symposium.]</i>
14	2021 PICES Annual meeting			<i>Travel support to two participants of the SC and/or its subsidiary bodies. 2021 FY: 0.9mln JPY (8,000USD)</i>

### Past projects

#	Project	Time	Status	Next step: activities, required funds
1	NPFC/FAO VME workshop	2018-2019	<i>Concluded. FAO report is in press.</i>	The FAO report has been finalized by the co-chairs and shall be published as FAO Fisheries and Aquaculture report.
2	Workshop to address data requirements and data sharing for SAI assessment and other tasks identified in the Work Plan by SSC VME and SSC BF	2018	<i>Concluded.</i>	

3	Workshop on biological reference points (BRP), harvest control rule (HCR) and management strategy evaluation (MSE) (meeting costs and invited experts)	2019	<i>Concluded.</i>	
4	Literature review of target and limit reference points used in pelagic species fisheries by other general RFMOs and other fishery management bodies	2018	<i>Done. Available on the NPFC website.</i>	
5	Joint PICES-NPFC workshop (W11) on <i>The influence of environmental changes on the potential for species distributional shifts and subsequent consequences for estimating abundance of Pacific saury</i>	2019	<i>Concluded.</i>	

## Five-Year Research Plan and Work Plan of the Scientific Committee

### North Pacific Fisheries Commission Scientific Committee 2021-2025 Research Plan

#### 1.0 BACKGROUND

Article 10, Section 4(a) of the *Convention on the Conservation and Management of High Seas Fisheries Resources in the North Pacific Ocean* states that the Scientific Committee (SC) will “recommend to the Commission a research plan including specific issues and items to be addressed by the scientific experts or by other organizations or individuals, as appropriate, and identify data needs and coordinate activities that meet those needs.”

An initial draft of this research and accompanying work plan was presented for review during the 4<sup>th</sup> Preparatory Conference and a subsequent discussion was held by a small working group to establish science priorities for the NPFC. This plan draws on those discussions and was updated by the SC Chair based on the progress made by NPFC since that Conference.

The development of multi-year science research or work plans is common across regional fisheries management organizations as well as domestic fisheries science agencies. This draft plan draws on such examples, and has been developed for consideration by the SC before it may be adopted by the Commission.

#### 2.0 OBJECTIVES

The research plan is intended to guide the work of the Scientific Committee by identifying key research priorities and associated areas of work to be undertaken or maintained. The plan should also serve to: ensure efficient utilization of scarce resources within the Commission; inform Parties’ domestic research planning as a means to complementing the Commission’s science activities; and, help the Commission identify potential sources of external funding.

It is not intended as an exhaustive plan describing all research activities that may be carried out by Parties, nor is it intended to preclude work already taking place. The plan should support the Commission’s primary objective (*Article 2* in the Convention), which 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 plan should also help the Scientific Committee fulfill its functions as specified in the Convention.

### **3.0 PRIORITY RESEARCH AREAS**

In addition to discussions held during the Preparatory Conference (referenced above) followed by the Commission and Scientific Committee after their establishment, the identification of priority research areas draws largely from the Commission’s Convention, which outlines specific functions for the Scientific Committee in *Article 10, Section 4*. These priority research areas are subject to the approval of the Commission, and may be revisited and/or revised as deemed appropriate by the Commission. Proposed rolling five-year work plans for each priority area are available in the attached Annex I.

The proposed priority research areas are:

1. Stock assessments for target fisheries and bycatch species
2. Ecosystem approach to fisheries management
3. Data collection, management and security

#### **3.1 Stock Assessments**

##### Rationale

Accurate stock assessments are critical in helping to ensure the long-term conservation and sustainable use of fisheries resources in the Convention Area. One of the primary functions of the Commission is setting total allowable catch or total allowable level of fishing effort, and as per *Article 7-1(b)*, this is to be in “accordance with the advice and recommendations of the Scientific Committee”.

Consistent with this, *Article 10-4(b)* states that one of the functions of the Scientific Committee is to “regularly plan, conduct and review the scientific assessments of the status of fisheries resources in the Convention Area, identify actions required for their conservation and management, and provide advice and recommendations to the Commission”.

Finally, *Article 10-4(i)* states that the Scientific Committee shall also “develop rules and standards, for adoption by the Commission, for the collection, verification, reporting, and the security of, exchange of, access to and dissemination of data on fisheries resources, species belonging to the

same ecosystem, or dependent upon or associated with the target stocks and fishing activities in the Convention Area”.

The Scientific Committee should endeavor to understand the current status and trends in production of populations of priority species as agreed by the 2<sup>nd</sup> Commission meeting in 2016, as well as factors that may affect future trends.

#### Areas of work

- Development of baseline assessment of the status of priority stocks
- Review of existing data standards in relation to stock assessments (e.g. Annual Report template, future vessel monitoring system)
- Stock delineation of important commercial species for the purpose of providing advice for the determination of management units
- For each commercial species, determination of data requirement, including data availability and data gaps; identification, where possible, of strategies to fill the data gaps, including for bycatch
- Development of a standardized method to provide advice to the Commission
- Development of assessment models by species and research as required to determine various assessment parameters

#### 3.1.1. Pelagic fish stock assessment

##### Rationale

Pelagic fish and squids are primary fisheries resources for NPFC Members. They comprised more than 99% of total catch of species covered by the Convention. Many of them are migratory species with wide geographical distributions which include both EEZs of the North Pacific Rim countries and High Seas. Management of such stocks requires close cooperation among Members concerned to ensure sustainable use and conservation of fisheries resources.

Four fish species and two squid species were recognized by the Scientific Committee as priority species: Pacific saury *Cololabis saira*, Chub mackerel *Scomber japonicus*, Spotted mackerel *Scomber australasicus*, Japanese sardine *Sardinops melanostictus*, Neon flying squid *Ommastrephes bartramii*, Japanese flying squid *Todarodes pacificus*.

#### Areas of work

- Completion of stock assessment for Pacific saury and development of the framework and timeline for its regular improvement and update
- Conducting stock assessment for Chub mackerel and other priority species considering their top-down prioritization (Spotted mackerel - Japanese sardine - Neon flying squid – Japanese flying squid) and available funds and capacity
- Identification of data gaps, determination of activities to address those gaps and development of standards and mechanisms for data collection and verification
- Develop management strategy evaluations (MSEs) for Chub Mackerel and Pacific Saury in collaboration with NPFC’s Technical and Compliance Committee (TCC), fishery managers, fishers, and stakeholders.

### 3.1.2. Bottom fish stock assessment

#### Rationale

Data used for traditional stock assessment are sparse for bottom fish, and it is unlikely that traditional methods will be applicable for most deepwater species in the Convention Area. In addition, some bottom species have unique life cycles, sporadic recruitment patterns and irregular spawning-recruitment relationships that also makes difficult accurate stock assessment. All these require specific approaches for management and sustainable use of bottom fisheries resources. More than ten bottom species have been exploited by fisheries in the Convention Area last two decades. Two fish are recognized as priority species: North Pacific armorhead (NPA) *Pentaceros wheeleri*, Splendid alfonsino *Beryx splendens*.

#### Areas of work

- Review of approaches applicable for stock assessment of target bottom species and investigate various management strategies
- Further development of the Adaptive Management approach for NPA and mechanism for its implementation
- Identification of data needs and establishment of activities to fill data gaps

## 3.2 Ecosystem Approach to Fisheries Management

#### Rationale

*Article 3 (c)* in the Convention states that: “In giving effect to the objective of this Convention, the

following actions shall be taken individually or collectively as appropriate: (c) adopting and implementing measures in accordance with the precautionary approach and an ecosystem approach to fisheries, and in accordance with the relevant rules of international law, in particular as reflected in the 1982 Convention, the 1995 Agreement and other relevant international instruments”.

*Article 7-1 (c,d)* in the Convention states that the Commission shall: “adopt, where necessary, conservation and management measures for species belonging to the same ecosystem or dependent upon or associated with the target stocks”; and, “adopt, where necessary, management strategies for any fisheries resources and for species belonging to the same ecosystem or dependent upon or associated with the target stocks, as may be necessary to achieve the objective of this Convention.”

*Article 10-4 (d)* states that the Scientific Committee shall “assess the impacts of fishing activities on fisheries resources and species belonging to the same ecosystem or dependent upon or associated with the target stocks.”

#### Areas of work

- Formulation of a work plan on how to implement the ecosystem approach to fisheries management in the Convention Area
- Vulnerable Marine Ecosystems
- Understand ecological interactions among species
- Ecosystem modelling
- Evaluate impacts of fishing on fisheries resources and their ecosystem components, including bycatch species
- Other issues related to marine ecosystems including marine debris and pollution

#### 3.2.1 Vulnerable Marine Ecosystems

##### Rationale

The identification of vulnerable marine ecosystems is a necessary precursor to implementing measures to protect these ecosystems, and such measures are explicitly called for in the Convention (e.g. *Article 7-1(e)*).

*Article 10-4 (e)* states that the Scientific Committee shall “develop a process to identify vulnerable marine ecosystems, including relevant criteria for doing so, and identify, based on the best scientific information available, areas or features where these ecosystems are known to occur, or are likely to

occur, and the location of bottom fisheries in relation to these areas or features, taking due account of the need to protect confidential information.”

*Article 7-1 (e)* states that the Commission shall “adopt conservation and management measures to prevent significant adverse impacts on vulnerable marine ecosystems in the Convention Area, including but not limited to: measures for conducting and reviewing impact assessments to determine if fishing activities would produce such impacts on such ecosystems in a given area; measures to address unexpected encounters with vulnerable marine ecosystems in the course of normal bottom fishing activities; and as appropriate, measures that specify locations in which fishing activities shall not occur.”

To date, Japan, Russia, Korea, the US and Canada have completed a report on identification of VMEs and an assessment of impacts caused by bottom fishing activities on VMEs and marine species. The Scientific Committee may build on these reports, which will be kept up to date by respective Parties.

#### Areas of work

- Review existing NPFC standards on VME data collection, including guidelines set forth in the CMMs for bottom fisheries and protection of vulnerable marine ecosystems in the northwestern and northeastern Pacific Ocean (CMM 2019-05 and CMM 2019-06), and determine if any modifications to these standards are needed in the short-term and/or longer term
- Review of Encounter Protocol for bottom fisheries on Vulnerable Marine Ecosystems
- Determination of data requirements and identification of what data may be collected through commercial fishing operations
- Develop consensus on criteria used to identify VMEs and how this might be applied in the NPFC (note that guidelines from the FAO are already referenced in Annex 2 of the CMM 2019-05 and CMM 2019-06)
- Analysis of known or suspected VMEs in the Convention Area
- Visual surveys of VMEs for data collection
- Development of a framework to conduct assessments of Impacts of Bottom Fishing Activities on Vulnerable Marine Ecosystems

#### *3.2.1.1 Review of Encounter Protocol for bottom fisheries on Vulnerable Marine Ecosystems*

#### Rationale

The purposes of VME encounter protocols in NPFC Convention Area include:

- Ensuring early detection and protection of potential VMEs within an existing fishing area;
- Ensuring early detection and protection of potential VME within an unfished area;
- Documenting information on known occurrences of VME indicators within the Convention Area.

Development of the Encounter Protocol progressed through the Science Working Group and Scientific Committee meetings as well as intersessional activities. VME encounter protocols are incorporated in the CMMs for bottom fisheries and protection of vulnerable marine ecosystems in the northwestern and northeastern Pacific Ocean, specifically in Para 4(g) and 3(j), respectively.

#### Areas of Work

Consideration of the following subjects of research and analyses are recommended to further refine encounter protocols in the Convention Area (as notified in Appendix C, NPFC01-2016-SSCVME01- Final Report):

- Other taxa, topographical, geographical and geological features that may indicate the presence of VMEs;
- Taxon-specific encounter thresholds and reporting;
- Framework for evaluating the effectiveness of encounter protocols;
- Tiered approach with different encounter protocols associated with different thresholds;
- Gear-specific thresholds to reflect differences in catchability;
- Gear-specific move-on distances to reflect type of gear;
- Different reporting requirements for different catches;
- Tiered approach to reporting bycatch of VME indicator taxa;
- Different encounter protocols for existing and new fishing areas

### **3.3 Data collection, management and security**

#### Rationale

*Article 10, paragraph 4 (i)* in the Convention states that the functions of the Scientific Committee shall be to: “develop rules and standards, for adoption by the Commission, for the collection, verification, reporting, and the security of, exchange of, access to and dissemination of data on fisheries resources, species belonging to the same ecosystem, or dependent upon or associated with the target stocks and fishing activities in the Convention Area”.

## Areas of work

- Review of data standards related to stock assessments and other relevant data, including VME data collection and vessel monitoring systems
- Identify data sources to meet data needs for priority areas of work above and develop programs for data collection
- Develop data security policy including data handling and sharing protocol, information confidentiality classification and access control security guideline

### **4.0 IMPLEMENTATION AND REVIEW**

The SC will review the Research Plan and update it as necessary on an annual basis. The Research Plan will form the foundation of SC's rolling five-year Work Plan. Monitoring the implementation of this Research Plan will be the responsibility of the Chair of the Scientific Committee in collaboration with the Chairs of the Scientific Committees' subsidiary groups and the Executive Secretary. Members of the Commission and the Secretariat will share responsibility for implementation of the Research Plan.

Full implementation of the Research Plan will likely be beyond the means of the Commission's core budget. Extra-budgetary funds from voluntary contributions of Members and other sources will be required and actively sought by the Commission. Nevertheless, adoption of the Plan by the Scientific Committee and subsequent strong support from the Commission is a prerequisite to securing the necessary extra-budgetary funds.

An independent external review of the Plan may periodically be requested by the SC. The Scientific Committee will be responsible for preparing the terms of reference for the review. The Scientific Committee will present the report of the review to the next regular session of the Commission.

### **5.0 SCIENTIFIC COLLABORATION WITH OTHER ORGANIZATIONS**

While not included as a priority, *Article 21* of the Convention addresses cooperation with other organizations or arrangements. It calls on the Commission to cooperate, as appropriate, on matters of mutual interest with Food and Agriculture Organization (FAO), other specialized agencies of the FAO and relevant Regional Fisheries Management Organizations (RFMOs). Further, the Commission is called on to develop cooperative working relationships, including potential agreements, with intergovernmental organizations that can contribute to its work.

*Article 10* also speaks to this issue in clauses five and six, stating that the Scientific Committee may exchange information on matters of mutual interest with other relevant scientific organizations or arrangements, and that the Committee shall not duplicate the activities of other scientific organizations and arrangements that cover the Convention Area.

The impetus to collaborate is made stronger by the prospect of limited research funding in the Commission, at least in the short-term, but it is also in the best interests of the Commission to seek synergies with other organizations with mutual interests and similar membership (e.g. North Pacific Marine Science Organization (PICES) and North Pacific Anadromous Fish Commission (NPAFC)).

Activities could include:

- Evaluate reports of International Organizations that may be relevant to the functioning of the Scientific Committee
- Identify other organizations with relevant mandates and activities
- Formalize relationships with these organizations (e.g. MOUs, standing invitations to meetings)
- Identify potential funding opportunities

**FIVE-YEAR WORK PLAN****Small Scientific Committee on Pacific Saury (SSC PS)**

## Priority list:

1. Conduct a stock assessment update based on BSSPM analyses
2. Further investigate improvements to the BSSPM
3. Develop an age/size-structured model
4. Develop a list of plausible ranges for biological parameters
5. Develop databases to support age/size-structured models
6. Continue joint CPUE work to incorporate broader spatial and temporal coverage
7. Update the biomass estimate using the existing method (swept area method)
8. Develop spatio-temporal model for the biomass estimate
9. Further refine the catchability coefficient of the Japanese survey and characterize its variance
10. Develop a longer-term roadmap for work related to Pacific saury stock assessment
11. Set biological reference points
12. Develop a timeframe for MSE process

[H] and [M] indicate high and medium priorities. Cells with “TBD” depend on the progress of data preparation and analytical works.

ITEM	SSC-PS05 (2019 Fall)	SSC-PS virtual (2020 June)	Intersessional	SSC-PS06 (2020 Fall)	2021	2022	2023	2024
<b>Regular update of inputs</b>								
Update & improvement of biomass survey index	<ul style="list-style-type: none"> <li>Review 2019 survey outcomes</li> <li>Investigate/refine q_biomass</li> <li>Review spatio-temporal modelling</li> <li>Review simulation results</li> </ul> [H]	Review 2020 survey plan [H]	Review 2020 survey outcomes and finalize for use in BSSPM	Continue review of 2020 survey and analytical works, and then finalize for use in BSSPM [H]	Continue regular review [H] of 1) survey plan 2) analytical work 3) any related issues	Continue regular review [H] of 1) survey plan 2) analytical work 3) any related issues	Continue regular review [H] of 1) survey plan 2) analytical work 3) any related issues	Continue regular review [H] of 1) survey plan 2) analytical work 3) any related issues
Update & improvement of CPUE indices	Review CPUEs up to 2018 fisheries [H]		Review CPUEs up to 2019 fisheries and finalize for use in BSSPM	Continue review of CPUEs up to 2019 fisheries and finalize for use in BSSPM [H]	Continue review of outcomes of regular update and analytical works [H]	Continue review of outcomes of regular update and analytical works [H]	Continue review of outcomes of regular update and analytical works [H]	Continue review of outcomes of regular update and analytical works [H]
Development of joint CPUE index	Review results and choose some initial sets of series for trial use in BSSPM [M]	Review further results [M]	Review CPUEs up to 2019 fisheries and finalize for use in sensitivity test of BSSPM	Review CPUEs up to 2019 fisheries and finalize for use in sensitivity test of BSSPM [H]	Continue review of outcomes of regular update and analytical works [H]	Continue review of outcomes of regular update and analytical works [H]	Continue review of outcomes of regular update and analytical works [H]	Continue review of outcomes of regular update and analytical works [H]
<b>Regular update of the existing SA</b>								
Routine update BSSPM as a benchmark	Set up data and modify specification (if	Update with base case 2	Conduct BSSPM	Update with base and sensitivity cases	Continue review of outcomes of	Continue review of outcomes of	TBD	TBD

ITEM	SSC-PS05 (2019 Fall)	SSC-PS virtual (2020 June)	Intersessional	SSC-PS06 (2020 Fall)	2021	2022	2023	2024
	necessary) [H]		analyses using updated data	and draft BSSPM stock assessment report for review by SC and Commission [H]	regular BSSPM update [M]	regular BSSPM update [M]		
Improvement and further investigation of BSSPM	Review any outcomes of improvements (see Para 29 in TWG04 report) [L]	Continue [L]		Continue [L]	Review any outcomes of improvements (see Para 29 in TWG PSSA04 report) [M]	Review any outcomes of improvements (see Para 29 in TWG PSSA04 report) [M]	TBD	TBD
<b>Toward age/size- structured models (ASSMs)</b>								
Data inventory (CPUE and size/age in space and time)	<ul style="list-style-type: none"> <li>Review data availability for each member</li> <li>Discuss data sharing process</li> </ul> [H]	Review an initial data set for initial trials of conditioning (intersessionally)		Finalize an initial data set for initial trials of estimation [M]	Finalize data for 2021 stock assessment with ASSMs [H]	Continue update of data for stock assessment with ASSMs [H]	TBD	TBD
Summarizing available information on PS biology	Review comprehensive reports [H]			Finalize an initial list of assumptions for initial trials of estimation [M]	Finalize assumption for 2021 stock assessment with ASSMs [H]	Continue update of data for stock assessment with ASSMs [H]	TBD	TBD
Development of models	Review proposal and discuss evaluation methods (including simulation) [H]			After PS06 meeting [M]: <ul style="list-style-type: none"> <li>Start conditioning</li> <li>Compare with BSSPM</li> </ul>	Review results of analyses by an agreed initial set of ASSMs [H]	Finalize models and results of analyses by ASSMs [H]	TBD	TBD

ITEM	SSC-PS05 (2019 Fall)	SSC-PS virtual (2020 June)	Intersessional	SSC-PS06 (2020 Fall)	2021	2022	2023	2024
				results				
Uncertainty in models (possible link with OM grid under MSE)	Grid of uncertainty and information gaps [L]	Continue [L]			Start investigation [M]	Finalize the procedure of assessing model uncertainty [H]	TBD	TBD
Examination of estimation performance and finalization of models	Develop simulation specification [M]			Plan conducting simulation [M]	Review initial simulation works [H]	Finalize simulation works [H]	TBD	TBD
<b>Toward development of reference points</b>								
Set biological reference points (limit and target)	Review intensively RPs report Start investigating reasonable options [H]			Identify candidate RPs [M]	Continue discussion and adoption [H]	Continue discussion and amend if necessary [M]	TBD	TBD
<b>Toward development of MSE (work formally starts in 2021)</b>								
Development of management objectives	Review intensively RPs report [L]							
Definition of performance measures	Review intensively RPs report [L]							
Construction of OMs	See items in age-structured models [L]							
Development								

<b>ITEM</b>	<b>SSC-PS05 (2019 Fall)</b>	<b>SSC-PS virtual (2020 June)</b>	<b>Intersessional</b>	<b>SSC-PS06 (2020 Fall)</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>
of candidate MPs								
Simulation performance tests								
Comparison of MPs and finalize advice								

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

Priority list:

1. Data preparation and review of biological information
2. Develop an operating model
3. Test stock assessment models (VPA, ASAP, KAFKA, SAM, state-space production model)
4. Conduct stock assessment of chub mackerel
5. Set biological reference points
6. Provide scientific advice on the management of chub mackerel stock to the Commission
7. Regularly update and refine inputs
8. Conduct MSE for chub mackerel

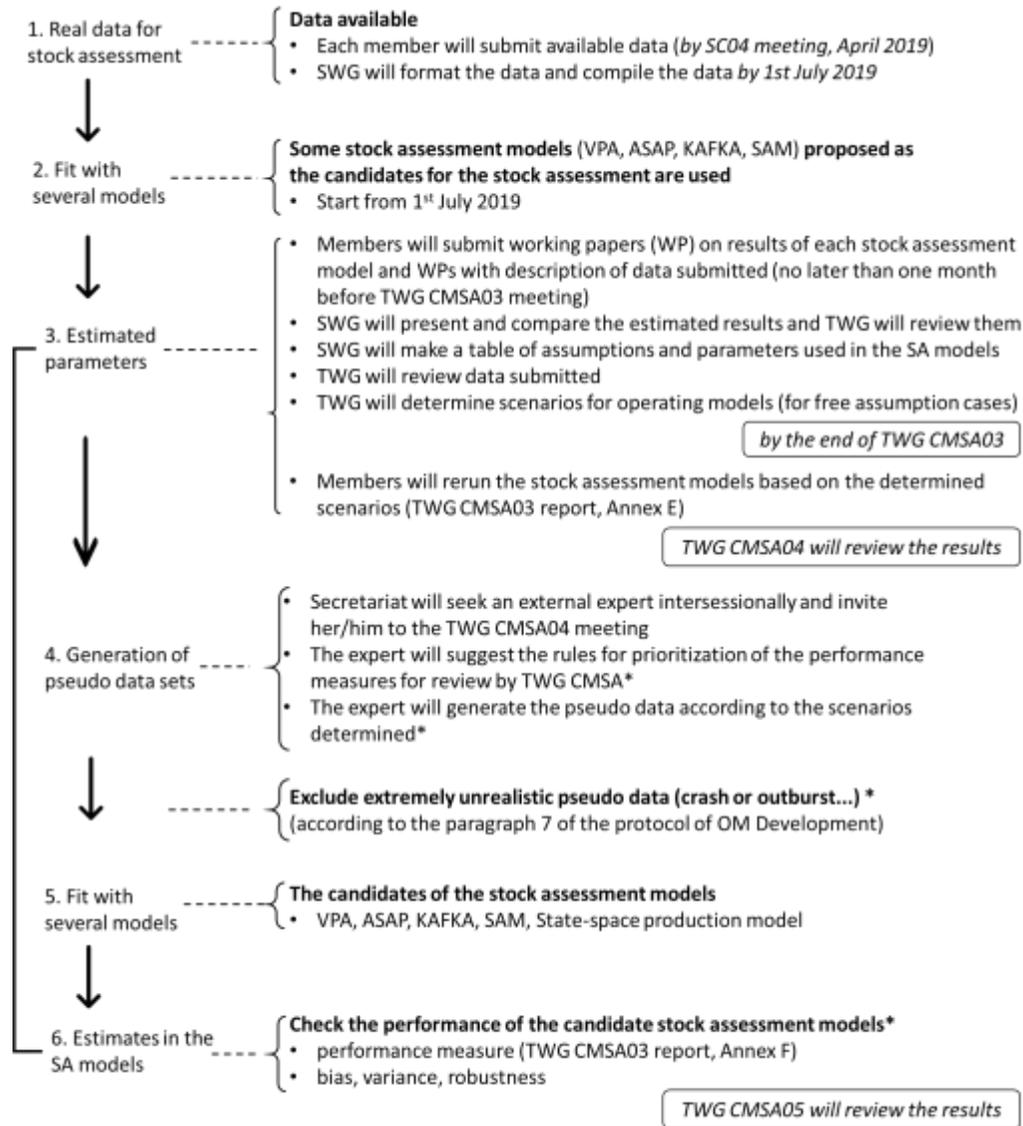
ITEM	2020 (TWG CMSA03)	2021 spring	2021-2022 winter	2022	2023	2024	2025
<b>Regular update of inputs</b>							
Research survey indices	Review survey indices to be used for stock assessment	<ul style="list-style-type: none"> <li>• Standardize survey data (intersessional)</li> <li>• Review the data used for the stock assessment</li> <li>• Finalize the data used for the stock assessment</li> </ul>	Update survey indices, if possible	Update	Update	Update	Update
CPUE indices	Review CPUE indices to be used for stock assessment	<ul style="list-style-type: none"> <li>• Standardize CPUE (intersessional)</li> <li>• Review the data used for the stock</li> </ul>	Update CPUE indices, if possible	Update	Update	Update	Update

ITEM	2020 (TWG CMSA03)	2021 spring	2021-2022 winter	2022	2023	2024	2025
		assessment • Finalize the data used for the stock assessment					
Catch data/catch composition	Compile and review data	• Review the data used for the stock assessment • Finalize the data used for the stock assessment	Update catch composition data, if possible	Update and revise, if needed	Update	Update	Update
Biological parameters (maturity, M, weight)	Review the three reference cases for natural mortality	• Review biological parameters • Finalize assumptions for the stock assessment	Review biological parameters	Review biological parameters	Review biological parameters	Review biological parameters	Review biological parameters
<b>Operating model (OM)*</b>							
Development of operating model	Describe and review all data for OM/ Set OM scenarios		Generate pseudo data to be fitted to the stock assessment models (intersessional)				
Testing stock assessment models	Condition the OM	Condition the OM	•Compare stock assessment model candidates •Choose the best SA model(s)				
<b>Stock assessment</b>							
Benchmark stock assessment			Conduct preliminary stock assessment	Complete stock assessment with the selected SA model(s) and	Update benchmark stock assessment	Update benchmark stock assessment	Update benchmark stock assessment

ITEM	2020 (TWG CMSA03)	2021 spring	2021-2022 winter	2022	2023	2024	2025
				provide recommendations to SC			
Improvement and further investigation of the selected model					Review and improve, if needed, the SA model	Review and improve, if needed, the SA model	Review and improve, if needed, the SA model
<b>Toward development of reference points</b>							
Set biological reference points (limit and target)		<ul style="list-style-type: none"> <li>Review RPs report</li> <li>List candidate reference points</li> </ul>	<ul style="list-style-type: none"> <li>Compare robustness of reference points</li> <li>Choose reference points</li> </ul>				
<b>Toward development of MSE</b>							
Development of management objectives			Liaise with the Commission and TCC to set management objectives	Finalize management objectives			
Definition of performance measures				List performance measures			
Construction of OMs	Discuss MSE approaches for chub mackerel	Continue	Discuss MSE approaches and frameworks for chub mackerel	Discuss ranges of uncertainties			
Development of candidate							

<b>ITEM</b>	<b>2020 (TWG CMSA03)</b>	<b>2021 spring</b>	<b>2021-2022 winter</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>
MPs							
Simulation performance tests							
Comparison of MPs and finalize advice							

## Flowchart for the development of operating models and testing stock assessment models



\* By an external expert

**Small Scientific Committee on Bottom Fish and Marine Ecosystems (SSC BF-ME)**

Priority list:

1. NPA and SA: Develop catch and CPUE time series for commercial fisheries
2. NPA: Review survey
3. SA: Conduct comprehensive stock assessment and provide management advice
4. NPA, SA and Sablefish: Develop and Implement harvest control rule
5. Sablefish: Evaluate historical harvest relative to trip limits and update trip limits if necessary
6. Sablefish and VME: Conduct trade-off analysis between commercial fishing and VME protection
7. VME: Collect and share fishing footprint data
8. VME: Develop a process for establishing quantitative definitions of VMEs
9. VME: Develop standardized approach to SAI determination

ITEM	SSC BFME01 (2020)	SSC BFME02 (2021)	SSC BFME03 (2022)	SSC BFME04 (2023)	SSC BFME05 (2024)
North Pacific Armorhead					
Assess and monitor status of stock	Update catch data for NPA	Update catch data and CPUE index for NPA	Update catch data and CPUE index for NPA	Update catch data and CPUE index for NPA	Update catch data and CPUE index for NPA
	Develop CPUE index for NPA				
	Review results of NPA monitoring surveys				

ITEM	SSC BFME01 (2020)	SSC BFME02 (2021)	SSC BFME03 (2022)	SSC BFME04 (2023)	SSC BFME05 (2024)
	Complete review of data requirements to assess and monitor status of NPA and identify gaps	Integrate CPUE index and NPA surveys (acoustic and pre-fishery) into preliminary stock assessment or simulation approach using DLM tools	Update status of stock	Update status of stock	Update status of stock
	Conduct acoustic survey and research	Review acoustic survey and research			
		Conduct analysis of historical patterns in NPA recruitment and oceanography; Identify and conduct additional research on NPA	Identify and conduct additional research on NPA	Identify and conduct additional research on NPA	Identify and conduct additional research on NPA
	Review fisheries observer program data collection for adequacy to produce data streams to support management advice	Review fisheries observer program data collection for adequacy to produce data streams to support management advice	Review fisheries observer program data collection for adequacy to produce data streams to support management advice	Review fisheries observer program data collection for adequacy to produce data streams to support management advice	Review fisheries observer program data collection for adequacy to produce data streams to support management advice
Conserve stock		Develop conservation objective(s)			

ITEM	SSC BFME01 (2020)	SSC BFME02 (2021)	SSC BFME03 (2022)	SSC BFME04 (2023)	SSC BFME05 (2024)
	Develop work plan and TORs to implement adaptive management	Implement adaptive management			
		Refine harvest control rule if needed	Assess HCR against stock assessment	Refine HCR and implement	Update data and implement HCR
Splendid alfonsino					
Assess and monitor status of stock	Update catch data for SA	Update catch data and CPUE index for SA	Update catch data and CPUE index for SA	Update catch data and CPUE index for SA	Update catch data and CPUE index for SA
	Develop CPUE index for SA				
	Review data requirements to assess and monitor status of SA and identify gaps	Develop monitoring plan for SA	Implement monitoring plan for SA	Conduct monitoring plan for SA	Conduct monitoring plan for SA
		Conduct comprehensive stock assessment or data limited approach	Update comprehensive stock assessment or data limited approach, and provide management advice	Update comprehensive stock assessment or data limited approach, and provide management advice	Update comprehensive stock assessment or data limited approach, and provide management advice
	Report on efforts by other RFMO's to assess SA stock				

ITEM	SSC BFME01 (2020)	SSC BFME02 (2021)	SSC BFME03 (2022)	SSC BFME04 (2023)	SSC BFME05 (2024)
	Review fisheries observer program data collection for adequacy to produce data streams to support management advice	Review fisheries observer program data collection for adequacy to produce data streams to support management advice	Review fisheries observer program data collection for adequacy to produce data streams to support management advice	Review fisheries observer program data collection for adequacy to produce data streams to support management advice	Review fisheries observer program data collection for adequacy to produce data streams to support management advice
Conserve stock		Develop conservation objective(s); Define and implement harvest control rule	Update data and implement HCR	Update data and implement HCR	Update data and implement HCR
Sablefish					
Assess and monitor status of stock	Update catch data and CPUE index				
	Provide an update on USA-Canada stock assessment models for Sablefish and joint research on Sablefish	Provide an update on USA-Canada stock assessment models for Sablefish and joint research on Sablefish	Provide an update on USA-Canada stock assessment models for Sablefish and joint research on Sablefish	Provide an update on USA-Canada stock assessment models for Sablefish and joint research on Sablefish	Provide an update on USA-Canada stock assessment models for Sablefish and joint research on Sablefish
	Review fisheries observer program data collection for adequacy to produce data streams	Review fisheries observer program data collection for adequacy to produce data streams	Review fisheries observer program data collection for adequacy to produce data streams	Review fisheries observer program data collection for adequacy to produce data streams	Review fisheries observer program data collection for adequacy to produce data streams

ITEM	SSC BFME01 (2020)	SSC BFME02 (2021)	SSC BFME03 (2022)	SSC BFME04 (2023)	SSC BFME05 (2024)
	to support management advice	to support management advice	to support management advice	to support management advice	to support management advice
Conserve stock	Evaluate harvest relative to trip limits and historical catches	Evaluate catch limits relative to stock status	Evaluate catch limits relative to stock status	Evaluate catch limits relative to stock status	Evaluate catch limits relative to stock status
		Summarize harvest control rules and stock status			
Other research	Update analysis of tagging data - coastwide	Conduct analysis of sablefish associations with VME (intersessional)			
		Conduct trade-off analysis for Sablefish fishing and VME protection (intersessional)			
Vulnerable marine ecosystems					
Defining and Identifying VMEs	Approval of VME Indicator ID guide for observers				

ITEM	SSC BFME01 (2020)	SSC BFME02 (2021)	SSC BFME03 (2022)	SSC BFME04 (2023)	SSC BFME05 (2024)
		Map the distribution of VME indicator taxa (model, kernel density estimates, observation data); Determine a quantitative definition of VMEs	Review and apply quantitative definition of VMEs		
Identifying and defining SAI's		Determine data requirements and resolution for SAI assessment;			
	Continue development of standardized approach and encounter rules for SAI assessments	Apply the standardized approach for SAI assessments and conduct integrated SAI assessment	Conduct integrated SAI assessment	Conduct integrated SAI assessment	Conduct integrated SAI assessment
Quantifying interactions between fisheries and VMEs	Map and share the data to define footprint of fisheries and effort within these footprints	Update spatially explicit fishing effort data	Update spatially explicit fishing effort data	Update spatially explicit fishing effort data	Update spatially explicit fishing effort data

ITEM	SSC BFME01 (2020)	SSC BFME02 (2021)	SSC BFME03 (2022)	SSC BFME04 (2023)	SSC BFME05 (2024)
	Develop timely reporting and action protocol when VME sites or recovering sites are identified	Implement timely reporting and action protocol when VME sites or recovering sites are identified			
	Review fisheries observer program data collection for adequacy to produce data streams to support management advice	Review fisheries observer program data collection for adequacy to produce data streams to support management advice	Review fisheries observer program data collection for adequacy to produce data streams to support management advice	Review fisheries observer program data collection for adequacy to produce data streams to support management advice	Review fisheries observer program data collection for adequacy to produce data streams to support management advice
Conserving VMEs		Develop management objectives for recovering VME sites	Periodic review of VME management	Periodic review of VME management	Periodic review of VME management
		Refine the exploratory fishing protocol and consider banning exploratory fishing in VME closed areas			
	Review and refine the encounter protocol if necessary	Review and refine the encounter protocol if necessary			
Other ecosystem components					

ITEM	SSC BFME01 (2020)	SSC BFME02 (2021)	SSC BFME03 (2022)	SSC BFME04 (2023)	SSC BFME05 (2024)
	Develop combined bycatch taxa list for observers in NW Pacific Ocean	Approval of fish ID guide for scientific observers in the NW Pacific Ocean			
	Task development of fish ID guide for scientific observers in the NW Pacific Ocean				

## Scientific Committee (SC)

### Priority list

As stipulated in the Convention, Article 10, the Scientific Committee shall provide scientific advice and recommendations to the Commission which is considered the highest priority task of the SC. The following priority areas have been identified for SC:

1. Priority species summaries and stock assessments for management advice
2. Management Strategy Evaluation (MSE) for priority species
3. Ecosystem approach to fisheries management: understand ecological interactions among species and impacts of fishing on fisheries resources and their ecosystem components
4. Collaboration with other organizations
5. Regular review of the research plan and work plan
6. Data collection, management, and security

ITEM	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025
<b>Priority Species</b>					
Summaries of priority species	Develop summary template	Draft summary sheet	Update summary sheets as needed	Update summary sheets as needed	Update summary sheets as needed
Assessment of Spotted Mackerel and associated bycatch	Identify lead  Identify data sources, data gaps and strategies to fill gaps	Collate data  Develop data collection templates and share data  Determine spatial structure of stocks	Undertake baseline stock assessment and provide management advice including harvest control rules	Update baseline stock assessment as needed and provide management advice including harvest control rules	Update baseline stock assessment as needed and provide management advice including harvest control rules

ITEM	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025
				Collate data on associated bycatch species	Develop baseline stock assessment of associated bycatch species
Assessment of Japanese Sardine and associated bycatch	Identify lead  Identify data sources, data gaps and strategies to fill gaps	Collate data  Develop data collection templates and share data  Determine spatial structure of stocks	Undertake baseline stock assessment and provide management advice including harvest control rules	Update baseline stock assessment as needed and provide management advice including harvest control rules  Collate data on associated bycatch species	Update baseline stock assessment as needed and provide management advice including harvest control rules  Develop baseline stock assessment of associated bycatch species
Assessment of Neon Flying Squid and associated bycatch	Identify lead  Identify data sources, data gaps and strategies to fill gaps	Collate data  Develop data collection templates  Determine spatial structure of stocks	Undertake baseline stock assessment and provide management advice including harvest control rules	Update baseline stock assessment as needed and provide management advice including harvest control rules  Collate data on associated bycatch species	Update baseline stock assessment as needed and provide management advice including harvest control rules  Develop baseline stock assessment of associated bycatch species
Assessment of Japanese Flying Squid and associated bycatch	Identify lead  Identify data sources,	Collate data	Undertake baseline stock assessment and provide management advice	Update baseline stock assessment as needed and provide management	Update baseline stock assessment as needed and provide management

ITEM	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025
	data gaps and strategies to fill gaps	Develop data collection templates  Determine spatial structure of stocks	including harvest control rules	advice including harvest control rules  Collate data on associated bycatch species	advice including harvest control rules  Develop baseline stock assessment of associated bycatch species
<b>Management Strategy Evaluation (MSE)</b>					
Chub Mackerel	Describe MSE from a scientific perspective  Establish a joint MSE Committee that includes members from SC, TCC, fishery managers, and stakeholders	Develop preliminary MSE tools for Chub Mackerel in consultation with TCC, fishery managers, and stakeholders	Update MSE tools for Chub Mackerel with input from TCC, fishery managers, and stakeholders	Update MSE tools for Chub Mackerel with input from TCC, fishery managers, and stakeholders	Update MSE tools for Chub Mackerel with input from TCC, fishery managers, and stakeholders
Pacific Saury				Develop preliminary MSE tools for Pacific Saury in consultation with TCC, fishery managers, and stakeholders	Update MSE tools for Pacific Saury with input from TCC, fishery managers, and stakeholders
<b>Ecosystem approach to</b>					

ITEM	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025
<b>fisheries management</b>					
Ecological Interactions	Understand ecological interactions among species in the North Pacific Ocean	Understand ecological interactions among species in the North Pacific Ocean	Understand ecological interactions among species in the North Pacific Ocean	Understand ecological interactions among species in the North Pacific Ocean	Understand ecological interactions among species in the North Pacific Ocean
Impacts of fishing on ecosystem component	Evaluate impacts of fishing on fisheries resources and their ecosystem components, including bycatch species and discards	Evaluate impacts of fishing on fisheries resources and their ecosystem components, including bycatch species and discards	Evaluate impacts of fishing on fisheries resources and their ecosystem components, including bycatch species and discards	Evaluate impacts of fishing on fisheries resources and their ecosystem components, including bycatch species and discards	Evaluate impacts of fishing on fisheries resources and their ecosystem components, including bycatch species and discards
<b>Collaboration with other Organizations</b>					
PICES	Review implementation of NPFC-PICES Framework for Collaboration  Discuss SC representation at PICES Annual Meetings  Review ICES-PICES WGSPF activities	Review implementation of NPFC-PICES Framework for Collaboration  Review ICES-PICES WGSPF activities  Review NPFC-PICES workshop on VME indicator identification	Review implementation of NPFC-PICES Framework for Collaboration  Review ICES-PICES WGSPF activities  Review NPFC-PICES workshop on VME indicator identification	Review implementation of NPFC-PICES Framework for Collaboration  Identify other opportunities for collaboration with PICES	Review implementation of NPFC-PICES Framework for Collaboration  Identify other opportunities for collaboration with PICES

ITEM	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025
FAO	Review partnership with FIRMS	Review NPFC's involvement in the 2nd Phase of the GEF-FAO Common Oceans Programme			
NPAFC	Review work plan to implement NPFC/NPAFC Memorandum of Cooperation  Review NPAFC- NPFC multinational survey program	Review work plan to implement NPFC/NPAFC Memorandum of Cooperation  Review NPAFC- NPFC multinational survey program			
Other organizations	Review collaborations with other organizations	Review collaborations with other organizations	Review collaborations with other organizations	Review collaborations with other organizations	Review collaborations with other organizations
<b>Research and Work Plans</b>					
Terms of Reference	Review SC's Terms of Reference	Review SC's Terms of Reference, as needed	Review SC's Terms of Reference, as needed	Review SC's Terms of Reference, as needed	Review SC's Terms of Reference, as needed

ITEM	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025
Research Plan	Update SC's rolling 5-year research plan	Update SC's rolling 5-year research plan	Update SC's rolling 5-year research plan	Update SC's rolling 5-year research plan	Update SC's rolling 5-year research plan
Work Plan	Update SC's rolling 5-year work plan	Update SC's rolling 5-year work plan	Update SC's rolling 5-year work plan	Update SC's rolling 5-year work plan	Update SC's rolling 5-year work plan
Projects	Review completed and ongoing projects  Identify and prioritize new projects and recommend sources of funding	Review completed and ongoing projects  Identify and prioritize new projects and recommend sources of funding	Review completed and ongoing projects  Identify and prioritize new projects and recommend sources of funding	Review completed and ongoing projects  Identify and prioritize new projects and recommend sources of funding	Review completed and ongoing projects  Identify and prioritize new projects and recommend sources of funding
<b>Data Management</b>					
	Review SC's Interim Regulations for Management of Scientific Data and Information  Review and Endorse overarching policy for data management and security for TCC and SC  Discuss need of VMS	Review data standards in relation to stock assessment of priority species	Review data standards in relation to stock assessment of priority species  Discuss need for additional sources of data for scientific analyses and associated data management policy	Review data standards in relation to stock assessment of priority species  Discuss need for additional sources of data for scientific analyses and associated data management policy	Review data standards in relation to stock assessment of priority species  Discuss need for additional sources of data for scientific analyses and associated data management policy

ITEM	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025
	data for scientific analyses  Review data management system (DMS) and Electronic Annual Report				
<b>Recommendations</b>					
Advice	Develop recommendations for the Commission, TCC, and FAC	Develop recommendations for the Commission, TCC, and FAC	Develop recommendations for the Commission, TCC, and FAC	Develop recommendations for the Commission, TCC, and FAC	Develop recommendations for the Commission, TCC, and FAC
<b>Media Communication</b>					
Press Release	Prepare and publish a press release about SC activities during its meeting	Prepare and publish a press release about SC activities during its meeting	Prepare and publish a press release about SC activities during its meeting	Prepare and publish a press release about SC activities during its meeting	Prepare and publish a press release about SC activities during its meeting

**NORTH PACIFIC FISHERIES COMMISSION  
SCIENTIFIC COMMITTEE  
TERMS OF REFERENCE**

**Context**

Article 7(3b) of the Convention states that the Commission shall “adopt a plan of work and terms of reference for the Scientific Committee, for the Technical and Compliance Committee and, as necessary, for other subsidiary bodies.”

Article 10(1) of the Convention states that “the Scientific Committee shall provide scientific advice and recommendations in accordance with the terms of reference for the Committee to be adopted at the first regular meeting of the Commission and as may be amended from time to time.”

**Purpose**

The Scientific Committee should provide a forum for consultation and cooperation among Contracting Parties and Fishing Entities (Members) with respect to the evaluation and exchange of scientific information relating to the fisheries of the Convention Area, and to encourage and promote cooperation among the members in scientific research designed to fill gaps in knowledge pertaining to these matters.

**Functions**

In accordance with Article 10(4) of the Convention, the functions of the Scientific Committee shall be to:

- (a) Develop and maintain a research plan that would be presented to the Commission, including specific issues and items to be addressed by the scientific experts or by other organizations or individuals, as appropriate, and identify data needs and coordinate activities that meet those needs;

- (b) regularly plan, conduct and review the scientific assessments of the status of fisheries resources in the Convention Area, identify actions required for their conservation and management, and provide advice and recommendations to the Commission;
- (c) collect, analyze and disseminate relevant information;
- (d) assess the impacts of fishing activities on fisheries resources and species belonging to the same ecosystem or dependent upon or associated with the target stocks;
- (e) develop a process to identify vulnerable marine ecosystems, including relevant criteria for doing so, and identify, based on the best scientific information available, areas or features where these ecosystems are known to occur, or are likely to occur, and the location of bottom fisheries in relation to these areas or features, taking due account of the need to protect confidential information;
- (f) identify and advise the Commission on additional indicator species for vulnerable marine ecosystems for which directed fishing shall be prohibited;
- (g) establish science-based standards and criteria to determine if bottom fishing activities are likely to produce significant adverse impacts on vulnerable marine ecosystems or marine species in a given area based on international standards such as the FAO International Guidelines and make recommendation for measures to avoid such impacts;
- (h) review any assessments, determinations and management measures and make any necessary recommendation in order to attain the objective of this Convention;
- (i) develop rules and standards, for adoption by the Commission, for the collection, verification, reporting, and the security of, exchange of, access to and dissemination of data on fisheries resources, species belonging to the same ecosystem, or dependent upon or associated with the target stocks and fishing activities in the Convention Area;
- (j) to the extent practicable, provide analysis to the Commission of alternative conservation and management measures that estimates the extent to which each alternative would achieve the objectives of any management strategy adopted or under consideration by the Commission; and

- (k) provide such other scientific advice to the Commission as it considers appropriate or as may be required by the Commission.

Consistent with Article 7(3c), the Commission shall refer to the Scientific Committee any question pertaining to the scientific basis for the decisions the Commission may need to take concerning conserving and managing fisheries resources and species belonging to the same ecosystem or dependent upon or associated with the target stocks and assessing and addressing the impacts of fishing activities on vulnerable marine ecosystems.

In accordance with Article 10(6), the Scientific Committee “shall not duplicate the activities of other scientific organizations and arrangements that cover the Convention Area.” Further, consistent with Article 21, the Committee shall seek, with the approval of the Commission, to develop cooperative working relationships with other intergovernmental organizations that can contribute to its work.

## Structure

### 1. *Membership*

The Scientific Committee shall be composed of Members of the Commission. Members are encouraged to identify a focal point to facilitate the operations of the Committee. Scientific Committee participants would have a science background. Invitation and participation of non-members in the meetings and other activities of the Committee are subject to relevant provisions in Rule 9 of the Commission’s Rules of Procedure.

### 2. *Chair and Vice-Chair*

#### *i. Selection and Term*

The Chair and Vice-Chair of the SC will be selected by consensus in accordance with relevant provisions of the Convention and the Rules of Procedure of the Commission, unless the Commission decides otherwise.

The SC Chair ~~shall be elected for a period of two years and shall be eligible for reelection’s term—will begin at his or her first Committee meeting for two additional terms of two years in—accordance with Article 5(5) of the Convention.~~ In the case that the Chair is unable or unwilling to serve a full term, the Vice-Chair will assume the Chair’s position ~~for a two-year term in~~

accordance with the Rules of Procedure. The Vice-Chair would succeed the Chair after the Chair's term expires and a new Vice- Chair would be identified.

The Chairs of the SC subsidiary bodies may 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.

ii. *Duties of the Chair*

- Coordinate the meeting schedule and agenda preparation;
- Chair Committee meetings as well as prepare reports of the meetings;
- Foster constructive and active dialogue at Committee meetings;
- Coordinate the development of specific deliverables identified in the Committee's functions, as per Article 10 in the Convention;
- Liaise with the Commission Chair, TCC Chair, and other relevant international organizations as appropriate to enhance the quality of activities;
- Represent or designate a competent person to represent the Committee to participate, as appropriate, in various regional and international meetings and fora; and,
- Invite, as appropriate, non-members to contribute to the Committee's meeting agendas and activities.

3. *Meetings*

Consistent with Article 10 in the Convention, the Scientific Committee shall meet, unless the Commission otherwise decides, at least once every two years, and prior to the regular meeting of the Commission.

4. *Sub-Committees or Working Groups*

Consistent with Article 6 in the Convention, the Committee may establish working groups and may seek external advice in accordance with any guidance provided by the Commission.

**Agendas and Meeting Conduct**

The Scientific Committee will endeavor to develop agendas and conduct its meetings in a manner that is consistent with Rule 5 in the Commission's Rules of Procedure.

## **Decisions**

Decisions will be adopted in a manner that is consistent with Article 8 of the Convention and Rule 2 in the NPFC Rules of Procedure. Consistent with Article 8, as a general rule, the Committee shall strive to make its decisions by consensus.

## **Language**

In accordance with Rule 7 in the Rules of Procedure, English shall be the working language of the Committee. Any other language may be used on condition that persons doing so will provide interpreters.

## **Records and Reports**

In accordance with Article 6(2) in the Convention, after each meeting, the Committee will provide a report on its work to the Commission that includes, where appropriate, advice and recommendations to the Commission.

As per Article 10(3) in the Convention, the Committee shall make every effort to adopt its reports by consensus. If every effort to achieve consensus has failed, the report shall indicate the majority and minority views and may include the differing views of the representatives of the members on all or any part of the report.

These Terms of Reference are subject to approval by the Commission. They may be revised by the Committee based on consensus and subsequent approval by the Commission.

**North Pacific Fisheries Commission**  
**1<sup>st</sup> Special Meeting of the Scientific Committee**

**20-22 January 2021**

**Video conference**

**REPORT**

Agenda Item 1. Opening of the meeting

1. The 1<sup>st</sup> 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 ( $B_{2019}/B_{MSY}$ ) and F-ratio ( $F_{2019}/F_{MSY}$ ) 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,  $X = B_{2019} * F_{MSY} = 374,000 * 0.480 = 179,520$  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  $B_{2019}$  from the two base case scenarios was 388,800 and 446,200 tons, respectively. The median  $B_{2019}/B_{MSY}$  and  $F_{2019}/F_{MSY}$  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 ( $F_{2019} = 0.47$ ) was quite low compared to that in 2018 ( $F_{2018} = 0.71$ ). 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  $F_{2019}/F_{MSY} = 0.82$ , 80 percentile range 0.45-1.38). The recent average fishing mortality is estimated to be above  $F_{MSY}$  (median  $F_{2017-2019}/F_{MSY} = 1.28$ , 80 percentile range 0.66-2.49). The 2019 stock status is likely within the yellow quadrant ( $\text{Prob}[B_{2019} < B_{MSY} \text{ and } F_{2019} < F_{MSY}] = 61.35\%$ ).
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

## **Agenda**

Agenda Item 1. Opening of the Meeting

Agenda Item 2. Adoption of Agenda

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

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

Agenda Item 5. Data and specification for BSSPM

Agenda Item 6. Review of BSSPM results

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

Agenda Item 8. Future works

Agenda Item 9. Other matters

Agenda Item 10. Adoption of report

Agenda Item 11. Close of the Meeting

## List of Documents

### **MEETING INFORMATION PAPERS**

Document Number	Title
NPFC-2021-SCsm01-MIP01	Details for the Special Meeting of the Scientific Committee
NPFC-2021-SCsm01-MIP02	Provisional Agenda
NPFC-2021-SCsm01-MIP03 (Rev. 1)	Annotated Indicative Schedule

### **REFERENCE DOCUMENTS**

Document Number	Title
NPFC-2020-SSC PS06-Final Report	SSC PS06 Meeting Report

### **WORKING PAPERS**

Document Number	Title
NPFC-2021-SCsm01-WP01	Updates of stock assessment for Pacific saury in the North Pacific Ocean based on indices up to 2019 by using Bayesian state-space production models
NPFC-2021-SCsm01-WP01_Supplementary information	Supplementary information
NPFC-2021-SCsm01-WP02	Updated stock assessment of Pacific saury ( <i>Cololabis saira</i> ) in the Western North Pacific Ocean through 2019
NPFC-2021-SCsm01-WP03	North Pacific Ocean Pacific Saury 2019 Stock Assessment Update Report

### **INFORMATION PAPERS**

Document Number	Title
NPFC-2021-SCsm01-IP01	Saury fishery in the Northwest Pacific by Russian vessels in 2019 and preliminary results of fishery in 2020

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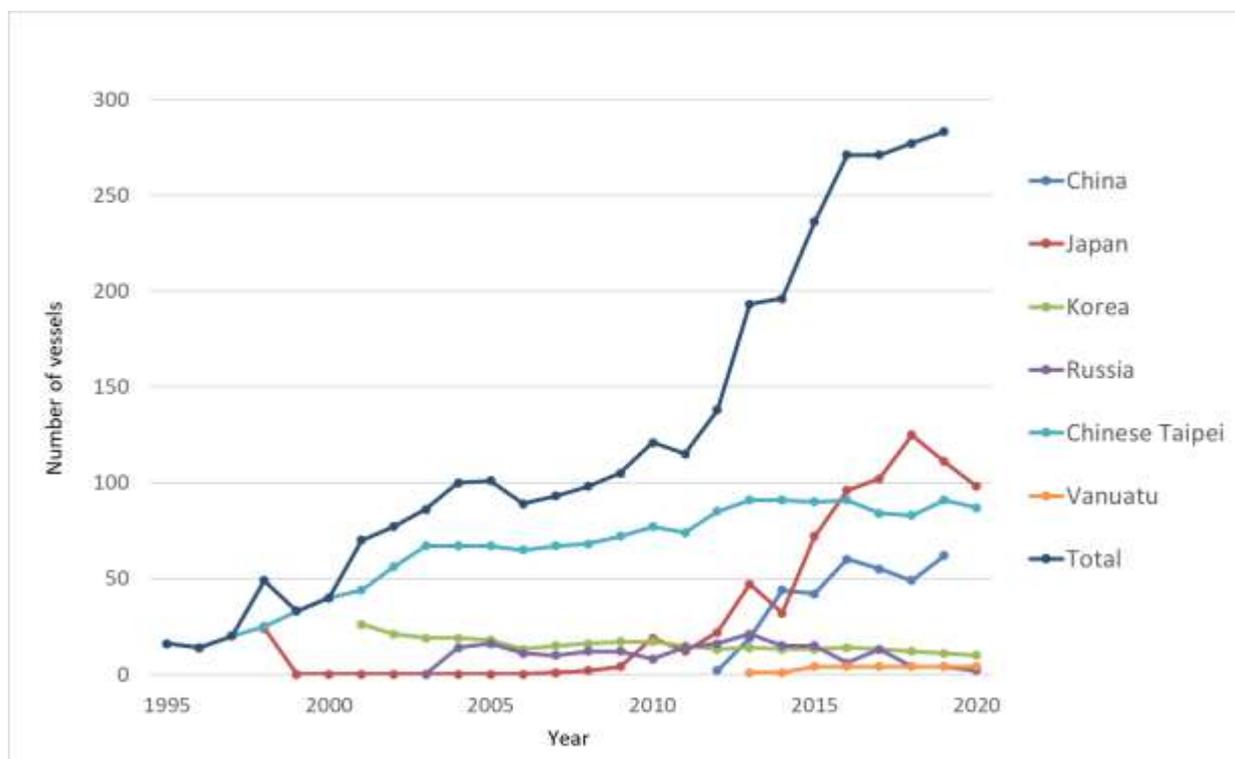
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**Number of active fishing vessels for Pacific saury fisheries operated in the Convention Area  
in 1995-2020**



Note: Information about the number of Chinese vessels in 2020 is not available.

## **Stock Assessment Report for Pacific Saury**

**Abstract:**

This report presents the results of stock assessment of Pacific saury updated at the 1<sup>st</sup> Special meeting of the Scientific Committee held virtually during January 20-22, 2021.

## EXECUTIVE SUMMARY

### Data

Pacific saury (*Cololabis saira*) is widely distributed from the subarctic to the subtropical regions of the North Pacific Ocean. The fishing grounds are west of 180° E but differ among Members (China, Japan, Korea, Russia, Chinese Taipei, and Vanuatu). Figure 1 shows the historical catches of Pacific saury by Member. Figure 2 shows CPUE and Japanese survey biomass indices used in the stock assessment.

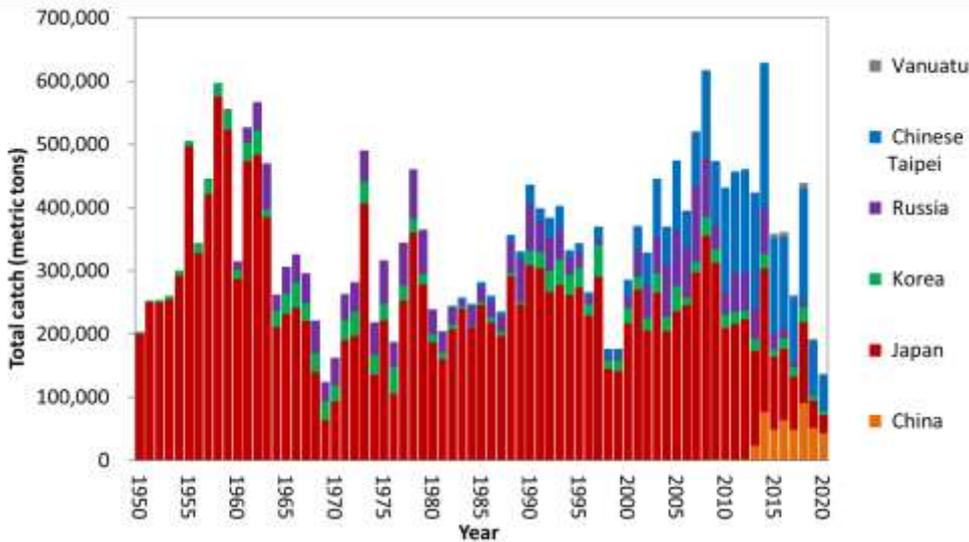


Figure 1. Time series of catch by Member during 1950-2020. The catch data for 1950-1979 are shown but not used in stock assessment modeling. 2020 catch data are preliminary.

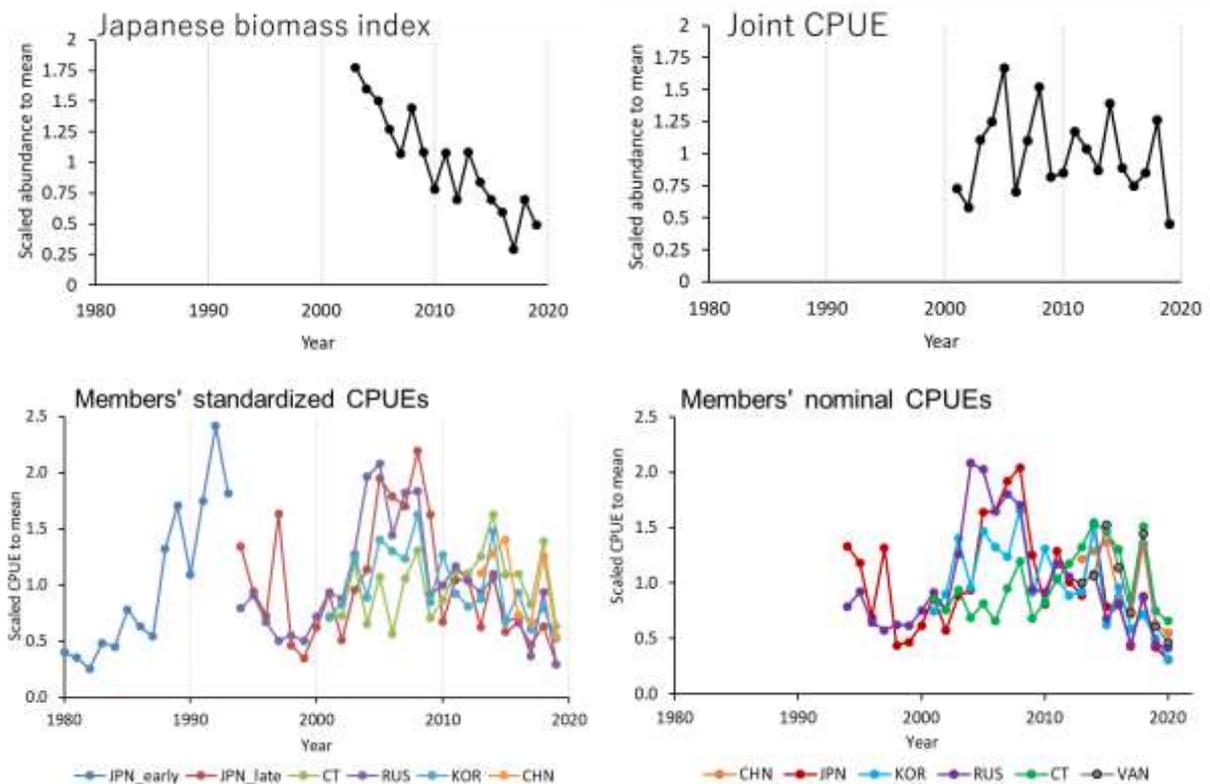


Figure 2. Time series of Japanese survey biomass index and joint, standardized and nominal CPUE indices. 2020 nominal CPUEs are preliminary.

## Brief description of specification of analysis and models

A Bayesian state-space production model (BSSPM) used in previous stock assessments was employed as an agreed provisional stock assessment model for Pacific saury during 1980-2019. Scientists from three Members (China, Japan and Chinese Taipei) each conducted analyses following the agreed specification which called for two base case scenarios and four sensitivity scenarios (see Annex G, SSC PS05 report for more details). The two base case scenarios differ in using Japanese early CPUE (base case NB1) or not (base case NB2). Time-varying catchability for Japanese CPUE was assumed in NB1 to account for potential increases in catchability between 1980 and 1994. A higher weight was given to the Japanese biomass survey estimates than to Members' CPUEs. The CPUE data were modeled as nonlinear indices of biomass. Members used similar approaches with some differences in the assumption of the time-varying catchability and prior distributions for the free parameters in the model.

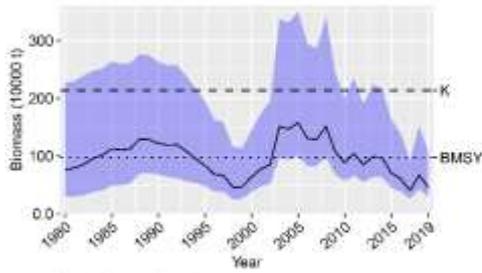
## Summary of stock assessment results

The SC considered the BSSPM results and noted similarity among Members' results. Therefore, outcomes of MCMC runs were aggregated over the 6 models (2 base case models x 3 Members). The aggregated results for assessing the overall median values and their associated 80% credible intervals are shown in Table 1. The graphical presentations for times series of a) biomass (B), b) B-ratio ( $=B/B_{MSY}$ ), c) exploitation rate (F), d) F-ratio ( $F/F_{MSY}$ ) and e) B/K are shown in Figure 3. The Kobe plot with time trajectory using aggregated model outcomes is shown in Figure 4.

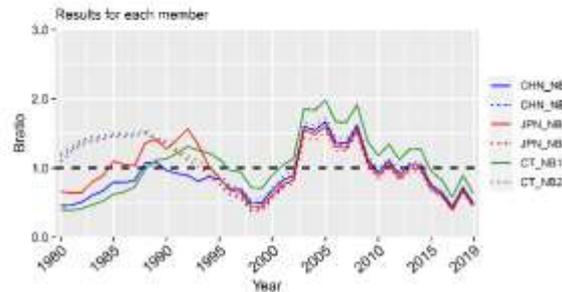
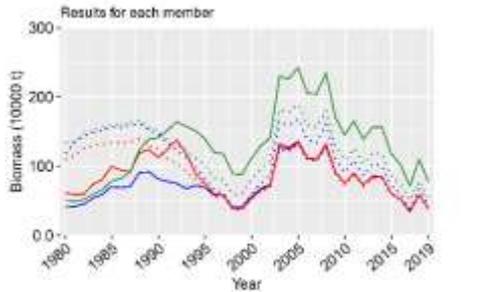
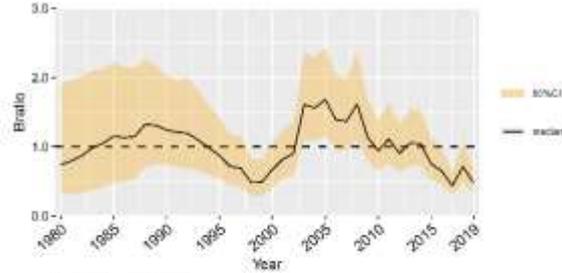
Table 1. Summary of estimates of reference quantities. Median values are presented.

	Median	Lower10%	Upper10%	Median_CHN	Median_JPN	Median_CT
<b>C_2019 (10000 t)</b>	19.238	19.238	19.238	19.238	19.238	19.238
<b>AveC_2017_2019 (10000 t)</b>	29.803	29.803	29.803	29.803	29.803	29.803
<b>AveF_2017_2019</b>	0.582	0.255	0.891	0.637	0.691	0.400
<b>F_2019</b>	0.428	0.183	0.681	0.467	0.515	0.292
<b>FMSY</b>	0.431	0.235	0.643	0.472	0.480	0.353
<b>MSY</b>	41.852	35.069	52.220	42.559	41.866	41.110
<b>F_2019/FMSY</b>	0.979	0.605	1.419	0.991	1.067	0.859
<b>AveF_2017_2019/FMSY</b>	1.327	0.845	1.841	1.349	1.428	1.175
<b>K (10000 t)</b>	213.851	140.075	412.510	200.000	192.763	252.150
<b>B_2018 (10000 t)</b>	66.810	43.279	152.200	61.710	57.249	93.055
<b>B_2019 (10000 t)</b>	44.937	28.256	105.116	41.180	37.379	65.855
<b>AveB_2017_2019 (10000 t)</b>	50.783	32.999	115.754	46.517	42.822	73.385
<b>BMSY (10000 t)</b>	97.116	65.530	185.400	90.195	87.318	116.900
<b>BMSY/K</b>	0.445	0.391	0.552	0.440	0.443	0.455
<b>B_2018/K</b>	0.332	0.216	0.481	0.321	0.307	0.376
<b>B_2019/K</b>	0.224	0.143	0.330	0.214	0.201	0.266
<b>AveB_2017_2019/K</b>	0.254	0.167	0.363	0.244	0.232	0.296
<b>B_2018/BMSY</b>	0.712	0.486	1.068	0.693	0.667	0.798
<b>B_2019/BMSY</b>	0.480	0.321	0.728	0.464	0.437	0.563
<b>AveB_2017_2019/BMSY</b>	0.544	0.376	0.803	0.525	0.503	0.625

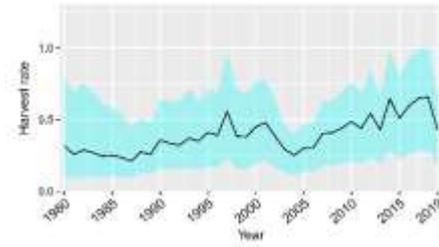
(a) Biomass (B)



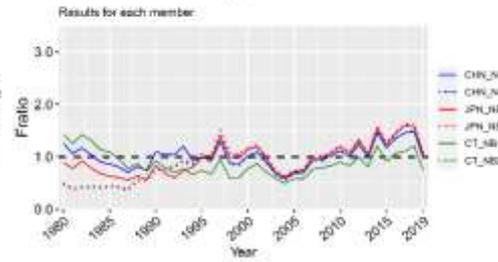
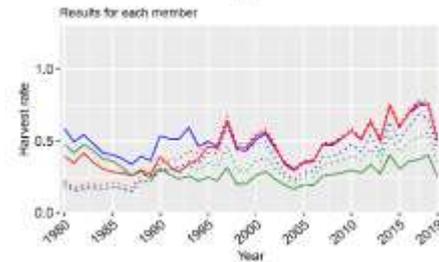
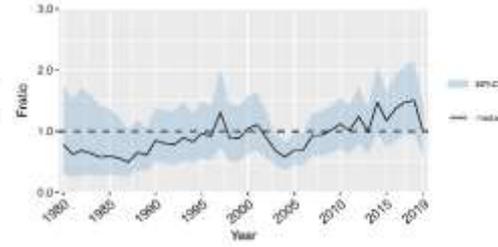
(b) B-ratio (B/B<sub>MSY</sub>)



(c) Exploitation rate (F)



(d) F-ratio (F/F<sub>MSY</sub>)



(e) B/K

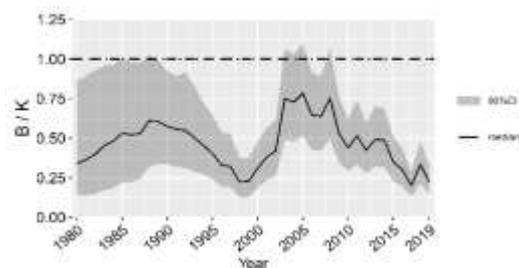


Figure 3. Time series of median estimated values of six runs for biomass, harvest rate, B-ratio, F-ratio and depletion level relative to K. The solid and shaded lines correspond to NB1 and NB2, respectively.

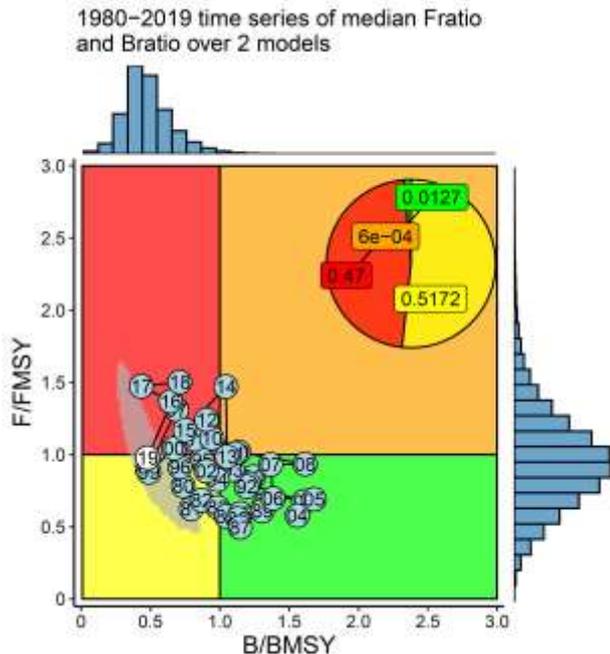


Figure 4. Kobe plot with time trajectory. The data are aggregated across 6 model results (2 base-case models by 3 Members).

Additional data for 2020 indicate Pacific saury biomass continued to decline after 2019 to a relatively low level in 2020. In particular, preliminary fishery data in 2020 and Japanese survey data for 2020 were presented and discussed but could not be included in BSSPM analysis (there were also concerns about the plausibility of the very low biomass estimate, see below). The 2020 fishery and survey data include increased uncertainty due to effects of Covid-19 which delayed the start of the commercial fishery for some members, which may have affected commercial operations and reduced the Japanese survey to a smaller area and narrower SST range than usual. The additional uncertainty for 2020 must be clearly described and considered carefully.

SC members indicate that Covid-19 effects on catches were likely stronger than effects on CPUE. Nominal CPUE trends and standardized CPUEs used in assessment modeling were similar (Figure 2). The nominal CPUE in 2020 for each Member was at historical low levels. CPUE declines more slowly than stock biomass as demonstrated in all BSSPM results for Pacific saury. Thus, the decline in stock biomass was probably greater than the decline in CPUE.

Preliminary catch data for 2020 totaled only about 137 thousand mt (Figure 1).

The Japanese fishery-independent survey is important in Pacific saury stock assessments. Survey catches during 2020 were very low and the original swept-area biomass index was only about 10 thousand mt. However, sampling did not cover the traditional survey area outside the 13°C isotherm where one-year-old Pacific saury may be encountered in large numbers and east of 170° W where zero-year-old fish are most common (about 50% of total biomass is typically in the area not sampled based on historical records). The SSC PS06 reviewed a result from VAST model to extrapolate over the unsampled area. VAST model estimates were similar to survey swept-area-biomass in recent years but appeared less accurate for early years when stock biomass was highest. The VAST model estimate for Pacific saury biomass index in 2020 was only 50 thousand mt (CV 100%, 95% CI 7-180 thousand mt) compared to the average swept-area biomass index of 334 thousand mt during 2015-2019. The SSC PS06 did not endorse the VAST point estimate in 2020 due to high uncertainty and some doubt about plausibility of the very low estimates. However, they agreed that the VAST estimates as a whole captured the declining trend in the stock during recent years. The figures quoted in this paragraph reflect improvements made during the intersessional period.

## Current stock condition

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.

## Special comments regarding the procedures and stock assessment results

The SC worked collaboratively to produce this consensus stock assessment, which includes significant technical improvements.

- 1) CPUE data were assumed to change more slowly than biomass and were down-weighted relative to the Japanese survey. The estimates of a nonlinear parameter in the assessment model support this modeling decision.
- 2) Retrospective analyses showed that BSSPM model projections were not suitable for use by managers and they were therefore omitted. (See discussion in last assessment (NPFC-2019-SSC PS04-Final Report).)
- 3) Transparency and reproducibility were enhanced by submitting computer programs, code and input data files used for assessment modeling during the intersessional period.
- 4) An  $F_{MSY}$  approach was used in the Commission meeting in 2019 to calculate a TAC for 2020. However, it can be difficult to estimate current  $F_{MSY}$  from historical data when the environment is changing. It is therefore important to further evaluate the  $F_{MSY}$  approach for Pacific saury. For example, as shown in Agenda Item 7, the  $F_{MSY}$  catch approach resulted in a TAC for 2020 that was substantially larger than the actual catch. TAC values could be calculated using the  $F_{MSY}$  estimate and historical biomass estimates from the BSSPM for comparison to actual catches after 2000 while the stock was declining. Calculations of this sort could be completed this year as a prelude to a more extensive MSE effort.
- 5) The 2020 biomass index from the Japanese survey has large uncertainties due to incomplete survey coverage but Members noted it had dropped to the lowest historical level.
- 6) The updated and 2019 assessments show the same trends in relative fishing mortality ( $F_{ratio}$ ) and relative biomass ( $B_{ratio}$ ) but there were substantial differences from the 2017 assessment in the magnitude of absolute biomass and fishing mortality as well as  $B_{MSY}$  and  $F_{MSY}$  due to a change in how catchability of the Japanese survey was modeled. Changes in MSY and  $F_{MSY} catch = F_{MSY} \times biomass$  tend to be modest relative to the changes in absolute stock size and fishing mortality because stock size and fishing mortality estimates like  $F_{MSY}$  tend to change in opposite directions. For example,  $MSY = B_{MSY} \times F_{MSY}$  was 49.3 (10,000t) in the previous assessment (NPFC-2019-SSC PS04-Final Report) and 41.9 (-15% change) in this assessment, despite changes in  $B_{MSY}$  from 219.7 to 97.1 (-56%) and changes in  $F_{MSY}$  from 0.25 to 0.43 (+72%). These changes were due to the model differences especially the prior specification of the catchability in the Japanese survey. Sensitivity to assumptions about survey catchability is a common problem in stock assessments with limited data.
- 7) Both environmental conditions and fishing impacts might have contributed to current low stock size for Pacific saury. Process errors in the BSSPM partially account for environmental and other effects that appear to increase or decrease stock productivity, while the harvest rate measures changes in fishing pressure. The oceanographic or biological factors responsible for changes in productivity have not yet been determined. Development of modeling procedures to incorporate environmental change is an important area for current research.
- 8) The nominal CPUE in 2020 shows a decline in catch for all Members to the lowest recorded level. When viewed by month, the decline in nominal CPUE was primarily experienced in the early months of the fishery (May through September). However, the later months of the fishery (October to December) showed a mixed pattern, with nominal CPUE from some members increasing in 2020 over 2019 levels, while for others the nominal CPUE declined in the later months as well (Figure 5).
- 9) After a decade of decline the time is right to start talking about environmental effects on the assessment and Pacific saury. Such information might support managers' long-term planning and capitalization of the fishery. The work discussed should include refinements to stock assessment models to better reflect and estimate

environmental effects in addition to environmental effects on recruitment and biology. This work could be folded into the development of age-structured and improved BSSPM models. These efforts should be begun immediately, carried out intersessionally, and discussed at the next SSC PS meeting. Some coordination among Members may be required.

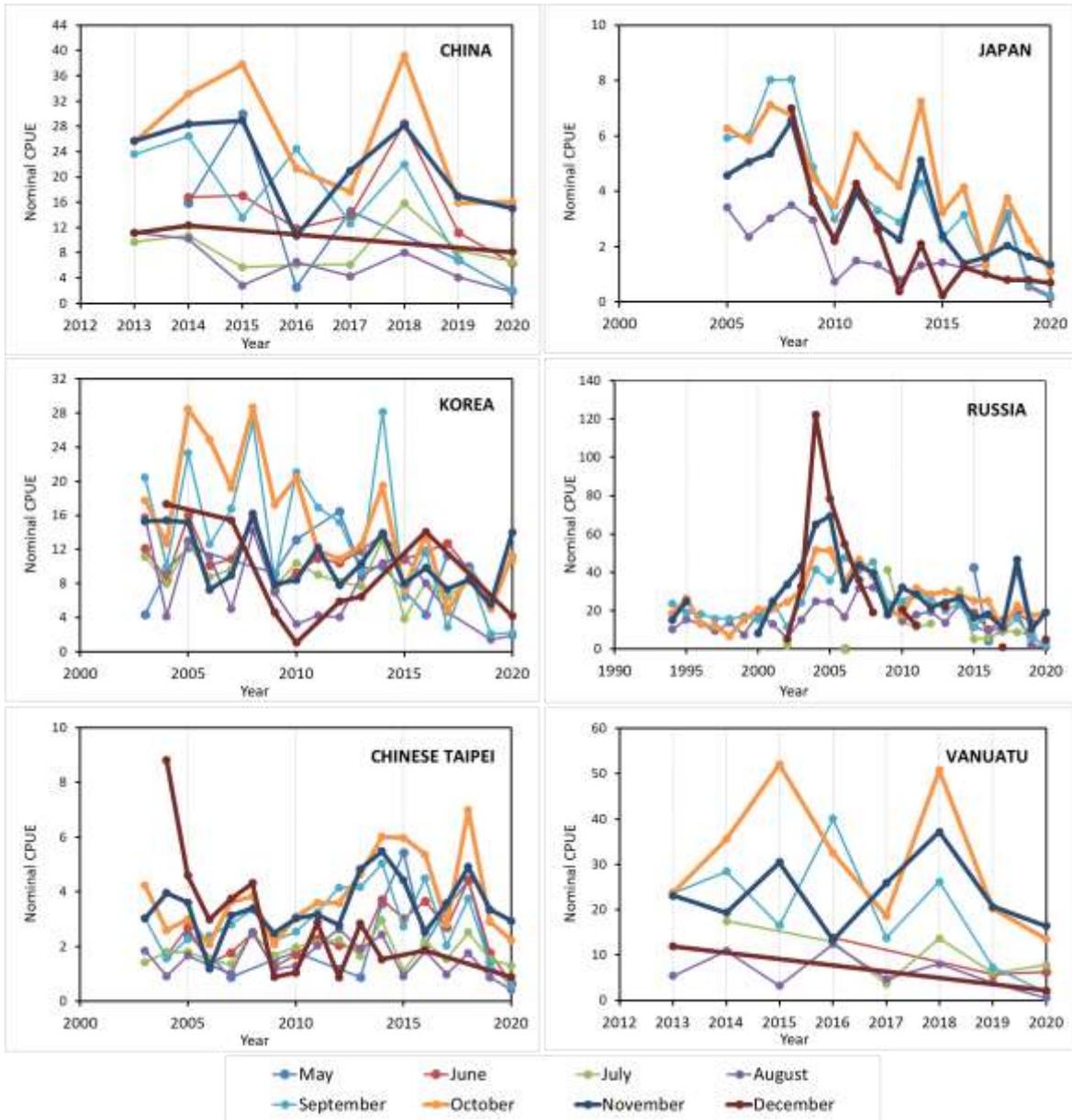


Figure 5. Time series of monthly nominal CPUEs of Members. 2020 nominal CPUEs are preliminary.

## 1. INTRODUCTION

### 1.1 Distribution

Pacific saury (*Cololabis saira* Brevoort, 1856) has a wide distribution extending in the subarctic and subtropical North Pacific Ocean from inshore waters of Japan and the Kuril Islands to eastward to the Gulf of Alaska and southward to Mexico. Pacific saury is a commercially important fish in the western North Pacific Ocean (Parin 1968; Hubbs and Wisner 1980).

### 1.2 Migration

Pacific saury migrates extensively between the northern feeding grounds in the Oyashio waters around Hokkaido and the Kuril Islands in summer and the spawning areas in the Kuroshio waters off southern Japan in winter (Fukushima 1979; Kosaka 2000). Pacific saury in offshore regions (east of 160°E) also migrate westward toward the coast of Japan after October every year (Suyama et al. 2012).

### 1.3 Population structure

Genetic evidence suggests there are no distinct stocks in the Pacific saury population based on 141 individuals collected from five distant locales (East China Sea, Sea of Okhotsk, northwest Pacific, central North Pacific, and northeast Pacific) (Chow et al. 2009).

### 1.4 Spawning season and grounds

The spawning season of Pacific saury is relatively long, beginning in September and ending in June of the following year (Watanabe and Lo 1989). Pacific saury spawns over a vast area from the Japanese coastal waters to eastern offshore waters (Baitaliuk et al. 2013). The main spawning grounds are considered to be located in the Kuroshio-Oyashio transition region in fall and spring and in the Kuroshio waters and the Kuroshio Extension waters in winter (Watanabe and Lo 1989).

### 1.5 Food and feeding

The Pacific saury larvae prey on the nauplii of copepods and other small-sized zooplankton. As they grow, they begin to prey on larger zooplankton such as krill (Odate 1977). The Pacific saury is preyed on by large fish ranked higher in the food chain, such as *Thunnus alalunga* (Nihira 1988) and coho salmon, *Oncorhynchus kisutch* (Sato and Hirakawa 1976) as well as by animals such as minke whales *Balaenoptera acutorostrata* (Konishi et al. 2009) and sea birds (Ogi 1984).

### 1.6 Age and growth

Based on analysis of daily otolith increments, Pacific saury reaches approximately 20 cm in knob length (distance from the tip of lower jaw to the posterior end of the muscular knob at the base of a caudal peduncle; hereafter as body length) in 6 or 7 months after hatching (Watanabe et al. 1988; Suyama et al. 1992). There is some variation in growth rate depending on the hatching month during this long spawning season (Kurita et al. 2004) and geographical differences (Suyama et al. 2012b). The maximum lifespan is 2 years (Suyama et al. 2006). The age 1 fish grow to over 27 cm in body length in June and July when Japanese research surveys are conducted and reach over 29 cm in the fishing season between August and December (Suyama et al. 2006).

### 1.7 Reproduction

The minimum size of maturity of Pacific saury has been estimated at about 25 cm in the field (Hatanaka 1956) or rearing experiments (Nakaya et al. 2010). In rare cases, saury have been found to mature at 22 cm (Sugama 1957; Hotta 1960). Under rearing experiments, Pacific saury begins spawning 8 months after hatching, and spawning activity continues for about 3 months (Suyama et al. 2016). Batch fecundity is about 1,000 to 3,000 eggs per saury (Kosaka 2000).

## 2. FISHERY

### 2.1 Overview of fisheries

#### Western North Pacific

In Japan, the stick-held dip net fishery for Pacific saury was developed in the 1940s. Since then, the stick-held dip net gears have become the dominant fishing technique to catch Pacific saury in the northwest Pacific Ocean. Since 1995, more than 97% of Japan's total catch is caught by the stick-held dip net. The annual catch of Pacific saury for stick-held dip net fishery has fluctuated. Maximum and minimum catches of 355 thousand tons and 30 thousand tons were recorded in 2008 and 2020, respectively.

Pacific saury fisheries in Korea have been operated with gillnet since the late 1950s in Tsushima Warm Current region. Korean stick-held dip net fishery started from 1985 in the Northwest Pacific Ocean. The largest catch of 50 thousand tons was recorded in 1997 (Gong and Suh 2013).

Russian fishery for Pacific saury has been conducted using stick-held dip nets in the northwest Pacific Ocean in the area that includes national waters (mainly within the Russian EEZ) and adjacent NPFC Convention Areas. Russian catch statistics for saury fishery exists, beginning from 1956, and standardized CPUE indices from that fishery were calculated since 1994. Saury fishery traditionally occurred from August to November; however, in recent years, the onset of fishing for saury shifted to the early summer period. Peak catch of saury of over 100 thousand tons was in 2007. Since then, the annual catch has been decreasing, and was about 2.4 thousand tons in 2019 and about 750 tons in 2020.

China commenced its exploratory saury fishing using stick-held dip nets in the high seas in 2003, but only started to develop this fishery in 2012. The fishing seasons mainly cover the period from June-November.

Chinese Taipei's Pacific saury fishery can date back to 1975 and had its first commercial catch in 1977. Over the past decade, the number of active Pacific saury fishing vessels has been increasing from 68 to 91 and the catch has fluctuated between 39,750 tons and 229,937 tons since 2001. Aside from Pacific saury fishery, most of the Pacific saury fishing vessels also conduct flying squid jigging operations in the Northwest Pacific Ocean.

Vanuatu commenced its development of Pacific saury fishery by using stick-held dip net in the high seas in 2004. Currently there are four vessels operating in the Northwest Pacific targeting saury, but the total accumulative number of its authorized Pacific saury fishing vessels from 2004 to 2020 is 16. The fishing season mainly covers the period from July to November each year.

#### Eastern North Pacific

Although Pacific saury occur in the Canada EEZ, there is no targeted fishery for the species. There is no historical record of Canadian participation in international fisheries for saury. Domestic fisheries sometimes capture saury as bycatch in pelagic and bottom trawls and there are a handful of records from other gear types including commercial longlines. The most recently compiled estimates indicate only 224 kg of saury were captured by Canadian commercial fisheries over 17 years from 1997-2013 (Wade and Curtis 2015). There are also records of saury catches from research trawls (surface, pelagic and bottom trawls) in Canadian waters, but the catches have been minimal.

Management plans developed by the United States' National Marine Fisheries Service currently prohibit targeted fishing on marine forage species including the Pacific saury. In the 1950's to mid-1970's there were sporadic attempts to commercially fish for Pacific saury off of California with limited success using purse seines and light attraction (Kato 1992). Catches from 1969-1972 averaged 450 tons. Currently landings are only "occasionally" reported as bycatch in fisheries on the US west coast. Landings of Pacific saury as bycatch on the US west coast averaged 5.5 kg per year from 2011-2015 (NOAA Fisheries National Bycatch Report Database System, <https://www.st.nmfs.noaa.gov/>, accessed March 8, 2019)

Historically, Japanese and Russian vessels operated mainly within their own EEZs, but they have shifted into the

Convention Area in recent years. Chinese, Korean and Chinese Taipei vessels operate mainly in the high seas of the North Pacific (Figure 1).

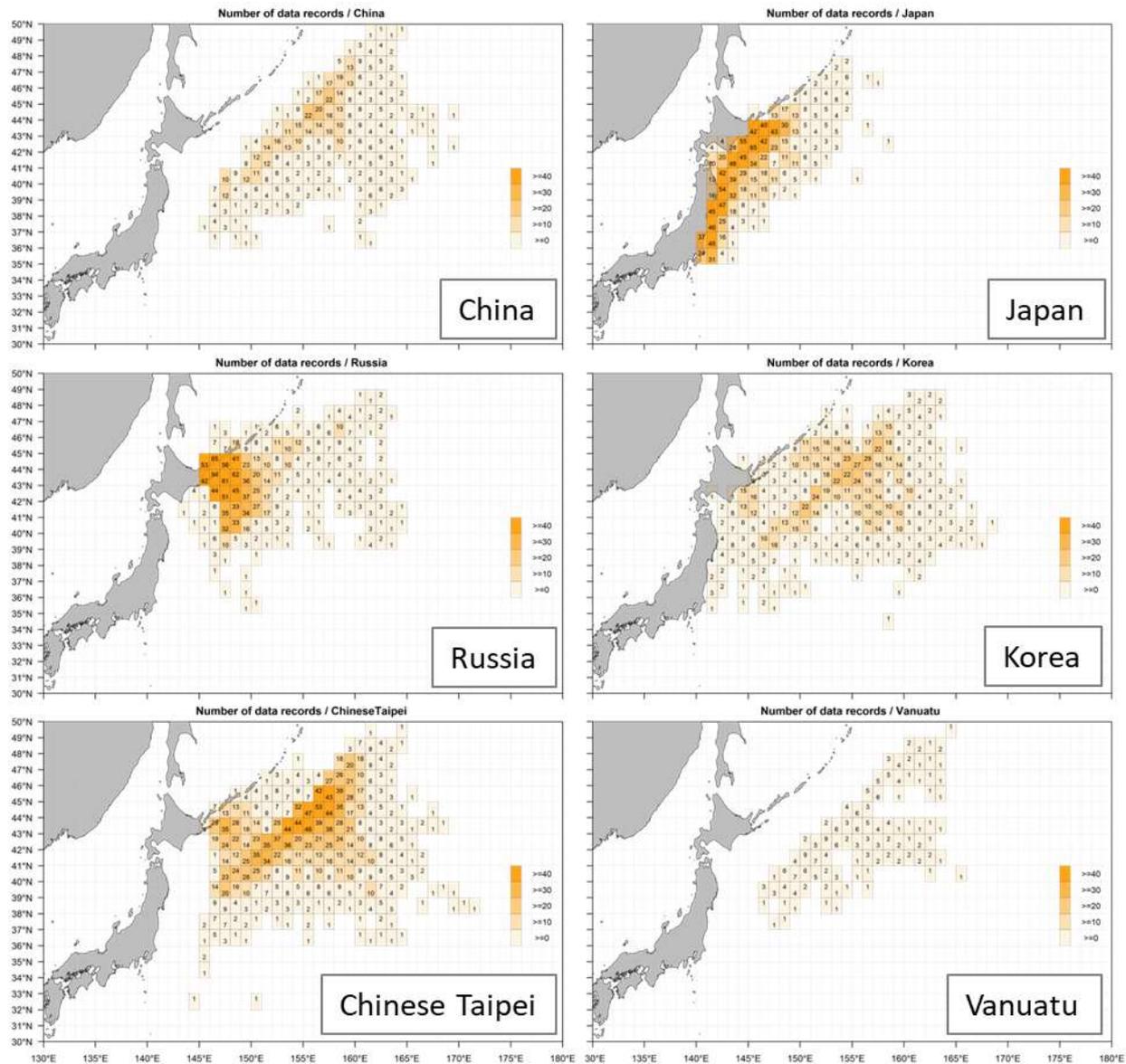


Figure 1. Main fishing grounds for Pacific saury by fishing members in the western North Pacific Ocean during 1994-2017. The legend shows the number of data records. This figure is based on the data shared by the Members for the development of a joint CPUE index (NPFC-2018-TWG PSSA03-WP02, NPFC-2018-TWG PSSA03-WP03, NPFC-2018-TWG PSSA03-WP04, NPFC-2018-TWG PSSA03-WP06b, NPFC-2018-TWG PSSA03-WP08, and NPFC-2018-TWG PSSA03-WP12; available at [www.npfc.int](http://www.npfc.int)).

## 2.2 Catch records

Figure 2 shows the historical catches of Pacific saury in the northwest Pacific Ocean by Member.

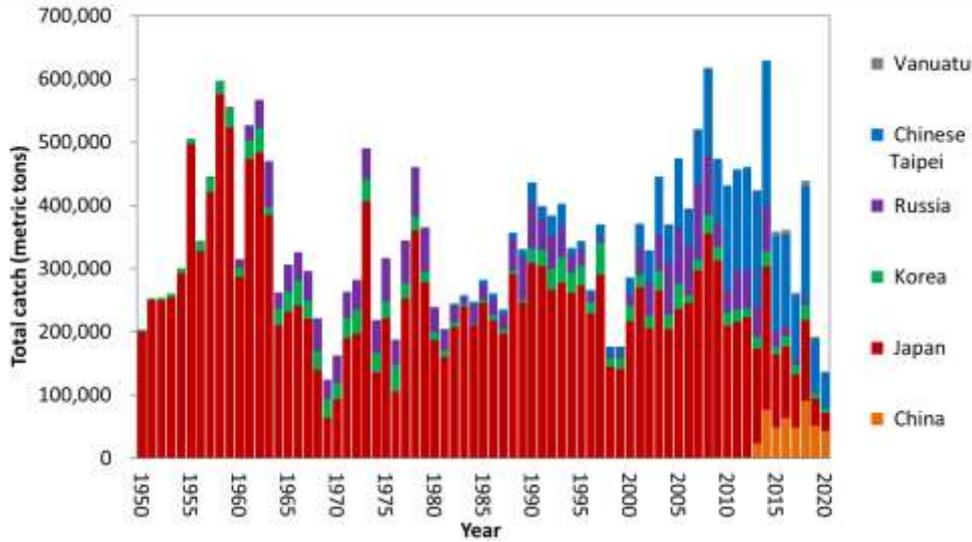


Figure 2. Time series of catch by Member during 1950-2020. The catch data for 1950-1979 are shown but not used in stock assessment modeling. 2020 catch data are preliminary.

### 3. SPECIFICATION OF STOCK ASSESSMENT

A Bayesian state-space production model (BSSPM) used in previous stock assessments was employed as an agreed provisional stock assessment model for Pacific saury during 1980-2019. Scientists from three Members (China, Japan and Chinese Taipei) each conducted analyses following the agreed specification which called for two base case scenarios and four sensitivity scenarios (see Annex G, SSC PS05 report for more details). The two base case scenarios differ in using Japanese early CPUE (base case NB1) or not (base case NB2). Time-varying catchability for Japanese CPUE was assumed in NB1 to account for potential increases in catchability between 1980 and 1994. A higher weight was given to the Japanese biomass survey estimates than to Members' CPUEs. The CPUE data were modeled as nonlinear indices of biomass. Members used similar approaches with some differences in the assumption of the time-varying catchability and prior distributions for the free parameters in the model.

#### 3.1 Bayesian state-space production model

The population dynamics is modelled by the following equations:

$$B_t = \{B_{t-1} + B_{t-1}f(B_{t-1}) - C_{t-1}\} e^{u_t}, \quad u_t \sim N(0, \tau^2)$$

$$f(B_t) = r \left[ 1 - \left( \frac{B_t}{K} \right)^z \right]$$

where

$B_t$  : the biomass at the beginning of year  $t$

$C_t$  : the total catch of year  $t$

$u_t$  : the process error in year  $t$

$f(B)$  : the production function (Pella-Tomlinson)

$r$  : the intrinsic rate of natural increase

$K$  : the carrying capacity

$z$  : the degree of compensation (shape parameter; different symbols were used by the 3 members)

The multiple biomass indices are modelled as follows:

#### Survey biomass estimate

$$I_{t,biomass} = q_{biomass} B_t \exp(v_{t,biomass}), \quad \text{where } v_{t,biomass} \sim N(0, \sigma_{biomass}^2)$$

where

$q_{biomass}$ : the relative bias in biomass estimate

$v_{t,biomass}$ : the observation error term in year  $t$  for survey biomass estimate

$\sigma_{biomass}^2$ : the observation error variance for survey biomass estimate

#### CPUE series

$$I_{t,f} = q_f B_t^b \exp(v_{t,f}), \quad \text{where } v_{t,f} \sim N(0, \sigma_f^2)$$

where

$I_{t,f}$ : the biomass index in year  $t$  for biomass index  $f$

$q_f$ : the catchability coefficient for biomass index  $f$

$b$ : the hyper-stability/depletion parameter

$v_{t,f}$ : the observation error term in year  $t$  for biomass index  $f$

$\sigma_f^2$ : the observation error in year  $t$  for biomass index  $f$

For the estimation of parameters, Bayesian methods were used with different own preferred assumption for the prior distributions for the free parameters. MCMC methods were employed for simulating the posterior distributions. For the assumptions of uniform priors used in China and Japan, see documents NPFC-2020-SSC PS06-WP08 and NPFC-2020-SSC PS06-WP10; for the non-uniform priors used in Chinese Taipei, see document NPFC-2020-SSC PS06-WP17.

### 3.2 Agreed scenarios

Table 1. Definition of scenarios

	<b>New base case (NB1)</b>	<b>New base case (NB2)</b>	<b>Sensitivity case (NS1, NS2)</b>	<b>Sensitivity case (NS3, NS4)</b>
Initial year	1980	1980	1980	1980/2001
Biomass survey	$B_{obs} = B_{est} * q_1 \sim$ $LN(\log(q*B), s^2)$ $q \sim U(0, 1)$	Same as left	$q \sim U(0, 2)$	$q \sim U(0, 1)$ 2003-2019
CPUE	CHN(2013-2019) JPN_early(1980-1993) (with time-varying q) JPN_late(1994-2019) KOR(2001-2019) RUS(1994-2019) CT(2001-2019)	CHN(2013-2019) JPN_late(1994-2019) KOR(2001-2019) RUS(1994-2019) CT(2001-2019)	Two sets as on the left for NS1 and NS2 respectively	NS3: Joint CPUE 2001-2019 (no JPN_early) NS4: Joint CPUE 2001-2019 and JPN_early
Variance component	Variances of logCPUEs are assumed to be common and 6 times of that of logbiomass	Variances of logCPUEs are assumed to be common and 5 times of that of logbiomass	Same as base cases 1 and 2, respectively	Same weight between biomass and joint CPUE
Hyper-depletion/ stability	A common parameter for all fisheries but JPN_early, with a prior distribution, $b \sim U(0, 1)$ but $[b_{JPN\_early}=1]$	A common parameter for all fisheries with a prior distribution, $b \sim U(0, 1)$	Same as base cases 1 and 2, respectively	$b \sim U(0, 1)$
Prior for other than $q_{biomass}$	Own preferred options	Own preferred options	Own preferred options	Own preferred options

Table 2. Description of symbols used in the stock assessment

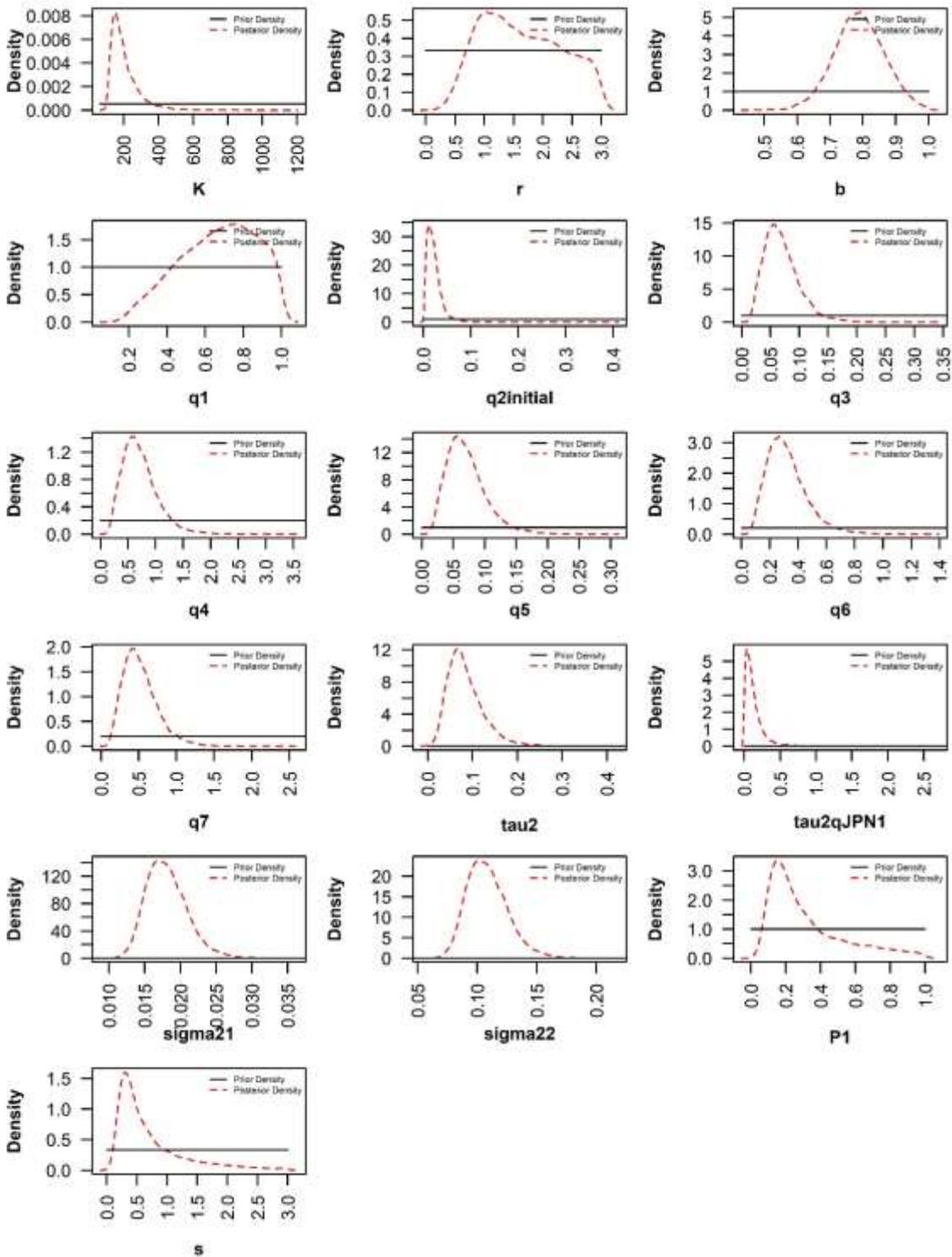
<b>Symbol</b>	<b>Description</b>
$C_{2018}$	Catch in 2019
$AveC_{2017-2019}$	Average catch for a recent period (2017–2019)
$AveF_{2017-2019}$	Average harvest rate for a recent period (2017–2019)
$F_{2019}$	Harvest rate in 2019
$F_{MSY}$	Annual harvest rate producing the maximum sustainable yield (MSY)
$MSY$	Equilibrium yield at $F_{MSY}$
$F_{2019}/F_{MSY}$	Average harvest rate in 2019 relative to $F_{MSY}$
$AveF_{2017-2019}/F_{MSY}$	Average harvest rate for a recent period (2017–2019) relative to $F_{MSY}$
$K$	Equilibrium unexploited biomass (carrying capacity)
$B_{2018}$	Stock biomass in 2018 estimated in the model
$B_{2019}$	Stock biomass in 2019 estimated in the model
$AveB_{2017-2019}$	Stock biomass for a recent period (2017–2019) estimated in the model
$B_{MSY}$	Stock biomass that will produce the maximum sustainable yield (MSY)
$B_{MSY}/K$	Stock biomass that produces the maximum sustainable yield (MSY) relative to the equilibrium unexploited biomass <sup>a</sup>
$B_{2018}/K$	Stock biomass in 2018 relative to $K^a$
$B_{2019}/K$	Stock biomass in 2019 relative to $K^a$
$B_{2017-2019}/K$	Stock biomass in the latest time period (2017–2019) relative to the equilibrium unexploited stock biomass <sup>a</sup>
$B_{2018}/B_{MSY}$	Stock biomass in 2018 relative to $B_{MSY}^a$
$B_{2019}/B_{MSY}$	Stock biomass in 2019 relative to $B_{MSY}^a$
$B_{2017-2019}/B_{MSY}$	Stock biomass for a recent period (2017–2019) relative to the stock biomass that produces maximum sustainable yield (MSY) <sup>a</sup>

<sup>a</sup>calculated as the average of the ratios.

## 4. RESULTS by CHINA, JAPAN and CHINESE TAIPEI

### 4.1 CHINA

#### 4.1.1 Prior and posterior distributions for Base case model 1 (as an illustrative example)

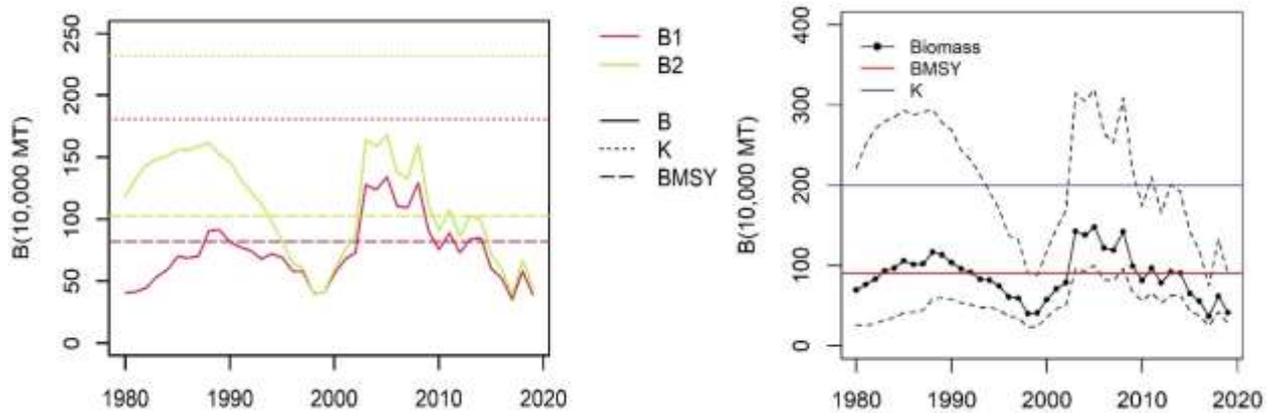


#### 4.1.2 Summary of estimates of parameters and reference points

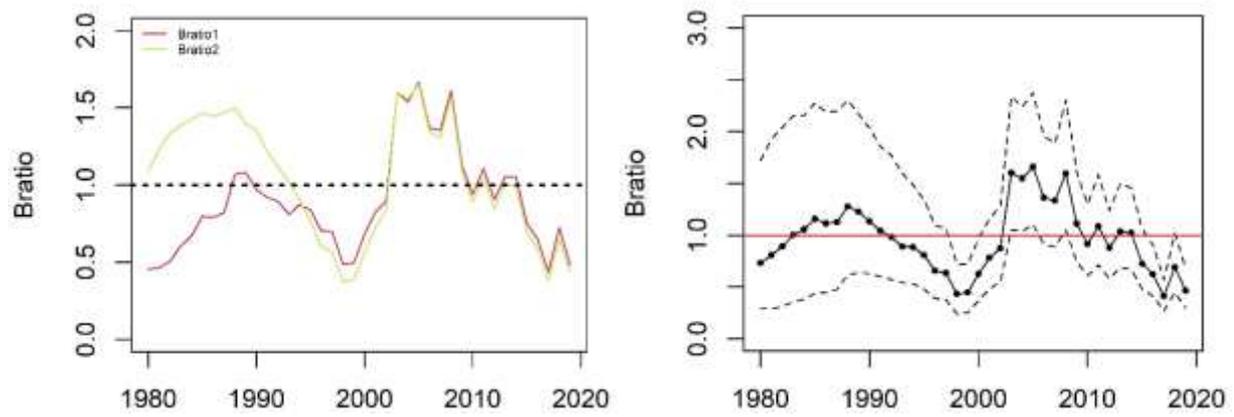
	Base case 1	Base case 2	Over all 2
C2019	19.24	19.24	19.24
AveC2017-2019	29.80	29.80	29.80
AveF2017-2019	0.67	0.59	0.64
F2019	0.49	0.43	0.47
F <sub>MSY</sub>	0.51	0.42	0.47
MSY	41.71	43.86	42.56
F2019/F <sub>MSY</sub>	0.97	1.02	0.99
AveF2017-2019/F <sub>MSY</sub>	1.31	1.40	1.35
K	180.60	231.90	200.00
B2018	58.04	66.98	61.71
B2019	38.88	44.62	41.18
AveB2017-2019	44.00	50.19	46.52
B <sub>MSY</sub>	82.16	102.90	90.20
B <sub>MSY</sub> /K	0.44	0.44	0.44
B2018/K	0.34	0.30	0.32
B2019/K	0.23	0.20	0.21
B2017-2019/K	0.26	0.23	0.24
B2018/B <sub>MSY</sub>	0.72	0.66	0.69
B2019/B <sub>MSY</sub>	0.48	0.44	0.46
B2017-2019/B <sub>MSY</sub>	0.55	0.49	0.53

### 4.1.3 Time series plots for base case models and aggregated results

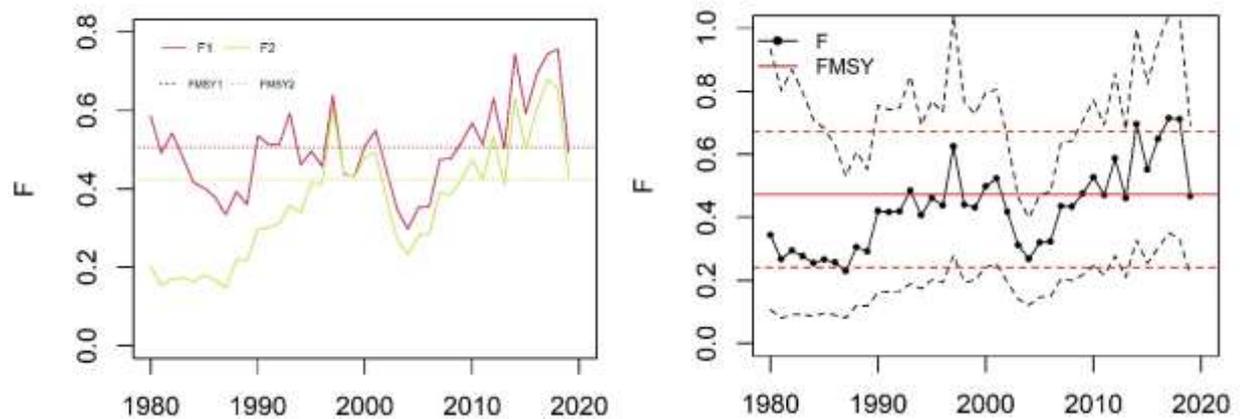
(a) Biomass



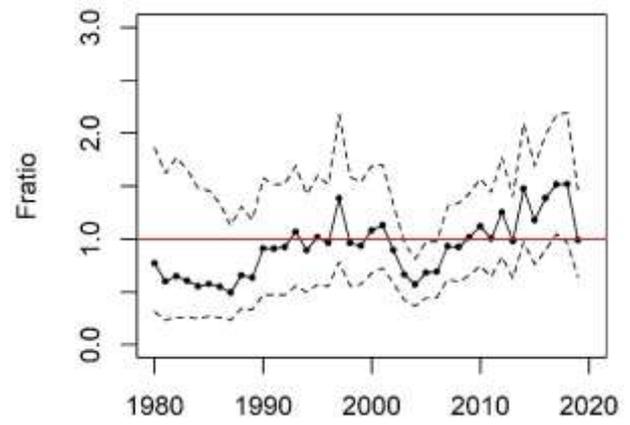
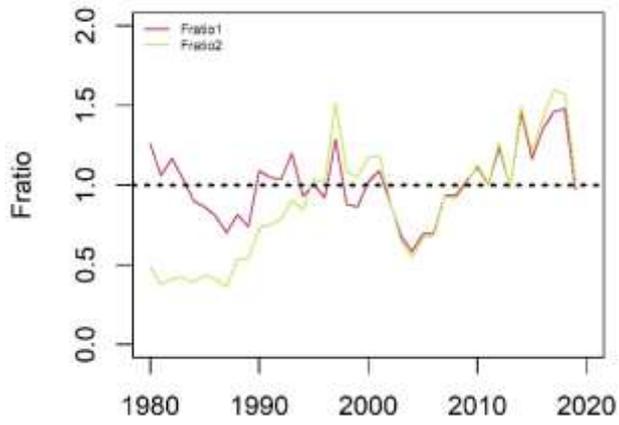
(b) B-ratio ( $B/B_{MSY}$ )



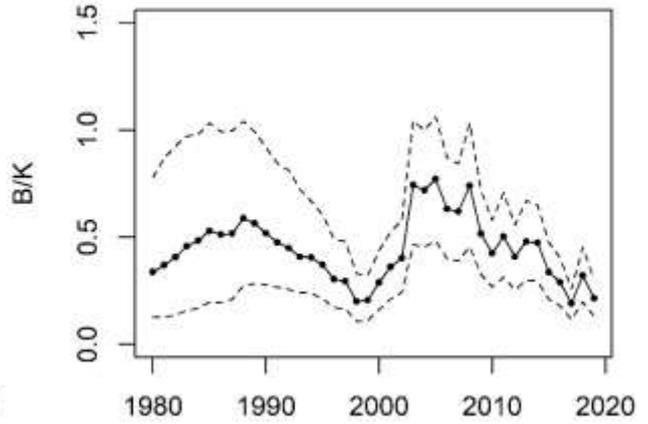
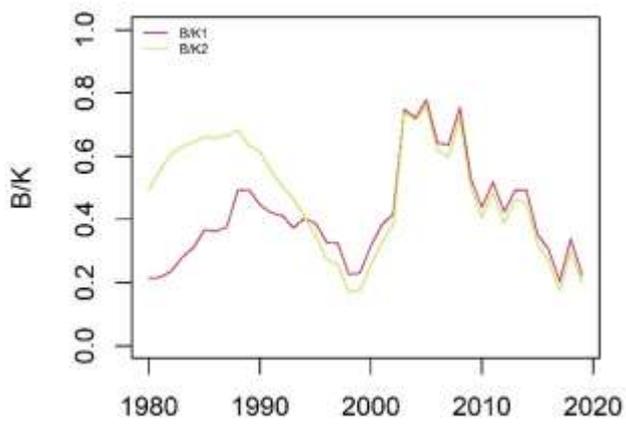
(c) Exploitation rate (F)



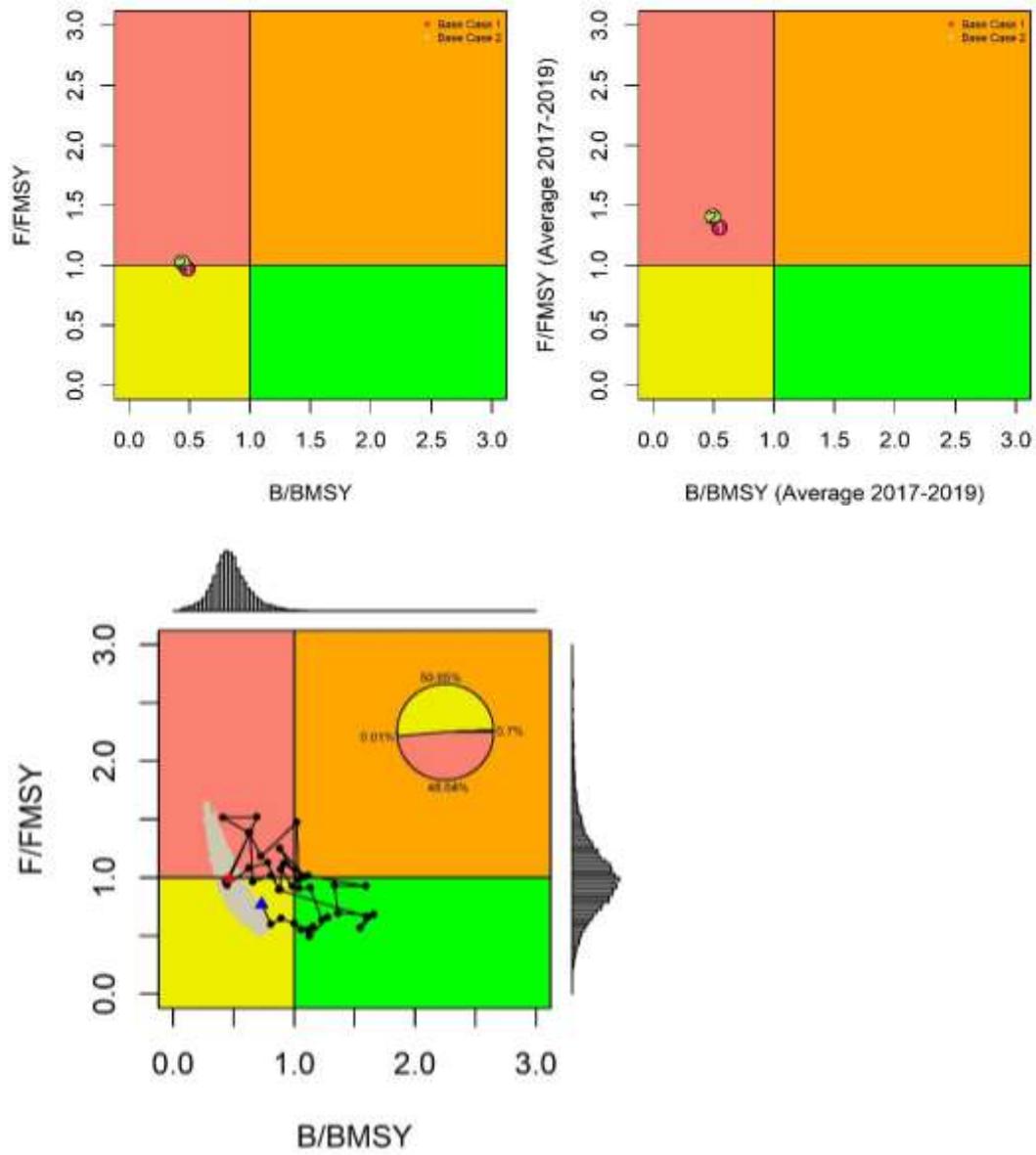
(d) F-ratio ( $F/F_{MSY}$ )



(d) B/K

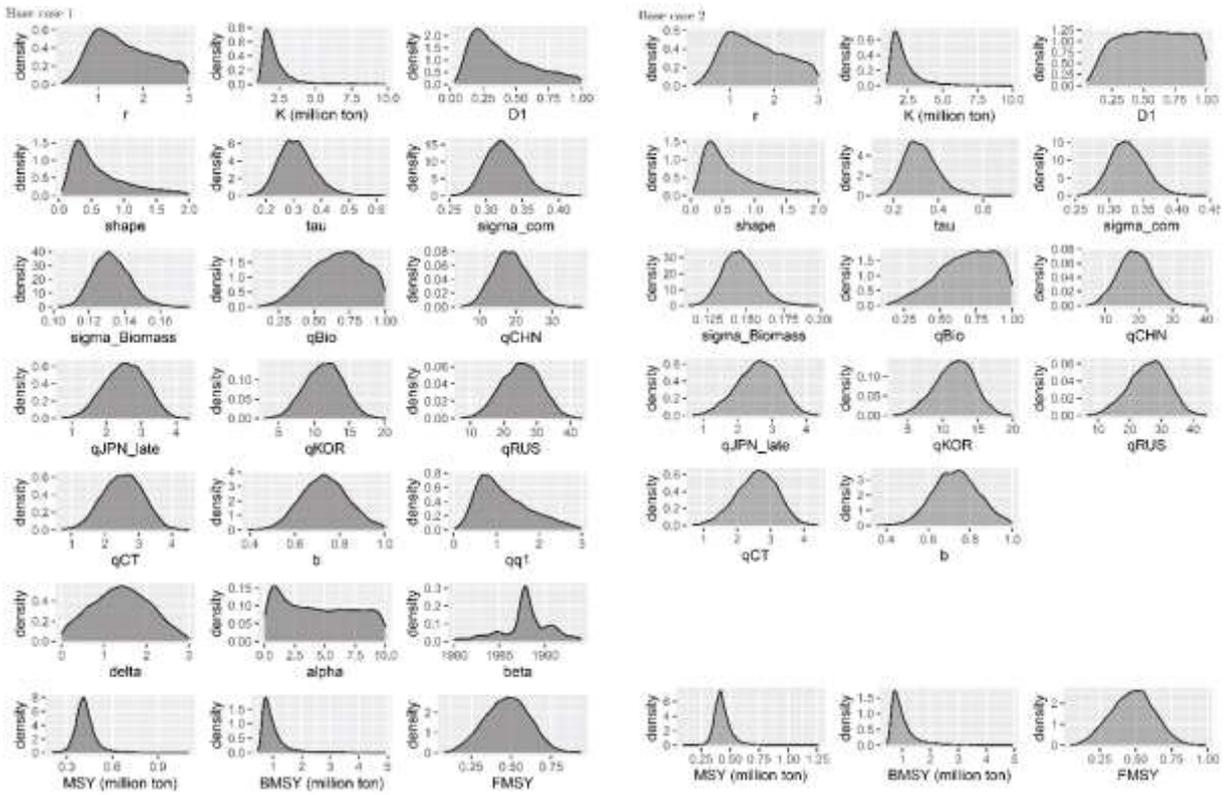


#### 4.1.4 Kobe plots



## 4.2 JAPAN

### 4.2.1 Prior and posterior distributions for Base case model 1 (as an illustrative example)



Note: Prior for each free parameter is assumed to be uniform over the shown horizontal range.

#### 4.2.2 Summary of estimates of parameters and reference points

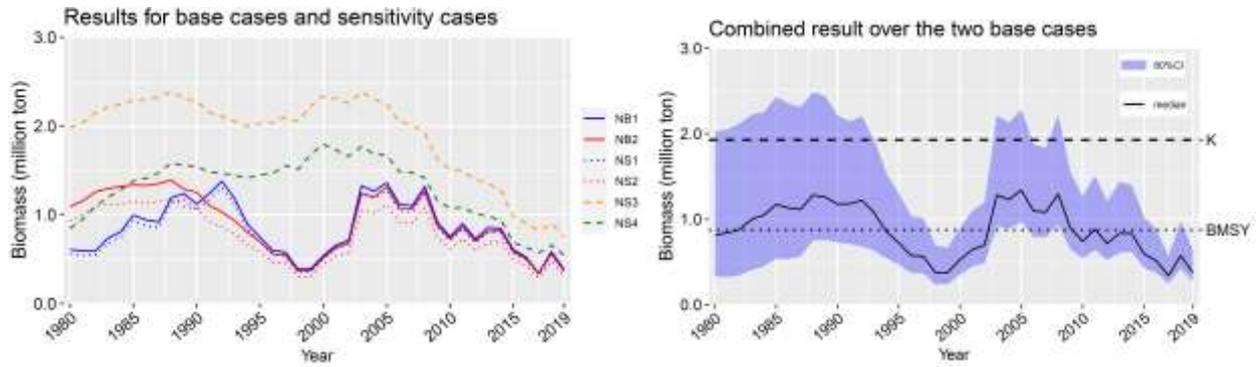
Base case 1					Base case 2				
	Mean	Median	Lower10th	Upper10th		Mean	Median	Lower10th	Upper10th
C_2019	0.192	0.192	0.192	0.192	C_2019	0.192	0.192	0.192	0.192
AveC_2017_2019	0.298	0.298	0.298	0.298	AveC_2017_2019	0.298	0.298	0.298	0.298
AveF_2017_2019	0.731	0.742	0.449	1.000	AveF_2017_2019	0.749	0.768	0.451	1.012
F_2019	0.498	0.502	0.294	0.701	F_2019	0.522	0.527	0.304	0.730
FMSY	0.475	0.478	0.294	0.650	FMSY	0.478	0.482	0.282	0.667
MSY (million ton)	0.422	0.414	0.351	0.497	MSY (million ton)	0.435	0.423	0.358	0.523
F_2019/FMSY	1.080	1.045	0.748	1.448	F_2019/FMSY	1.142	1.093	0.762	1.571
AveF_2017_2019/FMSY	1.451	1.411	1.052	1.887	AveF_2017_2019/FMSY	1.504	1.450	1.044	2.012
K (million ton)	2.196	1.909	1.379	3.269	K (million ton)	2.291	1.948	1.361	3.584
B_2018 (million ton)	0.664	0.584	0.426	0.978	B_2018 (million ton)	0.647	0.562	0.415	0.963
B_2019 (million ton)	0.438	0.383	0.274	0.653	B_2019 (million ton)	0.420	0.365	0.264	0.632
AveB_2017_2019	0.496	0.436	0.323	0.725	AveB_2017_2019	0.483	0.420	0.316	0.721
BMSY (million ton)	0.982	0.863	0.642	1.419	BMSY (million ton)	1.024	0.882	0.637	1.563
BMSY/K	0.454	0.442	0.403	0.527	BMSY/K	0.454	0.443	0.403	0.526
B_2018/K	0.318	0.316	0.212	0.424	B_2018/K	0.302	0.298	0.191	0.414
B_2019/K	0.209	0.208	0.138	0.281	B_2019/K	0.196	0.194	0.120	0.269
AveB_2017_2019/K	0.237	0.238	0.161	0.311	AveB_2017_2019/K	0.226	0.226	0.143	0.304
B_2018/BMSY	0.702	0.686	0.483	0.941	B_2018/BMSY	0.666	0.648	0.440	0.914
B_2019/BMSY	0.462	0.452	0.315	0.620	B_2019/BMSY	0.432	0.423	0.277	0.592
AveB_2017_2019/BMSY	0.523	0.515	0.369	0.685	AveB_2017_2019/BMSY	0.497	0.490	0.331	0.666

Over the two base cases.

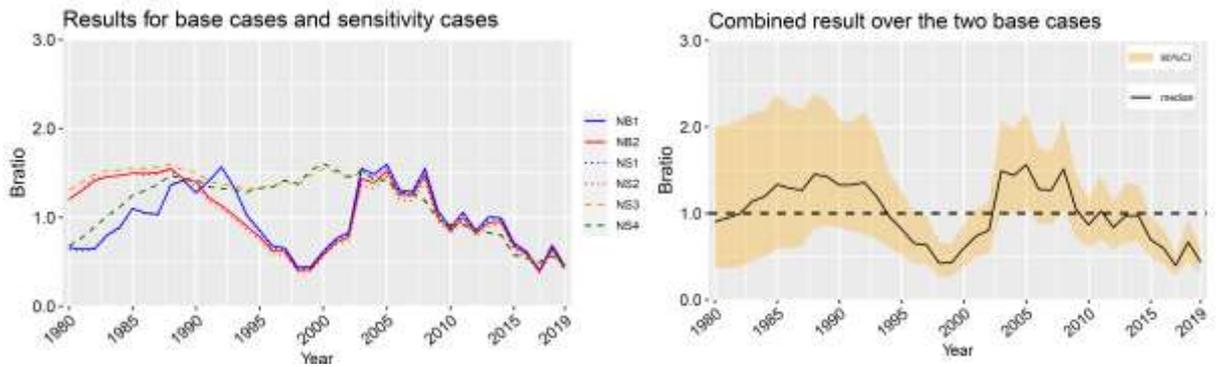
	Mean	Median	Lower10th	Upper10th
C_2019	0.192	0.192	0.192	0.192
AveC_2017_2019	0.298	0.298	0.298	0.298
AveF_2017_2019	0.678	0.691	0.411	0.925
F_2019	0.510	0.515	0.299	0.716
FMSY	0.477	0.480	0.288	0.659
MSY (million ton)	0.428	0.419	0.354	0.510
F_2019/FMSY	1.111	1.067	0.754	1.514
AveF_2017_2019/FMSY	1.477	1.428	1.048	1.948
K (million ton)	2.243	1.928	1.370	3.419
B_2018 (million ton)	0.656	0.572	0.420	0.971
B_2019 (million ton)	0.429	0.374	0.269	0.643
AveB_2017_2019	0.489	0.428	0.319	0.724
BMSY (million ton)	1.003	0.873	0.639	1.485
BMSY/K	0.454	0.443	0.403	0.527
B_2018/K	0.310	0.307	0.200	0.420
B_2019/K	0.203	0.201	0.129	0.275
AveB_2017_2019/K	0.231	0.232	0.151	0.308
B_2018/BMSY	0.684	0.667	0.460	0.929
B_2019/BMSY	0.447	0.437	0.294	0.608
AveB_2017_2019/BMSY	0.510	0.503	0.349	0.677

### 4.2.3 Time series plots for base case models and aggregated results

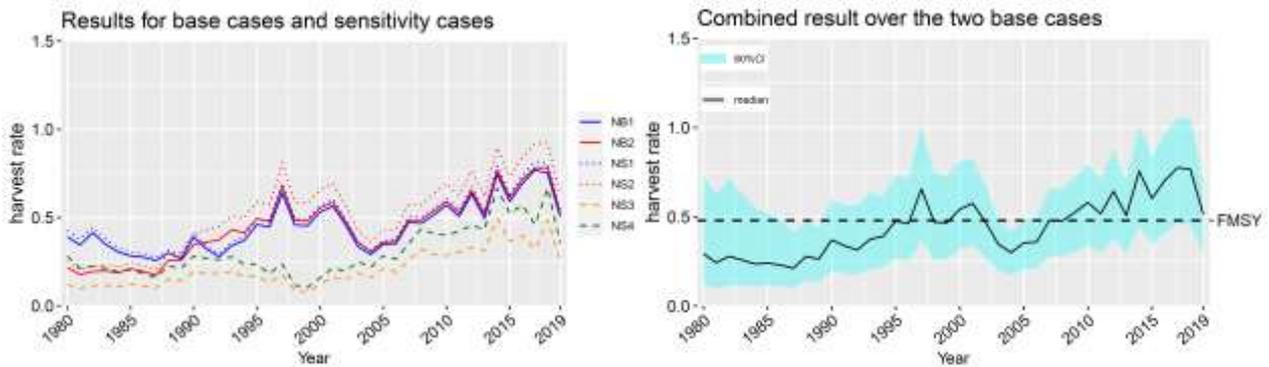
#### (a) Biomass



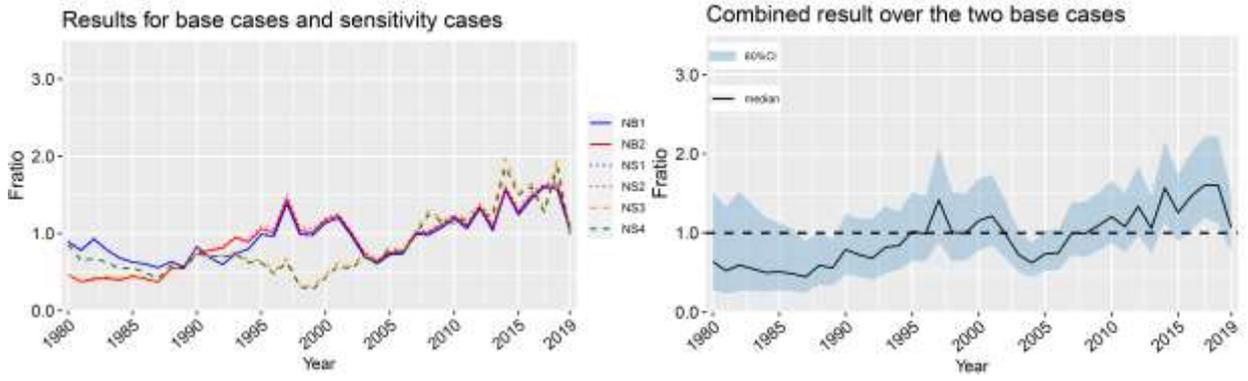
#### (b) B-ratio ( $B/B_{MSY}$ )



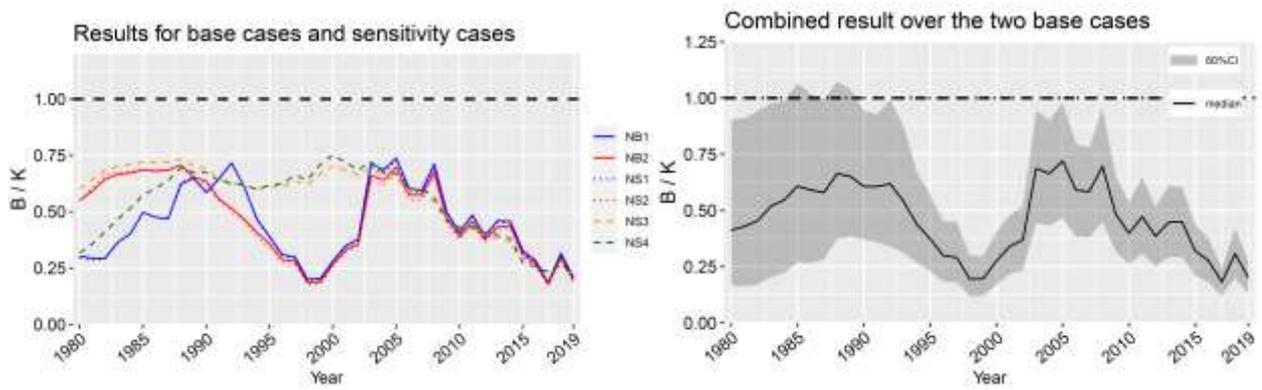
#### (c) Exploitation rate (F)



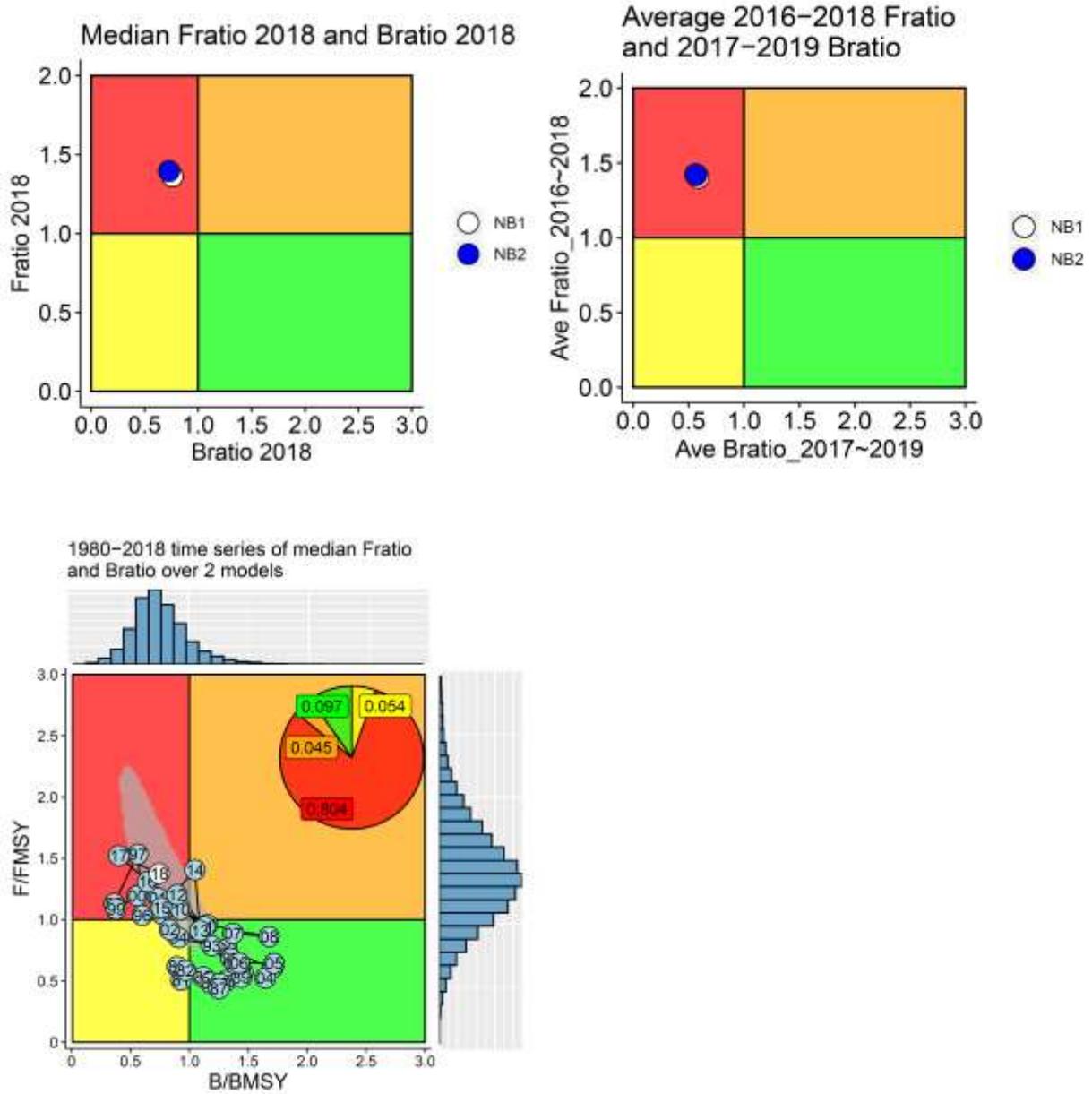
(d) F-ratio ( $F/F_{MSY}$ )



(e) B/K

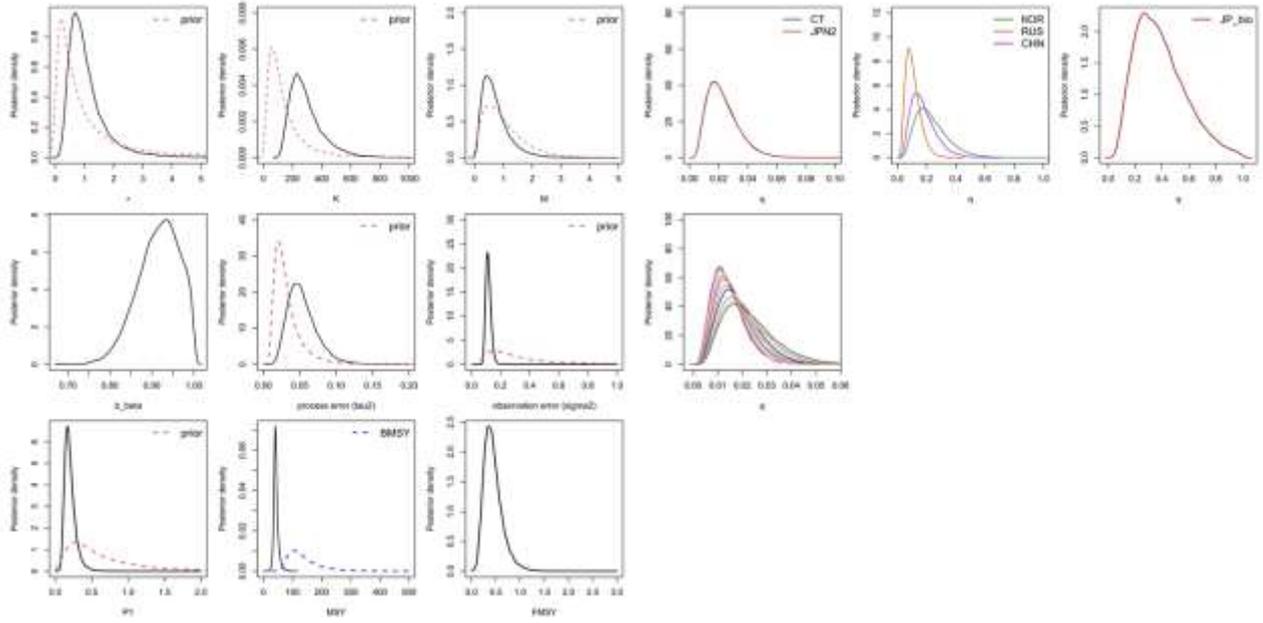


4.2.4 Kobe plots



### 4.3 CHINESE TAIPEI

#### 4.3.1 Prior and posterior distributions for Base case model 1 (as an illustrative example)



#### 4.3.2 Summary of estimates of parameters and reference points

##### (a) Base case1

**Base case1**

	Mean	Median	Lower 10th	Upper 10th
C <sub>2019</sub>	19.2	19.2	19.2	19.2
Ave_C <sub>2017-2019</sub>	29.8	29.8	29.8	29.8
Ave_F <sub>2017-2019</sub>	0.57	0.42	0.18	1.01
F <sub>2019</sub>	0.34	0.29	0.13	0.61
F <sub>M<sub>SY</sub></sub>	0.45	0.42	0.24	0.70
MSY	43.12	41.84	35.03	52.79
F <sub>2019</sub> /F <sub>M<sub>SY</sub></sub>	0.75	0.70	0.40	1.15
Ave_F <sub>2017-2019</sub> /F <sub>M<sub>SY</sub></sub>	1.18	1.05	0.58	1.83
K	297.37	269.80	176.50	455.00
B <sub>2018</sub>	131.43	109.60	59.84	228.91
B <sub>2019</sub>	92.42	77.47	42.00	161.10
Ave_B <sub>2017-2019</sub>	102.91	86.41	47.66	178.53
B <sub>M<sub>SY</sub></sub>	137.58	124.20	82.12	210.00
B <sub>M<sub>SY</sub></sub> /K	0.47	0.46	0.41	0.53
B <sub>2018</sub> /K	0.43	0.42	0.29	0.58
B <sub>2019</sub> /K	0.30	0.29	0.21	0.40
B <sub>2017-2019</sub> /K	0.33	0.33	0.23	0.44
B <sub>2018</sub> /B <sub>M<sub>SY</sub></sub>	0.93	0.89	0.62	1.29
B <sub>2019</sub> /B <sub>M<sub>SY</sub></sub>	0.65	0.63	0.44	0.89
B <sub>2017-2019</sub> /B <sub>M<sub>SY</sub></sub>	0.73	0.70	0.50	0.98

##### (b) Base case2

**Base case2**

	Mean	Median	Lower 10th	Upper 10th
C <sub>2019</sub>	19.20	19.20	19.20	19.20
Ave_C <sub>2017-2019</sub>	29.80	29.80	29.80	29.80
Ave_F <sub>2017-2019</sub>	1.22	0.67	0.26	2.87
F <sub>2019</sub>	0.57	0.43	0.18	0.99
F <sub>M<sub>SY</sub></sub>	0.54	0.46	0.22	0.90
MSY	40.88	40.35	33.04	49.00
F <sub>2019</sub> /F <sub>M<sub>SY</sub></sub>	1.03	0.96	0.55	1.54
F <sub>2017-2019</sub> /F <sub>M<sub>SY</sub></sub>	1.94	1.57	0.85	3.42
K	263.33	234.20	149.10	414.41
B <sub>2018</sub>	97.45	78.72	45.21	168.50
B <sub>2019</sub>	68.22	55.16	30.65	118.30
Ave_B <sub>2017-2019</sub>	75.61	61.64	35.43	129.60
B <sub>M<sub>SY</sub></sub>	123.53	109.50	70.50	193.31
B <sub>M<sub>SY</sub></sub> /K	0.47	0.47	0.41	0.54
B <sub>2018</sub> /K	0.36	0.34	0.25	0.49
B <sub>2019</sub> /K	0.25	0.24	0.17	0.34
B <sub>2017-2019</sub> /K	0.28	0.27	0.20	0.37
B <sub>2018</sub> /B <sub>M<sub>SY</sub></sub>	0.77	0.72	0.53	1.07
B <sub>2019</sub> /B <sub>M<sub>SY</sub></sub>	0.54	0.50	0.36	0.74
B <sub>2017-2019</sub> /B <sub>M<sub>SY</sub></sub>	0.60	0.56	0.42	0.81

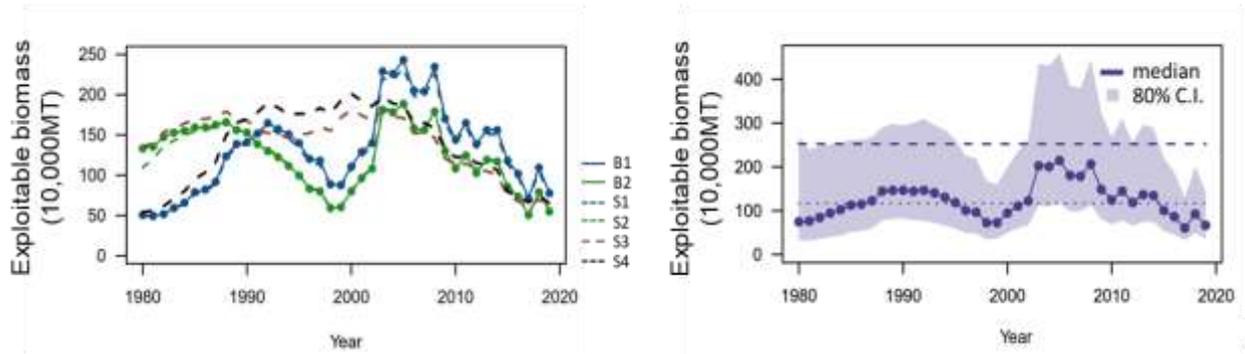
(c) Joint estimates of the base cases 1 and 2

Joint estimates of the base cases 1 and 2

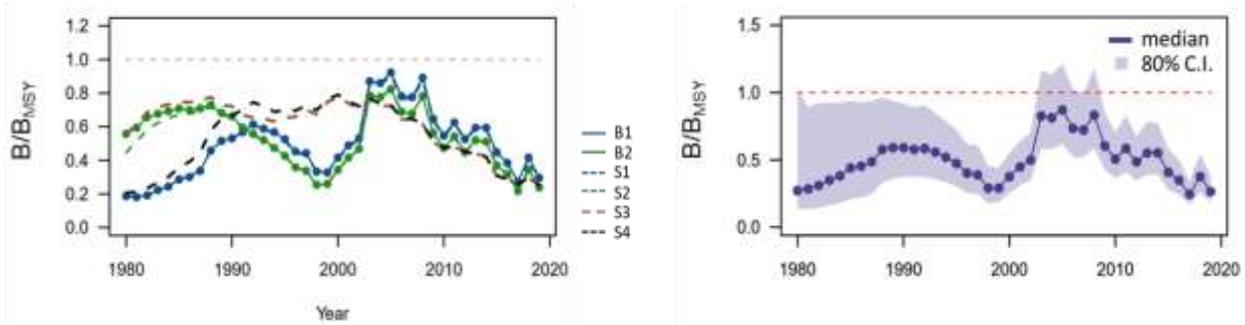
	Mean	Median	Lower 10th	Upper 10th
$C_{2019}$	19.2	19.2	19.2	19.2
$Ave\_C_{2017-2019}$	29.8	29.8	29.8	29.8
$Ave\_F_{2017-2019}$	0.891	0.523	0.21	1.517
$F_{2019}$	0.455	0.346	0.145	0.812
$F_{MSY}$	0.494	0.435	0.231	0.794
MSY	42.00	41.11	34.03	50.98
$F_{2019}/F_{MSY}$	0.891	0.824	0.45	1.376
$Ave\_F_{2017-2019}/F_{MSY}$	1.56	1.282	0.664	2.491
K	280.352	252.4	160.2	435.51
$B_{2018}$	114.44	93.24	50.4	202.2
$B_{2019}$	80.319	65.7	34.6	143
$Ave\_B_{2017-2019}$	89.262	73.258	39.683	156.733
$B_{MSY}$	130.559	117	75.409	202.1
$B_{MSY}/K$	0.508	0.46	0.294	0.746
$B_{2018}/K$	0.393	0.377	0.262	0.543
$B_{2019}/K$	0.275	0.266	0.182	0.38
$Ave\_B_{2017-2019}/K$	0.307	0.297	0.209	0.416
$B_{2018}/B_{MSY}$	0.848	0.798	0.558	1.202
$B_{2019}/B_{MSY}$	0.593	0.563	0.387	0.838
$AveB_{2017-2019}/B_{MSY}$	0.661	0.626	0.446	0.921

### 4.3.3 Time series plots for base case models and aggregated results

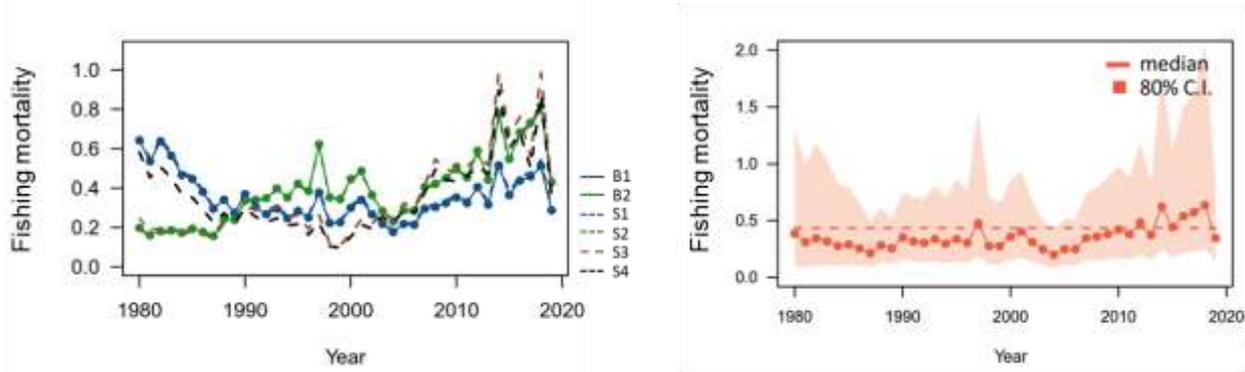
(a) Biomass



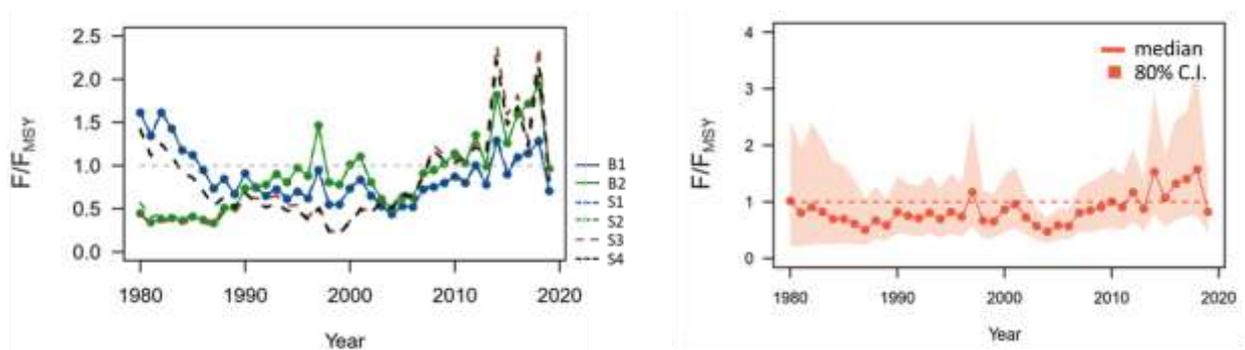
(b) B-ratio ( $B/B_{MSY}$ )



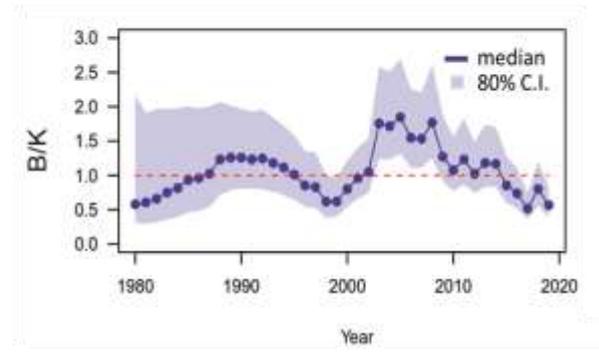
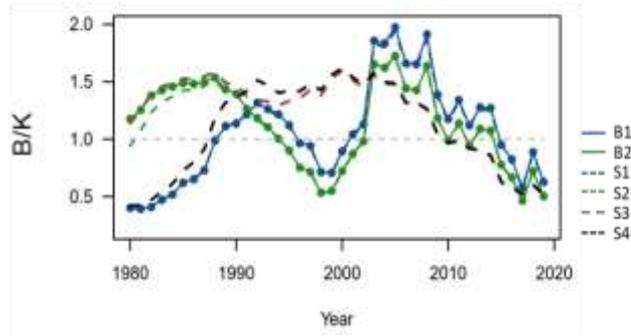
(c) Exploitation rate (F)



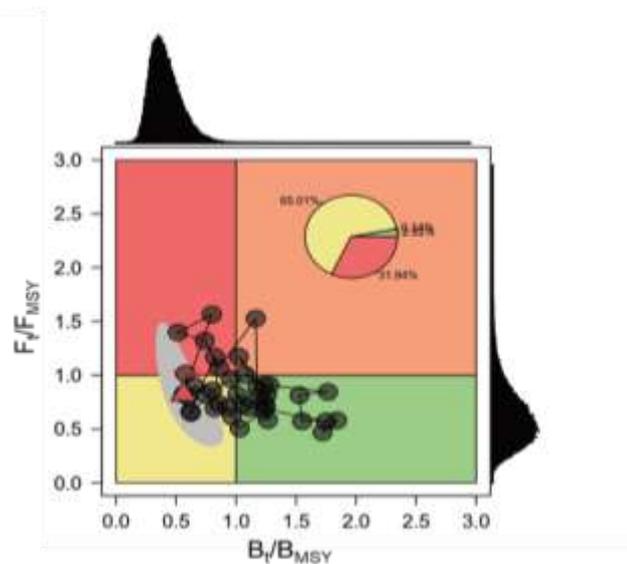
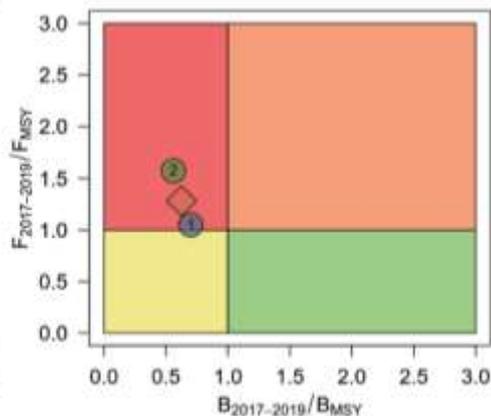
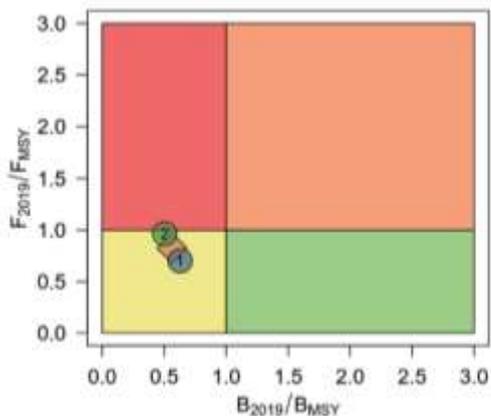
(d) F-ratio ( $F/F_{MSY}$ )



(e) B/K



### 4.3.4 Kobe plots

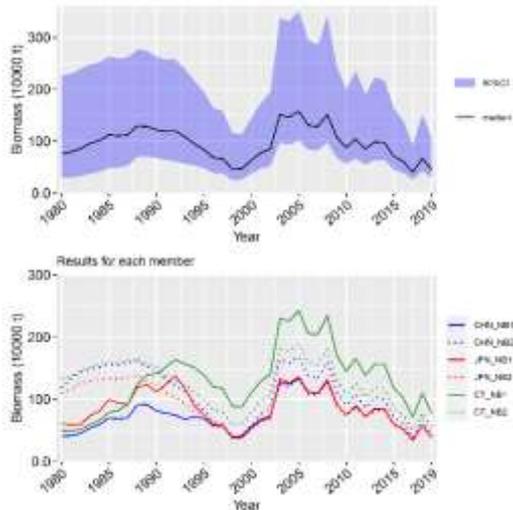


## 5 SOME AGGREGATED RESULTS FOR VISUALIZATION PURPOSE

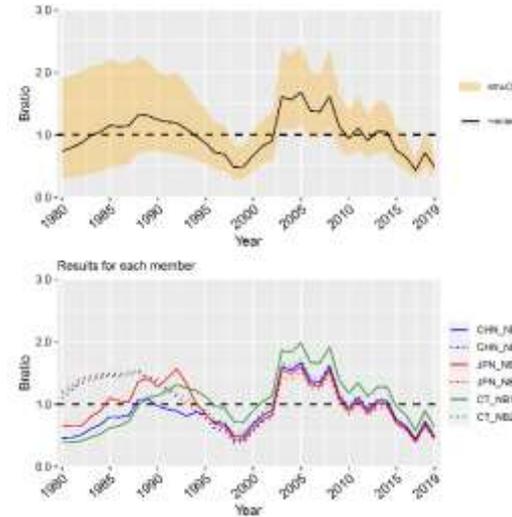
### 5.1 Visual presentation of results

The graphical presentations for times series of biomass (B), B-ratio ( $B/B_{MSY}$ ), exploitation rate (F), F-ratio ( $F/F_{MSY}$ ) and B/K are shown in Figure 3.

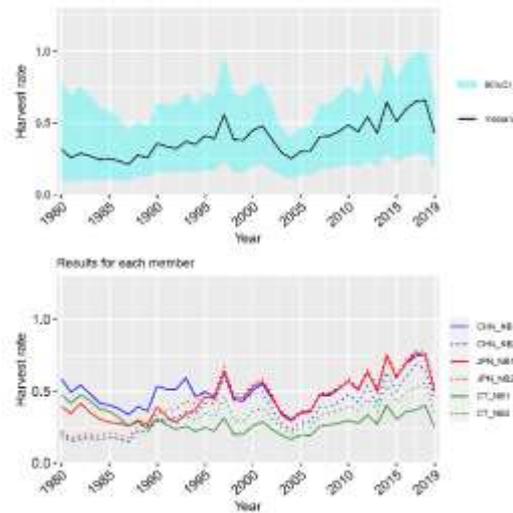
(b) Biomass (B)



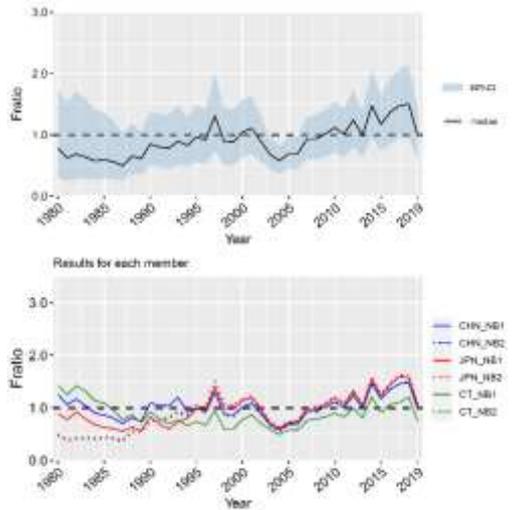
(b) B-ratio ( $B/B_{MSY}$ )



(c) Exploitation rate (F)



(d) F-ratio ( $F/F_{MSY}$ )



(e) B/K

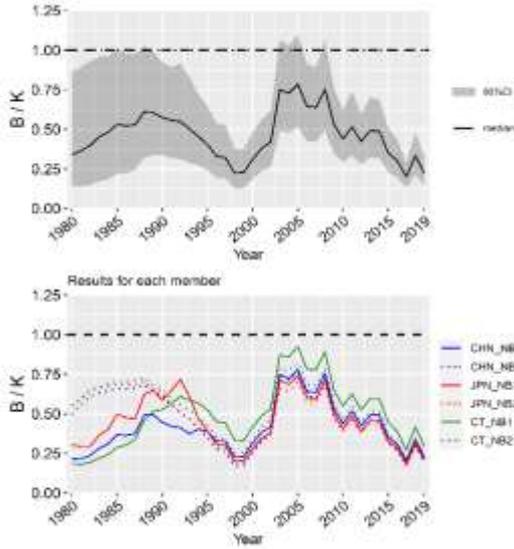


Figure 3. Time series of median estimated values of six runs for biomass, harvest rate, B-ratio, F-ratio, and depletion level relative to the carrying capacity. The solid and shaded lines correspond to NB1 and NB2, respectively.

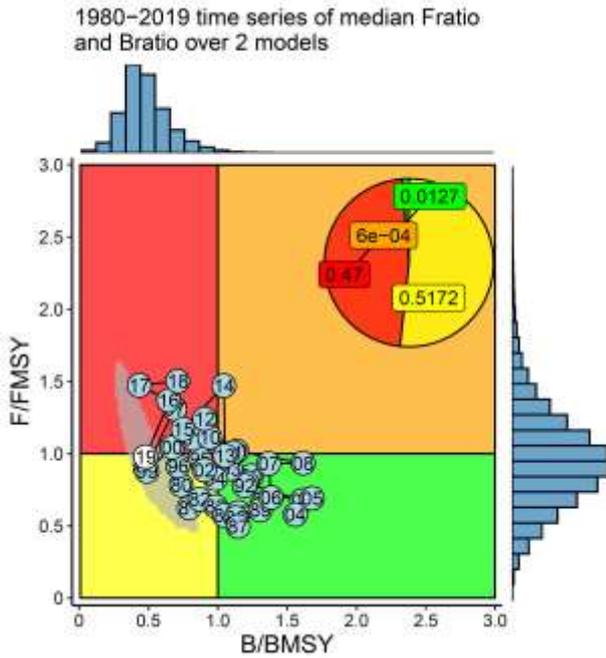


Figure 4. Kobe plot with time trajectory. The data are aggregated across 6 model results (2 base-case models by 3 Members).

5.2 Summary table

Table 3. Summary of estimates of reference quantities. Median values are reported.

	Median	Lower10%	Upper10%	Median_CHN	Median_JPN	Median_CT
<b>C_2019 (10000 t)</b>	19.238	19.238	19.238	19.238	19.238	19.238
<b>AveC_2017_2019 (10000 t)</b>	29.803	29.803	29.803	29.803	29.803	29.803
<b>AveF_2017_2019</b>	0.582	0.255	0.891	0.637	0.691	0.400
<b>F_2019</b>	0.428	0.183	0.681	0.467	0.515	0.292
<b>FMSY</b>	0.431	0.235	0.643	0.472	0.48	0.353
<b>MSY</b>	41.852	35.069	52.22	42.559	41.866	41.11
<b>F_2019/FMSY</b>	0.979	0.605	1.419	0.991	1.067	0.859
<b>AveF_2017_2019/FMSY</b>	1.327	0.845	1.841	1.349	1.428	1.175
<b>K (10000 t)</b>	213.851	140.075	412.51	200.00	192.763	252.15
<b>B_2018 (10000 t)</b>	66.81	43.279	152.2	61.71	57.249	93.055
<b>B_2019 (10000 t)</b>	44.937	28.256	105.116	41.18	37.379	65.855
<b>AveB_2017_2019 (10000 t)</b>	50.783	32.999	115.754	46.517	42.822	73.385
<b>BMSY (10000 t)</b>	97.116	65.53	185.4	90.195	87.318	116.9
<b>BMSY/K</b>	0.445	0.391	0.552	0.44	0.443	0.455
<b>B_2018/K</b>	0.332	0.216	0.481	0.321	0.307	0.376
<b>B_2019/K</b>	0.224	0.143	0.33	0.214	0.201	0.266
<b>AveB_2017_2019/K</b>	0.254	0.167	0.363	0.244	0.232	0.296
<b>B_2018/BMSY</b>	0.712	0.486	1.068	0.693	0.667	0.798
<b>B_2019/BMSY</b>	0.48	0.321	0.728	0.464	0.437	0.563
<b>AveB_2017_2019/BMSY</b>	0.544	0.376	0.803	0.525	0.503	0.625

## 6 CONCLUDING REMARKS

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.

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**North Pacific Fisheries Commission**  
**5<sup>th</sup> Meeting of the Technical and Compliance Committee**

**18-20 February 2021**

**Virtual Meeting**

**REPORT**

Agenda Item 1. Opening of Meeting

1. The 5<sup>th</sup> 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 HSBIIs 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 HSBI compiled by SWG Ops (NPFC-2021-TCC05-IP10).

**Recommendation:** That the Commission adopt the best practices for COVID-19 mitigation measures applicable to HSBI 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 HSBI 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.

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**Annex E** Sustainable Use and Conservation Handbook

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## List of Documents

### **MEETING INFORMATION PAPERS**

Document Number	Title
NPFC-2021-COM06-MIP01	Details for the 5th Technical and Compliance Committee, 4th Finance and Administration Committee and 6th Commission Meetings
NPFC-2021-TCC05-MIP02 (Rev 2)	Provisional Agenda
NPFC-2021-TCC05-MIP03 (Rev 2)	Annotated Provisional Agenda
NPFC-2021-TCC05-MIP04 (Rev 5)	Indicative Schedule

### **WORKING PAPERS**

Document Number	Title
NPFC-2021-TCC05-WP01 (Rev. 2)	NPFC Draft IUU Vessel Listing 2020 10 Feb 2021  Circular 062-2020 Panama Response to Draft IUU Vessel_List for MV DA FENG MARINER  Circular 001-2021 Draft IUU Vessel List for FV ZHAN HAI 001 – Canadian Decision  Circular 004-2021 Annex No. 3 - DAFENG MARINER Technical Report  Circular 004-2021 Annex No. 5 - Additional Report
NPFC-2021-TCC05-WP02	Panama Application for Renewal of CNCP Status
NPFC-2021-TCC05-WP03 (Rev 1)	Cooperation Between NPFC and NPAFC
NPFC-2021-TCC05-WP04 (Rev 1)	NPFC Data Sharing and Data Security Protocol for VMS
NPFC-2021-TCC05-WP05	Sustainable Use and Conservation Handbook
NPFC-2021-TCC05-WP06 (Rev 1)	CMM HSBI Boarding Ladder Annex
NPFC-2021-TCC05-WP07 (Rev 2)	Amendments to CMM 2019-01 (TC)
NPFC-2021-TCC05-WP08	NPFC Current IUU Vessel List
NPFC-2021-TCC05-WP09 (Rev 3)	Draft Compliance Report - 2019
NPFC-2021-TCC05-WP10 (Rev. 1)	CMR List of Obligations for Consideration
NPFC-2021-TCC05-WP11 (Rev 2)	Amendment to CMM for VMS

## **INFORMATION PAPERS**

<b>Document Number</b>	<b>Title</b>
NPFC-2021-TCC05-IP01(Rev 1)	Fisheries Overview
NPFC-2021-TCC05-IP02	IT Initiatives for 2020 and 2021
NPFC-2021-TCC05-IP03	Invitation to Support the IMCS Network
NPFC-2021-TCC05-IP04	SWG Operations Summary
NPFC-2021-TCC05-IP05	SWG Planning and Development
NPFC-2021-TCC05-IP06	Matters for coordination between SC and TCC
NPFC-2021-TCC05-IP07	VMS Standard Operating Procedures
NPFC-2021-TCC05-IP08	Transshipment Analysis
NPFC-2021-TCC05-IP09	AIS Tracks for Three Stateless Vessels
NPFC-2021-TCC05-IP10	NPFC High Seas Boarding and Inspection in a COVID-19 Environment – Best Practices
NPFC-2021-TCC05-IP11	Comparison of Photos of ZHOU YU 807

## **OBSERVER PAPERS**

<b>Document Number</b>	<b>Title</b>
NPFC-2021-TCC05-OP01	EU Application to Accede to the NPFC Convention

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## COOPERATION BETWEEN NPFC AND NPAFC

### Abstract:

The Chair of NPFC and President of NPAFC signed the MOC between NPFC and NPAFC on 13 May 2019 during the 27<sup>th</sup> Annual Meeting of NPAFC held in Portland, USA during 13-17 May 2019 (<https://www.npfc.int/system/files/2019-05/MOC-NPFC-NPFAC.pdf>). The area of cooperation focused on the matters of common interest including exchange of data and information, collaboration on research efforts on species of mutual interest and implementation of conservation and management measures.

NPAFC sent a request dated 27 May 2019 for NPFC's TCC to amend their boarding inspection forms to capture the presence of salmon bycatch or retention of salmon as urgent area of cooperation in compliance area. This request for cooperation in the recording of salmon by-catch was discussed at TCC04 and it was agreed that Members could voluntarily take such action and report the results to NPAFC.

A draft Work Plan to implement the MOC between NPFC and NPAFC for 2021-2025 was sent to NPFC on 25 March 2020 (Ref. NPFC Circular 016-2020 Draft Work Plan to implement the MOC between NPFC and NPAFC). The Scientific Committee reviewed the draft Work Plan during SC05 and agreed with the proposed scientific activities noted in NPFC-2020-SC05-WP04.

TCC 05 has also been asked to review and input to the Draft Work Plan attached hereto as [Annex A](#).

**Work plan**  
**to implement NPAFC/NPFC Memorandum of Cooperation, 2021–2025**

*Exchange of data and information in accordance with the information-sharing and data confidentiality policies of each Commission;*

- Create a SharePoint inter-commission communication system to share news, reports, guideline documents, and other information relevant to management of the mutual area of interest in easily accessible form.
- Establish a mechanism of general information exchange (e.g., MCS activity information, fleet activity information, map of catch and fishing efforts).
- Establish a practice of sharing information on suspicious fishing vessels identified in overlapping convention area including stateless vessels and unregistered vessels.

*Collaboration on research efforts relating to stocks and species of mutual interest, including stock assessments;*

- Implement Pan-Pacific research survey plans in winter 2022, organize a comprehensive study of its outcome at the special session of the IYS concluding symposium.
- Harmonize the NPFC/PICES and NPAFC/PICES Frameworks for Enhanced Scientific Cooperation in the North Pacific Ocean.

*Implementation of conservation and management measures for stocks and species of mutual interest;*

- Establish mechanism to share IUU vessel list of each Commission and its related information.
- Expand cooperation to collect and share information relating to species of special interest for each Commission.
- Develop, publish and distribute public information about conservation on the high seas and consequences of IUU activity.

For each agreed item a timeline, milestones, and deliverables will be mutually developed. Work plan will be discussed by the commissions and mutually agreed before July 2021.

Note: As this handbook is 145 pages in length, it is being embedded as an icon here and the title page and table of contents is attached. This handbook was updated after COM06.



Sustainable Use  
and Conservation H

# **SUSTAINABLE USE AND CONSERVATION HANDBOOK**

**Updated: (DD/MO/YEAR) and coming into force on (DD/MO/YEAR)**

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## NPFC HIGH SEAS BOARDING AND INSPECTION IN A COVID-19 ENVIRONMENT – BEST PRACTICES

### **SUBJECT:**

Sharing of domestic COVID-19 Mitigation Measures applicable to High Seas Boarding and Inspections (HSBI)

### **BACKGROUND:**

On 31 August, the TCC Chair circulated a letter to TCC Focal Points and the co-leads for the Small Working Group for Operations requesting the collation and comparison of domestic COVID-19 mitigation strategies and policies as they relate to High Seas Boarding and Inspection (HSBI).

### **SUMMARY:**

This summary outlines baseline standards for Authorized Inspection Vessels and Authorized Inspectors derived from aligned requirements and best practices of all Members. Any protocols drafted by the NPFC should not unduly burden Members by creating additional requirements, monetary obligations, or contravene domestic policy or procedures. Any protocols should also be time bound to ensure they are revisited, modified, or cancelled as the COVID-19 situation changes.

Overall, mitigation measures currently in place by Members follow similar standards and are all in alignment with WHO guidelines, keeping the crews of Authorized Inspection Vessels and Fishing Vessels safe to the greatest extent possible. The following categories were the most widely similar and could be considered as minimal HSBI COVID-19 mitigation measures:

- Protective gear/equipment: All members have specifications for Authorized Inspectors performing HSBI to wear, at a minimum:
  - Masks
  - Gloves
  - Protective Clothing
  - Eye/Face Protection
- Health screening procedures:
  - There are variances on timing, quarantine periods, and number of tests; however, most Members have assurances in place to medically clear crews prior to embarking or departure as well as the duration of the patrol period.
  - All members have provisions for consistent health checks/monitoring of crew while underway.
- Inspection vessel disinfection:
  - All members have stringent requirements for disinfection of the Inspection Vessel on a daily basis.
- Equipment and gear disinfection:
  - Post-HSBI, all members have detailed procedures to disinfect gear and equipment used during HSBI.

Areas of variances include:

- Detailed provisions and requirements for fishing vessels and their crews subject to the NPFC HSBI CMM.
- Directing fishing vessel masters to subject Authorized Inspectors to medical inspections prior to embarking for HSBI.

**RECOMMENDATIONS:**

Based on the consolidated review of all mitigation strategies and policies in place by Members, the following methods could be used as baseline procedures and considerations by all Members when executing HSBI and for masters of Authorized Fishing Vessels while operating within the NPFC Convention Area.

Pre-Patrol	During Patrol	During HSBI	Post HSBI/Patrol	For Fishing Vessels
<ul style="list-style-type: none"> <li>• Self-monitoring of symptoms, and daily health checks for defined period prior to getting underway.</li> <li>• COVID-19 training for crew.</li> <li>• Stocking up on PPE/Supplies.</li> <li>• COVID-19 testing if available.</li> </ul>	<ul style="list-style-type: none"> <li>• Self-monitoring of symptoms, and daily health checks</li> <li>• Increased sanitation protocols onboard ship.</li> <li>• Increase social distancing as able amongst crew.</li> </ul>	<ul style="list-style-type: none"> <li>• Mandatory use of PPE to include masks, gloves, protective clothing, and eye protection.</li> <li>• Pre-boarding questions to ascertain health of crew and Authorized Inspectors.</li> <li>• Maximize social distancing and contact of surfaces while on HSBI.</li> <li>• Minimum number of inspectors.</li> </ul>	<ul style="list-style-type: none"> <li>• Sanitation of gear, equipment, and Authorized Inspectors prior to contact with Authorized Inspection Vessel crew.</li> <li>• Self-monitoring of symptoms, and daily health checks post HSBI.</li> </ul>	<ul style="list-style-type: none"> <li>• Self-monitoring of symptoms, and daily health checks for defined period prior to getting underway.</li> <li>• Vessel is required to carry masks, gloves, glasses, disinfectant and medicine.</li> <li>• Avoid direct contact with non-crew during operations or port calls</li> <li>• Increase social distancing as able amongst crew.</li> </ul>

**CONSERVATION AND MANAGEMENT MEASURE ON INFORMATION  
REQUIREMENTS FOR VESSEL REGISTRATION**

This document was submitted by the 5th TCC to the 6th Commission Meeting for consideration.

The final version of this CMM is Annex N of the Commission Report.

**CONSERVATION AND MANAGEMENT MEASURE ON THE VESSEL MONITORING  
SYSTEM (VMS)**

This document was submitted by the 5th TCC to the 6th Commission Meeting for consideration.

The final version of this CMM is Annex P of the Commission Report.

## **PROVISIONAL NPFC IUU VESSEL LIST**

The link to the TCC document "Provisional NPFC IUU Vessel List" is [here](#).

This document was submitted by the 5th TCC to the 6th Commission Meeting for consideration.

The final version ("NPFC IUU Vessel List for 2021") is Annex I of the Commission Report.

**NPFC Provisional Compliance Report - 2019**

The link to the TCC document "NPFC Provisional Compliance Report - 2019" is **here**.

The final version ("NPFC Compliance Report - 2019") is Annex K of the Commission Report.

**North Pacific Fisheries Commission  
4<sup>th</sup> Meeting of the Finance and Administration Committee**

**22 February 2021  
Virtual Meeting**

**REPORT**

Agenda Item 1. Opening of the Meeting

1. The 4<sup>th</sup> 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 5<sup>th</sup> 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 5<sup>th</sup> FAC meeting

15. **Recommendation:** That the 5<sup>th</sup> 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

## 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 5<sup>th</sup> 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

## List of Documents

### MEETING INFORMATION PAPERS

Document Number	Title
NPFC-2021-COM06-MIP01	Details for the 5th Technical and Compliance Committee, 4th Finance and Administration Committee and 6th Commission Meetings
NPFC-2021-FAC04-MIP02 (Rev. 1)	Provisional Agenda
NPFC-2021-FAC04-MIP03 (Rev. 1)	Indicative Schedule

### WORKING PAPERS

Document Number	Title
NPFC-2021-FAC04-WP01 (Rev. 1)	Draft Commission Budgets 2021-2024
NPFC-2021-FAC04-WP02 (Rev. 2)	Secretariat Work Plan 2021
NPFC-2021-FAC04-WP03	NPFC Internship Program
NPFC-2021-FAC04-WP04	Proposed amendment to Staff Regulations

### INFORMATION PAPERS

Document Number	Title
NPFC-2021-FAC04-IP01	Auditor's Report 2019
NPFC-2021-FAC04-IP02	Process of 360 Performance Review conducted for 2019 fiscal year

### OBSERVER PAPERS

Document Number	Title
NPFC-2021-FAC04-OP01	NPAFC Pan Pacific Winter Expedition 2022

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## SECRETARIAT WORK PLAN 2021

### ABSTRACT

This paper addresses a Secretariat's work plan for 2021 fiscal year for four key areas;

- (a) Coordination of scientific activities of the Commission;
- (b) Coordination of compliance activities and operational reporting to the Commission;
- (c) Data management and security;
- (d) Provision of finance and administration services to support the Commission in the execution of management work plan

\* It should be noted that the Secretariat work planning exercise is hampered by the timing of the subsidiary meetings. Only the Scientific Committee has met and endorsed its work plan for 2021. The Finance and Administration Committee has not met so only reports and proposed budgets can be presented at this time. The Technical and Compliance Committee has not met so compliance specific activities in 2021 have not yet been established by TCC consequently the list of Secretariat-intended activities in this sector is only tentative.

### DETAILS:

The function of the NPFC Secretariat is the provision of services to, and representation of the Commission as determined by its Members in accordance with the Convention and relevant rules and regulations. As identified by the Secretariat and shared with Members, four key areas highlighted below provide the Secretariat and the Commission guidance with regard to the Commission's activities in 2021 financial year.

#### I. Coordination of scientific activities of the Commission

The Secretariat coordinates the scientific activities of the Commission including:

- a. Implementation and revision, when necessary, of the Scientific Committee Five-Year Research Plan and Work Plan 2017-2021 for each Priority Area:
  - Stock assessments for target fisheries and bycatch species
  - Ecosystem approach to fisheries management
  - Data collection, management and security  
(refer to Annex J of the 5<sup>th</sup> SC Report for details).
- b. Assisting Members in further development of the VME taxa ID guide and revise it if needed
- c. Assisting Members in sharing data and updating joint spatial/temporal map of Members' catch and effort on Pacific saury
- d. Coordinating meetings of the Small Scientific Committee on Pacific saury (SSC PS07) to be held in fall and winter 2021
- e. Coordinating meetings of the Technical Working Group on Chub Mackerel Stock

- Assessment (TWG CMSA04) to be held in summer 2021 and winter 2021-2022.
- f. Coordinating meetings of the SC and SSCs to be held in December 2021.
  - g. Assisting Members in identifying data gaps which can be fulfilled by an observer program.
  - h. Assisting Members in selection and contracting invited experts:
    - to develop an operating model for chub mackerel stock assessment
    - to provide advice at the SSC PS meeting
    - to initiate the development of MSE for chub mackerel
    - to translate a fish ID guide into English
  - i. Promoting cooperation with other organizations
    - NPAFC: macro-scale multinational survey in the North Pacific in 2022, Steering Committee of the International Year of the Salmon.
    - PICES: PICES annual meeting in 2021, PICES-ICES Small Pelagic Fish (SPF) Symposium in 2022, PICES-ICES SPF Working Group, PICES Working Group on Seamount Ecology.
  - j. Coordinating an international course for NPFC observers for VME indicator taxa to be held in 2021
  - k. Coordinating scientific projects to be conducted during 2021.
  - l. Coordinating intersessional activities of the SC and its subsidiary bodies as specified in the SC Work Plan
  - m. Coordinating Small Working Groups for the priority species not covered by TWG and SSCs (Japanese sardine, spotted mackerel, Japanese flying squid and neon flying squid) and setting up their intersessional meetings.
  - n. Contributing to an MSE process and assisting in technical developments conducted by Members and external expert.

#	Project	Time	Rough estimation of required funds
1	VME taxa identification guide	2017-2021	Test the VME taxa ID guide by observers and revise if needed.
2	Joint spatial/temporal map of Members' catch and effort on Pacific saury	2018-	Update the map 2021 FY: 0,15mln JPY (1,500USD)
3	Pacific saury stock assessment meeting (meeting costs)	Every year, 2017-2021	SSC PS07 meeting, TBD 2021. 2021 FY: 1.65mln JPY (15,000USD)
4	Chub mackerel stock assessment meeting (meeting costs)	Every year	TWG CMSA04 meeting, TBD 2021. 2021 FY: 1.65mln JPY (15,000USD)
5	Expert to review Pacific saury stock assessment (consultant fee and travel cost)	TBD later	2021 FY: No funds required.
6	Observer Program	2018-	Collect TWG CMSA Members' views regarding the necessity/objective of an observer program. Identify data gaps which can be fulfilled by an observer program. 2021 FY: No funds required.
7	Promotion of cooperation with NPAFC including macro-scale multinational survey in the North Pacific in 2022	2021-2022	2020 FY: 1,1mln JPY (10,000USD).

8	Invited expert for the development of the operating model for chub mackerel stock assessment (consultant fee and travel cost)	2020-	2021 FY: 1,1mln JPY (10,000USD)
9	Invited expert to stock assessment meetings of Pacific saury (consultant fee and travel cost)	2019-	2021 FY: 1,1mln JPY (10,000USD)
10	International Course for NPFC observers for VME indicator taxa (consultant fees and travel costs for two lecturers, meeting costs)	2021	Time and location: 3-4 days. Russia, Vladivostok. 2021 FY: 1,65mln JPY (15,000USD).
11	Invited expert to initiate the development of MSE for chub mackerel (consultant fee)	2020-	2021 FY: 0.55mln JPY (5,000USD).
12	PICES-ICES Small Pelagic Fish Symposium, February 21–24, 2022, Lisbon, Portugal.	2022	2021 FY: 1.65mln JPY (15,000USD) to the organizers for the symposium logistics and 1.3mln JPY (12,000USD) for travel support for three NPFC experts to attend the symposium.
13	2021 PICES Annual meeting	2021	Travel support to two participants of the SC and/or its subsidiary bodies. 2021 FY: 0.9mln JPY (8,000USD)

## II. Coordination of compliance activities of the Commission

The Secretariat coordinates compliance activities of the Commission including:

- a. Implementation of compliance work plan and priorities through support to the two SWGs, one for Operations and the second for Planning and Development which address the following;
  - Finalize regional VMS development and its implementation
  - Data-sharing and Data-security protocol for VMS which is posted for discussion at TCC05
  - Data Sharing and Data Security Protocol for NPFC, which is ongoing
  - Expansion and implementation of the Compliance Monitoring Scheme according to agreed reporting obligations
  - Implementation HSBI Best Practices under COVID-19 environment
  - Address as priorities as defined at TCC05
    - observer/EM monitoring
    - transshipment CMM and implementation
    - implementation of new CMMs – Vessel Registry, HSBI, VMS and others from COM06
    - Review of existing CMMs for revision and consideration of new CMMs, if any, from Members
- b. Coordinating and assisting Members to hold annual TCC meeting and SWG meetings in

2021

- c. Maintain the vessel register and assistance to new CNCPs as they join the Commission
- d. Maintain and upgrade the e-IUU vessel system, e-annual report system, and development of the data warehouse to assist the Commission in the analysis of the data, and more
- e. Develop the e-CMS facility using the data warehouse
- f. Address VMS and other electronic monitoring systems to assess compliance as directed by the Commission
- g. Address COM05 tasks that were unable to be addressed this year, e.g., robust effort indicators, etc.
- h. Promoting cooperation with other organizations in compliance: IMCS, TCN, PPFCN
- i. Other tasking to be set at the 6<sup>th</sup> Commission meetings in February 2021

### **III. Data management and security**

The data management system is the core for the storage of data and the analyses of scientific and compliance operations of the Commission, consequently, significant effort is being placed on the development of this system. The intent of the NPFC Database is to provide a secure, user-friendly, accessible, and reliable database for all scientific and compliance needs of the Commission, one that is fully integrated with other data modules of the Commission so as to continually support Members' efforts to provide appropriate and timely management advice to the Commission.

- a. The Secretariat will update the NPFC website regularly to enhance public awareness and to give Members access to the systems required in the various operations of the Commission.
- b. The Secretariat will enhance existing web-based systems for the Commission: Meeting Management, Calendar, Pacific Saury Weekly Report, GIS Maps, Collaboration site, eAnnual Report, eIUU, eHSBI, HSBI Events, Vessel Registry, CMM Chart of Accounts, Data Warehouse Dashboard, and other existing applications.
- c. The Secretariat will continue to oversee the development of VMS.
- d. The Secretariat will arrange for the development of new systems in response to the need of Members.
- e. The Secretariat will improve HR and administrative operations through enhancing the existing HR and administration system.

### **IV. Finance and Administration**

#### **1. Financial matters to support the Secretariat and Commission in the execution of its duties**

Securing funds for the Commission's activities and implementation of approved activities through formal and internationally recognized financial mechanisms is one of the areas for the Secretariat to assist Members and the Commission to achieve objectives of the Convention.

Following are major financial activities for 2021:

- a. Drafting a four-year budget plan 2021-2024 (proposed budgets for 2021-2022, indicative budgets for 2023-2024) for approval at the 6<sup>th</sup> Commission meeting;
- b. Submission of the external Auditor's Report for the Commission's 2019 financial affairs

#### **2. Provision of administrative services to the Commission and its subsidiary bodies**

## 1) Host Commission meetings

The Secretariat facilitates all NPFC meetings to be held in 2021 by providing logistical support and preparing meeting documents and reports:

- a. Annual Meetings
  - 5<sup>th</sup> Technical and Compliance Committee (TCC), 18-21 February
  - 4<sup>rd</sup> Finance and Administration Committee (FAC), 22 February
  - 6<sup>th</sup> Annual Session of the Commission, 23-25 February
  - 6<sup>th</sup> Scientific Committee, December 2021
- b. Small Scientific Committees and Technical Working Group meetings
  - SSC PS07 and SSC PS08
  - SSC BF-ME02
  - TWG CMSA04 and TWG CMSA05
- c. TCC SWGs to take place monthly during the intersessional period
- d. SC SWGs meetings.

## 2) Cooperation with other organizations

The Secretariat currently liaises with other organizations including RFMOs by attending meetings for information sharing and for developing other joint or reciprocal activities of mutual interest. In 2021, the meetings scheduled to be represented by Secretariat staff are as follows:

Meeting	Date and place	Purpose	Expected outcomes
Compliance Workshop	15-18 March, online	CM to attend virtual expert workshop on best practices in compliance in RFMOs	Contribution to the meeting on the role of transparency in improving RFMO compliance
NPAFC Annual Meeting	17-21 May, online	Secretariat to attend annual meeting of NPAFC	Facilitation of cooperation with NPAFC based on formal arrangement (MOC) in the areas of common interest: Compliance and Science
UN BBNJ	16-27 August	Secretariat to attend to support the development of the BBNJ legislation in a manner that recognizes and includes the appropriate role for deep-sea RFMOs and does not undermine current legal instruments for these RFMOs	Assist Members and cooperate with other RFMOs in this exercise which result in an internationally legally binding instrument for the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction.
PICES Annual meeting	TBD	SC Chair, SSC PS Chair and SM to attend annual meeting of PICES and intersessional meetings of its committees and working groups	Enhancing scientific cooperation between NPFC and PICES as specified in the Framework for cooperation, including such key areas as Stock assessment support, VMEs and Ecosystem Approach to Fisheries.
WCPFC Annual Meeting	December, TBD	Secretariat to attend annual meeting of WCPFC to discuss issues of common interest especially compliance issues	Facilitation of cooperation between NPFC and WCPFC through the development of a formal relationship

Further representation will be determined at TCC, FAC and the Commission Meetings.

Besides attendance at the meetings, there are areas for cooperation with other organizations, which require further consideration and input from the Commission:

- a. Development of MOU between NPFC and WCPFC to cooperate in the areas of mutual interest especially for compliance to stop IUU fishing activities in the Convention Area
- b. Development of MOU between NPFC and SPRFMO as proposed by the Executive Secretary of SPRFMO (Circular 033-2019 of 1 May 2019)
- c. Cooperation for compliance purposes to be determined by TCC and the Commission, e.g., NPAFC for air surveillance and HSBI for salmon bycatch, USCG for HSBI, all members for VMS and HSBI, IMCS network, Pan Pacific Fisheries Compliance Network, TCN and IUU Interchange group.
- d. Cooperation with FAO ABNJ Deep Seas Project Phase 2.

### **3) Enhancing public awareness**

The Secretariat will enhance public awareness through various means:

- a. Update NPFC brochures for display at the Secretariat office for visitors
- b. Maintain and update official website to provide the public information on Commission's activities
- c. Give lectures and seminars relevant to NPFC work upon request from local government or universities and international fora
- d. Submit articles to newsletters of RSN and RFMOs
- e. Publication of the NPFC Yearbook to entail activities of the Commission for 2020
- f. Receive visitors from international organizations, local government, embassies, and universities

### **4) Management of human resources**

Effective management of human resources intends to maximize employee performance while considering the best economic use of the resources of the Commission. According to the Secretariat's Work Plan and Commission's decision, the Secretariat will coordinate the following:

- a. Conduct annual performance reviews of the Secretariat staff for 2020 fiscal year (April 2020-March 2021): staff performance review by Executive Secretary, a performance review of the Executive Secretary by the Commission; a 360-degree performance review for 2020 will be considered by Members as a supplementary evaluation of the Secretariat staff.
- b. Use contractual services to assist the Secretariat work for finance and administration
- c. Manage interns from Members for up to six-month period after consideration and approval by the Commission.

**Timeline for Commission's activities and budget estimate in 2021 financial year**

Activity	FY 2021												Budget (JPY)
	2021 Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2022 Jan	Feb	Mar	
Science													12 mil
Compliance													14 mil
Data													8.3 mil
Meetings*		CMSA04				PS07			SC06/SSCs	CMSA05; TCC06/FAC05/COM07 TBD			6.0 mil
Website													1.3mil
Cooperation		NPAFC					PICES		WCPFC				6.8 mil
Public													1 mil
Human													10 mil

\*Date and venue of the meeting will be decided by the Commission.

## COMMISSION BUDGETS 2021-2024

### ABSTRACT

The NPFC Secretariat submits this paper to report for the consideration of the Commission on a) income and expenditures for 2019 fiscal year, b) proposed 2021 and 2022 budgets and indicative budgets for 2023 and 2024 in accordance with the NPFC Convention and Financial Regulations, and c) Member contributions for 2021-2022.

During the 2019 fiscal year, total income recognized was JPY 157,321,403 and total expenses spent was JPY 132,806,804, leaving JPY 24,514,599 as the Commission surplus, which was mainly due to lower expenses on contractual services and science support as well as special project funds which have been carry forwarded for future NPFC projects.

The budget amount proposed for 2021 and 2022 is about JPY 157mil, the same as the 2020 budget.

The indicative budgets for 2023 and 2024 remain the same but will be reviewed annually to accommodate the needs of the Commission to obtain the objectives of the Convention.

### DETAILS

#### Objective:

Submit to the Commission the income and expenses tables for 2019, proposed budgets for 2021 and 2022, budget forecasts for 2023 and 2024, and calculation of contributions for 2021 and 2022 in accordance with the proposed budgets.

*Note:* The Budget is in Japanese Yen (JPY) as per the Financial Regulations Paragraph 4 and Convention Article 12. The accounting entries that arose in United States dollars are also recorded in Japanese Yen, applying daily exchange rates provided by the local bank hosting NPFC accounts in Tokyo. The financial year shall be the period from 1 April through 31 March of the following year.

**Introduction:****A. Statement of Income and Expenditures:**

From the 2019 Financial Statement (Auditor's Report, NPFC-2021-FAC04-IP01), the State of Income and Expenditure for the year ending 31 March 2020 (2019 fiscal year) is as follows:

**State of Income and Expenditure (General Fund) the Year ending 31 March 2020**

<b>Item</b>	<b>Actual 2019 (JPY)</b>	<b>Budget Appropriations 2019 (JPY)</b>
<b>Income</b>		
Members' Contributions	157,271,403	157,271,403
Miscellaneous Income	50,000	0
<b>Total Income</b>	<b>157,321,403</b>	<b>157,271,403</b>
<b>Expenditure</b>		
Personnel Costs	75,174,776	79,400,476
Other Service Costs	57,632,028	77,870,927
<b>Total Expenditure</b>	<b>132,806,804</b>	<b>157,271,403</b>
<b>Commission Surplus</b>	<b>24,514,599</b>	<b>0</b>

**Income**

Member contributions are a primary source of income of the Commission and shall be paid by 31 March 2020, the end date of the financial year 2019. Six of eight Members paid their full 2019 contributions before the deadline, and the other two Members paid their contributions on 01 May and 25 June 2020, respectively. There is no outstanding contribution unpaid by Members for the 2019 fiscal year.

Member contributions for the 2020 fiscal year have been notified to Members to consider them to pay until 31 March 2021. As of the reporting date, six of eight Members have paid their contributions.

**Status of Members' contributions for the 2019 fiscal year, JPY**

Member	Paid in 2019	Outstanding
Canada	8,444,754	0
China	44,140,360	0
Japan	44,000,000	0
Korea*	9,066,381	0
Russia	6,933,279	0
Chinese Taipei	28,487,446	0
USA*	9,376,145	0
Vanuatu	6,823,038	0
Total	157,271,403	0

\*paid after 31 March 2020

The total 2019 income recognized was JPY 157,321,403, with a miscellaneous income of JPY 50,000 from the local government of Shimonoseki, Japan, to support the meeting of Small Scientific Committee on Pacific saury held in Shimonoseki in November 2019.

***Expenses***

By the end of the fiscal year, JPY 132,806,804 had been spent, accounting for about 84.4% of the total income. The under-expenditure was mainly due to lower expenses on other service costs. Please refer to the budget table of Annex A for details of budgeted and actual expenditures for the 2019 fiscal year.

**1) Personnel Costs**

This budget category includes salaries, benefits, and allowances of all staff members. The amount charged to this category was JPY 75,174,776, representing expenditures of 94.7% to be equivalent to the appropriated budget. The lower expense was mainly due to the deposit of repatriation allowance to be paid to Secretariat staff on the separation of service in the near future.

**2) Other Service Costs**

This budget category includes general operational costs, of which data management, MCS costs, Science support, meeting costs, contractual services, and staff's duty travel are the main components of this category. The amount charged to this category was JPY 57,632,028, representing expenditures of 26.0% less than the appropriated budget. The lower expenditure was mainly due to the reduced cost of Science support and Meeting costs from the postponement of scientific meetings and reduced cost for Contractual Services due to the global COVID-19 pandemic.

In accordance with recommendations adopted by the FAC02, the Secretariat presents the consolidated overview of expenses of Other Service Costs for Science and Compliance incurred in 2019.

### **Consolidated expenses of Other Service Costs**

Other Service Costs	Expenditures*
Science	10,612,726
Compliance	19,571,712
Administration	20,098,216
Total	50,286,654

\*Expenses from Duty Travel, Contractual Services, Data Management, MCS Costs, Meeting Costs/Workshops, and Science Support were allocated to the relevant Committee considering the purpose.

### **Commission Surplus**

For the 2019 fiscal year, the Commission surplus was JPY 24,514,599, which was transferred to the Working Capital Fund, the Special Project Fund, and Repatriation Allowance in accordance with Financial Regulations and decisions adopted by the Commission.

### **Voluntary Contributions**

Following the NPFC Financial Regulations 26, NPFC can accept the voluntary contribution from Members and non-Members if it is consistent with the policies, aims, and activities of the Commission. The total income for 2019 was JPY 3,189,460, with voluntary contributions of JPY 2,167,100 (equivalent to USD 20,000) from China to support the Commission's activities, and JPY 1,022,360 carried over from 2018. Funded activities during 2019 expensed JPY 1,022,360, leaving JPY 2,167,100 of the balance as of 31 March 2020.

### **Status of Voluntary Contributions as of 31 March 2020**

Income	
Carried over from 2018	1,022,360
Contribution from China	2,167,100
Total income	3,189,460
Expenditures	
Total Expenditures	1,022,360
Fund balance	2,167,100

## **B. Proposed Budgets for 2021 and 2022, and Budget Forecasts for 2023 and 2024**

The overall amount of budget proposed for 2021 and 2022 is JPY 157,271,493 each, the same as the 2020 budget and remain unchanged from the indicative budgets considered by the Commission in 2019. The proposed budget reflects increased MCS costs to establish a regional VMS system, Science support to accommodate new projects, pension cost of the Professional staff to make it consistent with that of NPFC Staff Regulation and UN regulation, and the costs related to recruitment of new Secretariat staff to fill in the position of the recumbent staff who will leave in the near future. The increased costs and new projects to be determined by the Commission in February 2021, will be mainly covered by the savings from Contractual Services and Special Project Fund.

The proposed budget forecasts remain at a similar level for the years 2023 and 2024, but they will be reviewed annually with possible adjustment of operational and personnel expenses as the Commission grows and expands its work areas in science and compliance. Increased costs, if any, may be covered by the Working Capital Fund and Special Projects Fund, to which unspent funds from annual budgets have been transferred.

The budget is addressed in two parts: Personnel and Other Service Costs.

#### **Detailed notes:**

##### **Part 1 – Personnel Costs**

The main components of the Part 1 budget are to support the Secretariat staff currently being hired in two classes – as of December 2020 three professional staff and two general service staff - and includes expenses for staff salary, social security and insurance, staff allowances, training and education fee.

- The salary level presented here is to reflect a 3% increment from the previous year tentatively and shall be adjusted according to annual performance reviews to be concluded during June each year.
- Social Security & Insurance and Pension Costs include medical insurance, pension, group long term disability, employment insurance (local staff only), etc. The Commission shall pay two-thirds of the total contribution to the retirement fund and of the insurance premiums, up to the maximum percentage applying in the United Nations Secretariat from time to time of the total of the staff member's salary (Staff Regulations 8.1). Currently, General Service staff joins social security and insurance provided by local offices with a contribution of 19.4-20.2% of staff salary. For Professional staff, due to a small number of staff, it was difficult for them to join an international pension scheme offered globally, so contributions up to the maximum of 15.8% of staff salary (18.3-19.7% including medical insurance) will be made to a reserve fund held by the NPFC and payable to the employee when the employee leaves the Commission as recommended by Consultancy Report (NPFC-2018-FAC02-WP03) and consistent with UN regulation regarding pension.

- Home Leave covers travel expenses (economy class airfare only) to the staff member's home country for three internationally recruited staff members at two-year intervals.
- Expenses for the items Staff Allowances – 1) Repatriation, on separation from service, a staff member shall be entitled to repatriation allowance consistent with United Nations' practice, including economy class airfares and payment of removal costs. The proposed budget intends to save money to prepare for the future separation of staff and an unspent budget shall be carried over to the Working Capital Fund under the category of repatriation allowance. 2) Relocation, it is related to the costs for settling of new Secretariat staff, including airfare, moving expense and allowance.
- Expenses for the Accommodation subsidy were based on the actual costs incurred in 2020, with a possibility of increase if the contract is renewed at two-year intervals.
- Education fees support the education of three dependents of Professional staff in 2021.

## **Part 2 – Other Service Costs**

This is the operational component of the Commission, namely office administrative costs, contractual services, and key activity components, including: data management, MCS/compliance costs; those for scientific projects, data collection and analyses; costs of meetings and workshops in support of science and compliance activities; and duty travel.

- Office administration costs including equipment, supplies, printing, and communication, remained similar level to previous years and constant throughout the years.
- Contractual services cover the cost for hiring a professional rapporteur for Commission meetings (SC, TCC, FAC and Commission meetings cost). It also includes remuneration for a part-time consultant to help the Secretariat work for finance and administration, and interns to be hired for 2021.
- Database Management mainly covers management and upgrade of the website and human resources and administration system. It also includes tasks related to spatial management for VME and fisheries for priority species, e-reporting system, e-systems for VMS, Vessel Registry, and IUU fishing vessels.
- MCS costs include a three-year consultancy estimated at around JPY 33 mil from 2020 to 2023 to implement the NPFC VMS system and other compliance tools to stop IUU fishing. However, it is notable that there might be new projects proposed by the TCC meeting to be held immediately before the Commission meeting hence additional fund is proposed to come from the Special Project Fund.
- Meeting and workshop costs were based on average meeting costs for hosting NPFC meetings in 2019 including the Commission meeting, associated Subsidiary Body meetings and workshops. It also covers travel costs of the experts invited to attend NPFC meetings as approved by the Commission.
- Expenses for Science Support reflects a 5-year work plan and projects adopted by the Scientific Committee, including data management, stock assessments of priority species, VME taxa identification course, and other scientific activities as agreed by the Scientific Committee and its subsidiary bodies.

### **Working Capital Fund (WCF) and Special Project Fund (SPF)**

- Due to savings from the 2019 fiscal year, the current balance of the Working Capital Fund and Special Project Fund increased to JPY 119,796,128 and JPY 29,797,919, respectively.
- The excess of these funds shall be used for the expenses to conduct additional projects to be decided by the Commission and hiring additional staff to support Commission works.

### **c) Members' Contributions 2021-2022**

In accordance with Paragraph 12 of the NPFC Financial Regulations, Members' contributions are calculated by the following formula:

- (a) 35 percent of the budget shall be divided equally among members of the Commission.
- (b) 55 percent of the budget shall be divided proportionally among members of the Commission based on the three-year average, ending one year before the year of the annual dues, of the total catches by weight in the Convention Area of the species covered by the Convention; and
- (c) 10 percent of the budget shall be divided proportionally among members of the Commission based on each member's Gross Domestic Product (GDP) per capita.

<http://www.imf.org/external/pubs/ft/weo/2019/10/weodata/>

Members' Contributions for Part (b) of the formula were based on average catches for years 2017, 2018, and 2019 inclusive. Members' Contributions for 2022 shall be adjusted in 2021 according to 2020 catch reports. The assessed contributions of Members for the years 2021-2022 were attached as Annex B.

Attached for consideration are the following:

- |         |  |
|---------|--|
| Annex A | Budget with the first page being a summary of projected budget needs by categories, followed by the detailed budget format.        |
| Annex B | Table of Contributions for Members for 2021-2022 noting that Japan's contribution remains stable at JPY 44,000,000/year currently. |

## Budget 2021-2024 (Summary)

	Year 2019 adopted	Year 2019 Actual	Year 2020 Adopted	Year 2021 Proposed	Year 2022 Proposed	Year 2023 Estimated	Year 2024 Estimated
Staff Salary and Temporary Service	57,552,900	57,227,772	59,661,746	61,296,641	63,113,156	61,661,228	62,994,280
Personnel social security and benefits	18,976,305	15,536,424	19,216,305	24,615,305	28,502,875	27,002,875	25,502,875
Professional Development and education	2,871,271	2,410,580	4,000,000	4,000,000	2,500,000	4,000,000	4,000,000
Office costs	7,730,800	6,798,655	6,218,000	6,400,417	6,239,208	6,439,208	6,218,000
Science*	20,399,943	10,616,726	20,399,943	20,399,943	20,399,943	20,399,943	20,399,943
Compliance*	16,839,966	19,571,712	16,839,966	16,839,966	16,839,966	16,839,966	16,839,966
Administration*	26,806,131	20,098,216	23,311,331	22,770,411	19,019,131	19,970,411	20,470,411
Others	948,720	546,719	948,720	948,720	657,124	957,772	845,928
To/from Special Project Fund	5,145,367	0	6,675,392	0	0	0	0
<b>TOTAL</b>	<b>157,271,403</b>	<b>132,806,804</b>	<b>157,271,403</b>	<b>157,271,403</b>	<b>157,271,403</b>	<b>157,271,403</b>	<b>157,271,403</b>

\*Consolidated expenses for Science and Compliance by incorporating expenses from Duty Travel, Contractual Services, Data Management, MCS costs, Meeting Costs, and Science Support

## Budget 2021-2024 (Details)

	Year 2019 Adopted	Year 2019 Actual	Year 2020 Adopted	Year 2021 Proposed	Year 2022 Proposed	Year 2023 Estimated	Year 2024 Estimated
Items	Cost (JPY)	Cost (JPY)	Cost (JPY)	Cost (JPY)	Cost (JPY)	Cost (JPY)	Cost (JPY)
<b>1. PERSONNEL COSTS</b>							
1.1 Executive Secretary	18,122,493	18,122,493	18,122,493	18,666,168	19,226,153	16,480,000	16,480,000
1.2 Professional Category Position 1	12,946,164	12,946,164	13,593,470	14,001,274	14,421,312	14,853,952	15,299,570
1.3 Professional Category Position 2	12,701,892	12,701,892	13,209,970	13,606,269	14,014,457	14,434,891	14,867,938
1.4 General Services Category 1	6,860,547	6,860,547	7,066,365	7,278,356	7,496,707	7,721,608	7,953,256
1.5 General Services Category 2	6,596,676	6,596,676	6,794,577	6,998,414	7,208,367	7,424,618	7,647,356
1.6 General Services Category 3	-	-	-	-	-	-	-
1.7 Temporary Services	325,128	0	874,871	746,160	746,160	746,160	746,160
1.8 (a) Social Security & Insurance	8,000,000	7,152,301	8,240,000	11,639,000	11,988,170	11,988,170	11,988,170
1.8 (b) Pension Costs							
1.9 Overtime	768,545	488,392	768,545	768,545	768,545	768,545	768,545
1.10 (a) Staff Allowances - Home Leave	746,160	665,700	746,160	746,160	746,160	746,160	746,160
1.10 (b) Staff Allowances – Relocation	-	0	0	0	2000000	0	2,000,000
1.10 (C) Staff Allowances – Repatriation	2,000,000	0	2,000,000	4,000,000	5,000,000	5,000,000	2,000,000
1.10 (d) Staff Allowances - Accommodation Subsidy	7,461,600	7,230,031	7,461,600	7,461,600	8,000,000	8,500,000	8,000,000
1.11 Professional Development / Training	1,000,000	868,580	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
1.12 Education Fee	1,871,271	1,542,000	3,000,000	3,000,000	1,500,000	3,000,000	3,000,000
1.13 Separation Allowances	-	-	-	-	-	-	-
<b>2. OTHER SERVICE COSTS</b>							
2.1 Office Equipment & Furniture	4,000,000	3,872,456	2,487,200	2,487,200	2,487,200	2,687,200	2,487,200
2.2 Office Supplies	1,243,600	1,227,590	1,243,600	1,426,017	1,264,808	1,264,808	1,243,600
2.3 Rentals	-	-	-	-	-	-	-
2.4 Communications	994,880	651,429	994,880	994,880	994,880	994,880	994,880
2.5 Printing	1,492,320	1,047,180	1,492,320	1,492,320	1,492,320	1,492,320	1,492,320
2.6 Duty Travel	6,839,800	5,393,141	6,839,800	6,839,800	6,839,800	6,839,800	6,839,800
2.7 Auditing	870,520	870,520	870,520	870,520	870,520	870,520	870,520

2.8 Contractual Services	19,087,000	14,496,681	19,587,000	10,000,000	10,000,000	10,000,000	10,000,000
2.9 Database Management	8,300,000	8,113,092	8,300,000	8,300,000	8,300,000	8,300,000	8,300,000
2.10 MCS Costs	12,200,000	12,185,990	8,705,200	14,000,000	12,000,000	12,200,000	12,200,000
2.11 Meeting Costs & Workshops	6,000,000	4,077,007	6,000,000	6,000,000	6,000,000	6,000,000	6,000,000
2.12 Science Support	10,000,000	5,150,223	10,000,000	12,000,000	12,000,000	12,000,000	12,000,000
2.13 Staff Recruitment & Hiring	248,720	0	248,720	2,000,000	248,720	1,000,000	1,500,000
2.14 To / From Working Capital Fund	0	0	0	0	0	0	0
2.14 bis To/From Special Project Fund	5,645,367	0	6,675,392	0	0	0	0
2.15 Representation Expenses	248,720	216,173	248,720	248,720	248,720	248,720	248,720
2.16 Miscellaneous	700,000	330,546	700,000	700,000	408,404	709,052	597,208
<b>TOTAL</b>	<b>157,271,403</b>	<b>132,806,804</b>	<b>157,271,403</b>	<b>157,271,403</b>	<b>157,271,403</b>	<b>157,271,403</b>	<b>157,271,403</b>

**Explanations for budget items:**

*1.1-1.5 Staff Salary* Salary for five Secretariat Staff (ES, CM, SM, EA, DC)

*1.7 Temporary Services* Part-time clerical assistance for meeting preparation and other special events

*1.8 (a) Social Security + Insurance, and 1.8 (b) Pension Costs*

Group Pension, group medical insurance, group long term disability, employment insurance (local staff only), etc.

*1.9 Overtime*

Overtime work for General Service and Temporary Service categories. Professional Staff is not eligible to receive overtime pay.

*1.10 (a) Staff Allowances - Home leave*

Travel expenses (economy airfare only) to staff member's home country on annual leave for staff members and their dependents.

*1.10 (c) Staff Allowances – Repatriation*

Following Staff Regulations 10.4, on separation from service, a staff member shall be entitled to repatriation allowance consistent with United Nations' practice, including economy class airfares, payment of removal costs and allowance.

*1.10 (d) Accommodation subsidy*

The allowance is based on the actual contracts and set at a maximum of JPY 240,000 per month. The Commission shall reimburse 75% of actual expenses within the cap set above.

### *1.11 Professional Development / Training*

Includes language learning and other training for Secretariat staff to pursue capacity building.

### *1.12 Education fee*

The education allowance entitlement for Professional staff members is a maximum of JPY 2,000,000 per annum per dependent child. The Commission shall reimburse 75% of actual expenses within the cap set above.

### *2.1 Office equipment + Furniture*

Equipment and furniture costs for staff members and in case of its breakage.

### *2.2 Office supplies*

Includes general expenditures for the normal functioning of the Secretariat.

### *2.4 Communications*

Includes estimated costs of telephone, fax, internet, postage and courier services.

### *2.5 Printing*

Includes brochures, yearbook and other publications for meetings and public awareness.

### *2.6 Duty travel*

Based on actual cost in 2019. Includes travel expenses to attend Commission regular meetings and workshops, FAO, UN-BBNJ and other RFMO meetings approved by the Commission.

### *2.7 Auditing*

Hiring an external auditor.

### *2.8 Contractual services*

Hiring part-time specialists and consultants to assist in the Secretariat works for finance and administration; and for Special Projects to be developed by the Commission. Hiring of a professional rapporteur for Commission meetings. It also includes supporting at least two interns every year.

### *2.9 Database management*

Establishing the Commission's database management system. Database Management mainly covers management and upgrade of the website and human resources and administration system, and tasks related to managing and security of all data received from Members for Science and Compliance purposes.

### *2.10 MCS costs*

MCS costs for the NPFC VMS development through a three-year consultancy and other MCS tools for implementing CMMs for compliance.

### *2.11 Meeting costs & Workshops*

Based on average meeting costs for hosting NPFC meetings in 2019. Includes costs for holding Commission meetings, associated

Subsidiary Body meetings, and workshops. It also covers travel costs of the experts invited to attend NPFC meetings as approved by the Commission.

#### *2.12 Science Support*

Support science projects including data management system, stock assessments, workshops, observer program, external expert support and other scientific activities. It also supports travel costs for NPFC representatives to the PICES annual meeting.

#### *2.13 Staff recruitment + hiring*

Based on estimated costs associated with travel expenses of candidates for possible recruitment of Secretariat staff.

#### *2.14 Working Capital Fund*

It is suggested that the Working Capital Fund will be kept between JPY 40-50 mil to provide at least six months of NPFC normal functioning without any inputs. The unspent budget will be carried over to this category.

#### *2.14 bis Special Project Fund*

Established to support special projects both in science and compliance not covered by the general fund.

#### *2.15 Representation expenses*

Expenses for the hospitality of the Commission and Secretariat.

#### *2.16 Miscellaneous*

Expenses not covered elsewhere such as bank charges for domestic and international remittance.

## Members Annual contribution for 2021 and 2022

Member/Rule	a)	b)	c)	Fixed Contribution	Total	%
Canada	5,663,570	7,921	2,724,865		8,396,356	5.3
China	5,663,570	38,109,881	595,463		44,368,915	28.2
Korea	5,663,570	2,318,600	1,853,254		9,835,424	6.3
Russia	5,663,570	672,064	658,188		6,993,822	4.4
Chinese Taipei	5,663,570	20,307,620	1,463,937		27,435,127	17.4
USA	5,663,570	0	3,839,200		9,502,770	6.0
Vanuatu	5,663,570	883,186	192,234		6,738,989	4.3
Japan				44,000,000	44,000,000	28.0
<b>Total</b>	<b>39,644,991</b>	<b>62,299,272</b>	<b>11,327,140</b>	<b>44,000,000</b>	<b>157,271,403</b>	<b>100</b>

a) 35 % of the budget shall be divided equally among members of the Commission except Japan.

b) 55 % of the budget shall be divided proportionally among members of the Commission based on the three-year average, 2017-2019, of the total catches by weight in the Convention Area of the species covered by the Convention; and

c) 10 % of the budget shall be divided proportionally among members of the Commission based on each member's Gross Domestic Product (GDP) per capita in 2019. Members' Contributions for 2022 shall be adjusted in 2021 according to 2020 catch reports.

**PROPOSED AMENDMENTS TO STAFF REGULATIONS  
REGULATION 7  
LEAVE**

**Abstract:**

This Working Paper is to propose amendments to Regulation 7. Leave of Staff Regulations to align with that of local labor regulations.

**Background**

Regulation 7 of the Staff Regulations addresses types of leave for the Secretariat staff to entertain during employment as a staff benefit, including annual leave, sick leave, family leave, and home leave. However, the Regulation does not reflect the local labor environment's current situation with regard to family-related leave such as childcare and nursing care leaves in terms of the range of coverage and leave duration. In this regard, the Secretariat was requested by the Tokyo Labor Bureau in Tokyo to reflect those leaves in the NPFC Staff Regulations which were noted to be lacking such standard welfare system for local workers in Japan in support of their family members (email communication to Heads of Delegations dated 18 September 2020). The Secretariat consulted with the host Member, Japan, on how to respond to this request and proposed to take this issue to FAC04 meeting for consideration by Members, noting that The Agreement between the Government of Japan and the North Pacific Fisheries Commission regarding the Privileges and Immunities of the North Pacific Fisheries Commission that came into effect in 2017 stipulated cooperation with the host Member in the Article 16. Cooperation saying “*1. The Commission shall cooperate at all times with the appropriate authorities of Japan in order to facilitate the proper administration of justice at all times,... labor inspection and other similar legislation...*”. Following the Bureau's suggestions, the Secretariat, in cooperation with the host Member, has drafted this paper to propose amendments to Staff Regulations to align with local labor regulations on childcare and nursing care leaves.

**Proposed Amendments to Regulation 7**

The proposal is to amend the wording of Regulations 7.8, 7.9, and 7.10 to the following:

7.8 Staff members shall be granted certified sick leave not exceeding 12 months in any 4

consecutive years. The first 6 months shall be on full salary and the second 6 months on half salary, except that no more than 4 months on full salary shall normally be granted in any period of 12 consecutive months. Staff members can take the leave on a daily or an hourly basis.

7.9 Staff members shall be entitled to nursing-care leave not exceeding 93 days per one eligible family members which can be divided up to three times. The leave may be used to care for a staff member's spouse including common-law marriages, child, parent, spouse's parent, grandparent, grandchild or sibling with a serious health condition. Staff members can take the leave on a daily or an hourly basis.

7.10 Staff members shall be entitled up to twelve months of family leave per calendar year for (a) the birth of a child and to care for the newborn child within one year of birth; or (b) the placement with the employee of a child for adoption or foster care and to care for the newly placed child within one year of placement. During this period, staff members shall receive twelve weeks of salary.

## NPFC IUU VESSEL LIST FOR 2021

Commission Members adopted the attached NPFC IUU List at the Sixth Commission Meeting concluded on 25 February 2021.

No.	a. Name of vessel (previous names)	b. Flag of vessel (previous flags)	c. Owner (previous owners)	d. Operator of vessel (previous operators)	e. Call sign of vessel (previous call signs)	f. Lloyds/IMO number	h. Date first included on NPFC IUU List	i. Summary of activities
1	LIAO YUAN YU 071	Unknown	Not known	Not known	Not known	Not known	29 Aug. 2017	It was seen at 42°15.4'N, 153°22.8'E on 23 Aug 2016. When the Japanese patrol vessel approached, a vessel crew tried to hide the vessel name. Communication between the Japanese patrol vessel and LIAO YUAN YU 071 indicated that they hid the vessel name because they didn't want to be caught. (Port displayed on the vessel: Shidao; Vessel type; Lighted lift net vessel; Tonnage: 800t)
<b>g. Photographs</b>								
								

2	LIAO YUAN YU 072	Unknown	Not known	Not known	Not known	Not known	29 Aug. 2017	It was seen at 42°18.7'N, 153°27.9'E on 23 Aug and at 42°9.2'N, 151°16.4'E on 11 Oct 2016. Vessel name was hidden by paint. (Port displayed on the vessel: Shidao; Vessel type; Lighted lift net vessel; Tonnage: 800t)
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**g. Photographs**



3	LIAO YUAN YU 9	Unknown	Not known	Not known	Not known	Not known	29 Aug. 2017	It was seen at 42°3.0'N, 153°0.8'E on 23 Aug and at 42°10.0'N, 151°16.8'E on 11 Oct 2016. Vessel name was hidden by paint. (Port displayed on the vessel: Shidao; Vessel type; Lighted lift net vessel; Tonnage: 800t)
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**g. Photographs**



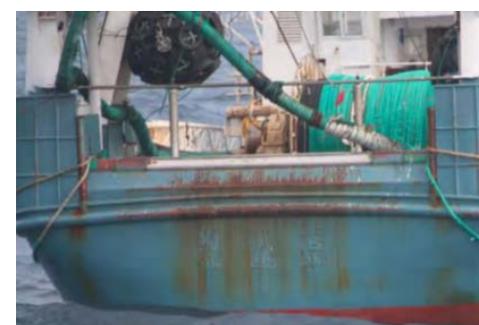
4	ZHOU YU 651	Unknown	Not known	Not known	Not known	Not known	29 Aug. 2017	It was seen at 42°30'2N, 152°05'4E on 29 Sep 2016. (Port displayed on the vessel: Fungcheng; Vessel type; Lighted lift net vessel; Tonnage: 850t)
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**g. Photographs**



5	ZHOU YU 652	Unknown	Not known	Not known	Not known	Not known	29 Aug. 2017	It was seen at 42°48.9'N, 152°48.2'E on 7 Sep 2016. Port of registry was hidden by paint. (Vessel type; Lighted lift net vessel; Tonnage: 820t). MMSI: 412569986
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**g. Photographs**



6	ZHOU YU 653	Unknown	Not known	Not known	Not known	Not known	29 Aug. 2017	<p>It was seen with LU RONG YU YUN 56219 and ZHOU YU 656 at 42°11.9'N, 151°14.6'E on 30 Sep 2016. (Port displayed on the vessel: Fungcheng; Vessel type; Lighted lift net vessel; Tonnage: 850t)</p> <p>Communication between Japanese patrol vessel and LU RONG YU YUN 56219 indicated ZHOU YU 653 were transshipping 1500t of mackerel together with ZHOU YU 656.</p>
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**g. Photographs**



7	ZHOU YU 656	Unknown	Not known	Not known	Not known	Not known	29 Aug. 2017	<p>It was seen with LU RONG YU YUN 56219 and ZHOU YU 656 at 42°11.9'N, 151°14.6'E on 30 Sep 2016. (Port displayed on the vessel: Fungcheng; Vessel type; Lighted lift net vessel; Tonnage: 850t)  Note that the same vessel name with the different port of registry (Zhoushan) (600t) has been seen in the similar area.</p> <p>Communication between Japanese patrol vessel and LU RONG YU YUN 56219 indicated ZHOU YU 656 were transshipping 1500t of mackerel together with ZHOU YU 653. MMSI: 100900240 412440242</p>
<b>g. Photographs (No Photographs Available)</b>								

8	ZHOU YU 657	Unknown	Not known	Not known	Not known	Not known	29 Aug. 2017	It was seen at 42°35.5'N, 152°6.7'E on 12 Sep 2016. (Port displayed on the vessel: Zhoushan; Vessel type; Lighted lift net vessel; Tonnage: 600t)
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**g. Photographs**



9	ZHOU YU 658	Unknown	Not known	Not known	Not known	Not known	29 Aug. 2017	It was seen at 40°12.3'N, 148°40.5'E on 29 May 2016 and at 42°46.7'N, 152°41.2'E on 7 Sep 2016. (Port displayed on the vessel: Zhoushan; Vesseltype; Lighted lift net vessel; Tonnage: 600t)
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**g. Photographs**



10	ZHOU YU 659	Unknown	Not known	Not known	Not known	Not known	29 Aug. 2017	It was seen in the NPFC area on 2, 4, 13, 17 Jun and 7 Sep 2016. On 4 Jun the vessel name on the right side was hidden by paint. (Port displayed on the vessel: Zhoushan; Vessel type: Lighted lift net vessel; Tonnage: 600t)
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**g. Photographs**



11	ZHOU YU 660	Unknown	Not known	Not known	Not known	Not known	29 Aug. 2017	It was seen in the Japanese EEZ on 10 May 2016 and in NPFC area multiple times from May to Sep 2016. On 10 May the vessel showed Korean flag but changed the Korean to Japanese flag when the Japanese patrol vessel approached. Vessel name changed between 15 May and 12 Sep 2016 (see the photos). The vessel is not permitted in Japan nor registered in NPFC. (Port displayed on the vessel: Basuo-not apparent; Vessel type: Lightedlift net vessel; Tonnage: 600t)
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**g. Photographs**



12	ZHOU YU 661	Unknown	Not known	Not known	Not known	Not known	29 Aug. 2017	It was seen in the Japanese EEZ on 10 and 13 May 2016 and in NPFC area on 15, 29 May and 7 Sep 2016. The vessel names on the left and right side changed frequently (see the photos). The vessel showed Japanese flag in May. But the vessel is not permitted in Japan nor registered in NPFC. (Port displayed on the vessel: Shidao; Vessel type: Lighted lift net vessel; Tonnage: 600t)
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**g. Photographs**



13	HAI DA 705	Unknown	Not known	Not known	Not known	Not known	29 Aug. 2017	Communications between Japanese Patrol vessel and HAI DA705 at 43°10.4'N, 153°38.6'E on 11 Sep 2016 indicated they caught squid with drift net in the high sea. (Port displayed on the vessel: 沈家们; Vessel type: Drift net vessel; Tonnage: 290t)
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**g. Photographs**



14	LU RONG YU 1189	Unknown	Not known	Not known	Not known	Not known	29 Aug. 2017	It was seen at 41°24.9'N, 140°32.7'E (Japan EEZ) on 14 Jun 2016. (Port displayed on the vessel: Shidao; Vessel type: Carrier vessel; Tonnage: 100t) MMSI: 412321992
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**g. Photographs**



15	ZHE LING YU LENG 90055	Unknown	Not known	Not known	Not known	Not known	29 Aug. 2017	It was seen at 40°25.3'N, 149°13.2'E on 29 May 2016. (Port displayed on the vessel: Wenling; Vessel type: Carrier vessel; Tonnage: 600t) MMSI: 412000000 413202046
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**g. Photographs**



16	ZHE LING YU LENG 905	Unknown	Not known	Not known	Not known	Not known	29 Aug. 2017	It was seen at 42°45.6'N, 152°45.8'E on 24 Aug 2016. (Port displayed on the vessel: Wenling; Vessel type: Carrier vessel; Tonnage: 1000t) MMSI: 412000000 412000256
<b>g. Photographs (No Photographs Available)</b>								

17	LU RONG YUAN YU 101	unknown	Not known	Not known	Not known	Not known	13 Nov. 2017	While LU RONG YUAN YU 101 is registered as a light PS vessel in the NPFC list, the identical name with different vessel types were seen. LU RONG YUAN YU 101 with lift net type was seen at 49°9.2'N, 149°19.5'E on 17 May 2016. LU RONG YUAN YU 101 with stern-trawl type was seen at 38°0.2'N, 145°58.5'E on 20 May 2016. (Port displayed on the vessel: Shidao; Vessel type: Stern Trawl/Light lift net vessel; Tonnage: 800t/651t) MMSI: Lift Netter 656558842 Trawler 412328753
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**g. Photographs**



18	LU RONG YUAN YU 102	unknown	Not known	Not known	Not known	Not known	13 Nov. 2017	<p>While LU RONG YUAN YU 102 is registered as one light PS vessel in the NPFC list, the identical name with different vessel types were seen. LU RONG YUAN YU 102 with lift net type was seen at 42°21.3'N, 151°55.5'E on 11 Oct 2016. LU RONG YUAN YU 102 with stern-trawl type was seen at 42°7.3'N, 151°13.8'E on the same day. LU RONG YUAN YU 102 was also seen with a carrier vessel "MIN FU DING YU LENG 08888" at 42°22.2'N, 151°19.6'E on 12 Oct 2016. (Port displayed on the vessel: Shidao; Vessel type: Stern Trawl/Light lift net vessel; Tonnage: 800t/651t) MMSI: Trawler 412328752; Lift Net 413228752</p>
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**g. Photographs**



19	LU RONG YUAN YU 103	unknown	Not known	Not known	Not known	Not known	13 Nov. 2017	While LU RONG YUAN YU 103 is registered as one light PS vessel in the NPFC list, the identical name with different vessel types were seen. LU RONG YUAN YU 103 with lift net type was seen at 40°25.9'N, 150°9.9'E on 1 June 2016. LU RONG YUAN YU 103 with stern-trawl type was seen at 37°59.9'N, 145°58.5'E on 20 May 2016. (Port displayed on the vessel: Shidao; Vessel type: Stern Trawl/Light lift net vessel; Tonnage: 651t/651t) MMSI: Lift Net & Trawler 412328751
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**g. Photographs**



20	LU RONG YUAN YU 105	unknown	Not known	Not known	Not known	Not known	13 Nov. 2017	While LU RONG YUAN YU 105 is registered as one light PS vessel in the NPFC list, the identical name with different vessel types were seen. LU RONG YUAN YU 105 with lift net type was seen at 42°27'N, 152° 5.8'E on 11 Oct 2016. LU RONG YUAN YU 105 with stern-trawl type was seen at 41°54.8'N, 151°17.4'E on 5 Sep 2016. (Port displayed on the vessel: Shidao; Vessel type: Stern Trawl/Light lift net vessel; Tonnage: 651t/651t) MMSI: Lift Netter 926001560 412428757 Trawler 412328749
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**g. Photographs**



21	LU RONG YUAN YU 106	Unknown	Not known	Not known	Not known	Not known	13 Nov. 2017	<p>While LU RONG YUAN YU 106 is registered as one light PS vessel in the NPFC list, the identical name with different vessel types were seen. LU RONG YUAN YU 106 with lift net type was seen at 40°30.4'N, 149°34'E on 29 May 2016. LU RONG YUAN YU 106 with stern-trawl type was seen at 40°17.6'N, 148°33'E on the same day. The two fishing vessels with duplicate names "LU RONG YUAN YU 106" were seen transshipping with a carrier vessel "MIN FU DING YU LENG 08888" at 42°16.4'N, 151°21.4'E on 8 Oct 2016 (see the last photo). (Port displayed on the vessel: Shidao; Vessel type: Stern Trawl/Light lift net vessel; Tonnage: 651t/651t) MMSI: Lift Netter 412328748 Trawler 412328748</p>
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**g. Photographs**



22	LU RONG YUAN YU 108	Unknown	Not known	Not known	Not known	Not known	13 Nov. 2017	While LU RONG YUAN YU 108 is registered as one light PS vessel in the NPFC list, the identical name with different vessel types were seen. LU RONG YUAN YU 108 with lift net type was seen at 40°28.4'N, 149°28.1'E on 29 May 2016. LU RONG YUAN YU 108 with stern-trawl type was seen at 40°18.6'N, 148°30.7'E on the same day. (Port displayed on the vessel: Shidao; Vessel type: Stern Trawl/Light lift net vessel; Tonnage: 651t/651t) MMSI: Trawler 800024754 Lift Netter 412443265 412328746 800025754
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**g. Photographs**



23	LU RONG YUAN YU 109	Unknown	Not known	Not known	Not known	Not known	13 Nov. 2017	While LU RONG YUAN YU 109 is registered as one light PS vessel in the NPFC list, the identical name with different vessel types were seen. LU RONG YUAN YU 109 with lift net type was seen at 40°25.1'N, 149°25 'E on 29 May 2016. LU RONG YUAN YU 109 with stern-trawl type was seen at 40°16.4'N, 148°32.1'E on the same day. (Port displayed on the vessel: Shidao; Vessel type: Stern Trawl/Light lift net vessel; Tonnage: 651t/651t) MMSI: Trawler 412328745 800025747 Lift Netter 412328745
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**g. Photographs**



24.	LU RONG●YU 612	Unknown	Not known	Not known	Not known	Not known	19 Aug 2018	<p>A Japanese patrol vessel sighted this fishing vessel was drifting in the Convention area at 39°50.00'N, 147°1.8'E on July 21.</p> <p>The port of registry is Shidao and AIS information showed that the vessel name is “Lu Long Yuan Yu 108”, which is on the current IUU vessel list and is different from the name shown on the vessel side, and that MMSI is 412328746.</p> <p>The tonnage 651 t was derived from the information of “Lu Long Yuan Yu 108” in the current IUU vessel list.</p> <p>Ref: NPFC-2018-TCC03-WP04</p>
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**g. Photographs**



25.	LU RONG YUAN YU 787	Unknown	Not known	Not known	Not known	Not known	19 Aug 2018	<p>A Japanese patrol vessel sighted this fishing vessel was drifting in the Convention area at 39°49.7'N, 147°2.8'E on July 21 2017, and Japanese patrol aircraft sighted the same vessel anchored at 41°3.3'N, 150°22.1'E on August 2 2017. The China flag was raised and the sign of "CHINA" was painted on the vessel side (see the photos). MMSI is 413800814 and the port of registry is Shidao. Ref: NPFC-2018-TCC03-WP04</p>
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**g. Photographs**



26.	LU RONG YUAN YU YUN 958	Unknown	Not known	Not known	Not known	Not known	19 Aug 2018	A Japanese patrol fishing vessel sighted this fishing vessel was drifting in the Convention area at 39°50.9'N, 147°4.3'E on July 21. The vessel raised China flag and the port of registry was Shidao. AIS information showed that the vessel name is 958 and MMSI is 412452812. Ref: NPFC-2018-TCC03-WP04
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**g. Photographs**



27.	LU RONG YUAN YU 797	Unknown	Not known	Not known	Not known	Not known	19 Aug 2018	A Japanese patrol aircraft sighted this fishing vessel in the Convention area was operating at 42°7.1'N, 151°40.9'E on July 7 2017. China flag was raised and "CHINA" was painted on the vessel side (see the photo). MMSI is 412327980. Ref: NPFC-2018-TCC03-WP04
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**g. Photographs**



No.	a. Name of vessel (previous names)	b. Flag of vessel (previous flags)	c. Owner (previous owners)	d. Operator of vessel (previous operators)	e. Call sign of vessel (previous call signs)	f. Lloyds/IMO number	h. Date first included on NPFC IUU List	i. CMM & para of violation	j. Summary of activities
28	LU RONG SHUI 158 (鲁荣水158)	Unknown	Not known	Not known	Not known	Not known		CMM 2017-02 para 3. a	A Japanese patrol vessel sighted this fishing vessel in the Convention area at 39°59.2'N, 147°39.7'E on July 7, 2018. There is no vessel registration of this vessel on the NPFC vessel register. MMSI 412688540

**g. Photographs**



29	Unknown(*)	Unknown – raised flag of China	Not known	Not known	Not known	Not known		CMM 2017-02 para 3. a	A Japanese trawl vessel sighted this fishing vessel indicating its vessel name “ZHOU YU 808” MMSI 412671880, in the Koko seamount area of Convention area at 36°44'N, 171°27'E on August 29, 2018, allegedly conducted fishing for deep sea coral. There was a duly registered vessel with the same name “ZHOU YU 808” on the NPFC vessel registry, but it is confirmed that the sighted vessel is not the duly licensed one.
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**g. Photographs**



**Associated Documents**

Circular 030-2018 (<https://www.npfc.int/system/files/2018-11/Circular%20030-2018%20Sighting%20Information%20of%20Fishing%20Vessels%20without%20Nationality.pdf>)  
 Japanese Document (<https://www.npfc.int/system/files/2018-11/Sighting%20infomation%20from%20Japan.pdf>)

(\*) This vessel indicated its name as “ Zhou Yu 808 (舟漁 808)” when sighted.

30	Unknown (*)	Unknown – raised flag of China	Not known	Not known	Not known	Not known		CMM 2017-02 para 3. a	A Japanese trawl vessel sighted this fishing vessel indicating its vessel name “ZHOU YU 809” MMSI 412401260, in the Koko seamount area of Convention area at 36°44'N, 171°27'E on August 29, 2018, allegedly conducted fishing for deep sea coral. There was a duly registered vessel with the same name “ZHOU YU 809” on the NPFC vessel registry, but it is confirmed that the sighted vessel is not the duly licensed one.
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**g. Photographs**



**Associated Documents**

Circular 030-2018 (<https://www.npfc.int/system/files/2018-11/Circular%20030-2018%20Sighting%20Information%20of%20Fishing%20Vessels%20without%20Nationality.pdf>)  
 Japanese Document (<https://www.npfc.int/system/files/2018-11/Sighting%20infomation%20from%20Japan.pdf>)

(\*) This vessel indicated its name as “ZHOU YU 809 (舟漁809)” when sighted.

31	YUANDA 6 (Assumed from MMSI number)	Unknown – raised flag of China	Not known	Not known	Not known	Not known		CMM 2017-02 para 3. a	A Japanese patrol vessel sighted this vessel conducting fishing operation in the Convention area at 25°45'9N, 147°07'06E on April 15, 2019. This nameless vessel (assumed “YUANDA6” from the vessel’s NMSI) was operating and running away when the Japanese patrol vessel approached.
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**g. Photographs**



32	YUANDA 8 (Assumed from MMSI number)	Unknown – raised flag of China	Not known	Not known	Not known	Not known		CMM 2017-02 para 3. a	A Japanese patrol vessel sighted this fishing vessel conducting fishing operation in the Convention area at 25°46'02N, 147°07'08E on April 15, 2019. This nameless vessel (assumed “YUANDA8” from the vessel’s NMSI) was operating and running away when the Japanese patrol vessel approached .
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**g. Photographs**



33	ZHEXIANG YU 23029	Unknown – raised flag of China	Not known	Not known	Not known	Not known		CMM 2017-02 para 3. a	A Japanese patrol vessel sighted this fishing vessel in the Convention area at 25°42'03N, 147°11'02E on April 15, 2019. This vessel apparently had just finished as the gear was wet. the vessel name, which was not registered on the NPFC vessel registry, was erased deliberately.
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**g. Photographs**



No.	a. Name of vessel (previous names)	b. Flag of vessel (previous flags)	c. Owner (previous owners)	d. Operator of vessel (previous operators)	e. Call sign of vessel (previous call signs)	f. Lloyds/IMO number	h. Date first included on NPFC IUU List	i. CMM & para of violation	j. Summary of activities
34	Unknown	No Nationality						CMM2019-01(para5)	A Japanese patrol vessel sighted this fishing vessel displaying the name LU RONGYUAN YU 581 鲁荣远渔 581 in the Convention area at 41°11.6'N, 174°17.7'W on July 15, 2020. This vessel was fishing under the name of a legally authorized vessels which was not in the Convention Area, consequently this vessel was conducting IUU fishing and did not display an IRCS.

**g. Photographs** - Photos taken at 10:15 on July 15, 2020



**Associated Documents**

No.	a. Name of vessel (previous names)	b. Flag of vessel (previous flags)	c. Owner (previous owners)	d. Operator of vessel (previous operators)	e. Call sign of vessel (previous call signs)	f. Lloyds/IMO number	h. Date first included on NPFC IUU List	i. CMM & para of violation	j. Summary of activities
35	Unknown	No Nationality						CMM2019-01(para5)	<p>A Japanese patrol vessel sighted this fishing vessel displaying the name LU RONG YUAN YU 582 鲁荣远渔 582 in the Convention area at 41°11.4'N, 174°22.9'W on July 15, 2020.</p> <p>This vessel was fishing under the name of a legally authorized vessels which was not in the Convention Area, consequently this vessel was conducting IUU fishing and did not display an IRCS.</p>

**g. Photographs** - Photos taken at 10:46 on July 15, 2020



**Associated Documents**

No.	a. Name of vessel (previous names)	b. Flag of vessel (previous flags)	c. Owner (previous owners)	d. Operator of vessel (previous operators)	e. Call sign of vessel (previous call signs)	f. Lloyds/IMO number	h. Date first included on NPFC IUU List	i. CMM & para of violation	j. Summary of activities
36	Unknown	No Nationality						CMM2019-01(para5)	<p>A Japanese patrol vessel sighted this fishing vessel displaying the name LU RONG YUAN YU 197 鲁荣远渔 197 in the Convention area at 41°11.3'N, 174°20.3'W on July 15, 2020.</p> <p>This vessel was fishing under the name of a legally authorized vessels which was not in the Convention Area, consequently this vessel was conducting IUU fishing and did not display an IRCS.</p>

**g. Photographs** - Photos taken at 11:14 on July 15, 2020



**Associated Documents**

## NPFC Data-Sharing and Data-Security Protocol for Vessel Monitoring System (VMS) Data

### *Definitions*

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1. For the purpose of this Protocol, unless specifically defined herein, words and terms have the same meaning as in the Convention on the Conservation and Management of High Seas Fisheries Resources in the North Pacific Ocean (Convention) and any conservation and management measures (CMMs) adopted by the North Pacific Fisheries Commission (Commission or NPFC), including in particular the CMM on the Vessel Monitoring System (VMS).
  - a) “Confidential” refers to non-public domain data and information held by Commission Members, the Secretariat, and by service providers contracted by the Commission, or contractors acting on their behalf, that is to be kept private, and shall not be accessed, released or disclosed unless such access, release or disclosure is for the purposes described in, and authorized by, this Protocol;
  - b) “Scientific purposes” may include estimating distribution of fishing effort for use in the Commission’s research activities; planning for and implementing tagging programmes; 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.

### *Purpose*

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2. The purpose of this Protocol is to implement Article 16, paragraph 4 of the Convention, which states, “The Commission shall establish rules to ensure the security of, access to and dissemination of data, including data reported via real-time satellite position-fixing transmitters, while maintaining confidentiality where appropriate and taking due account of the domestic practices and domestic laws of members of the Commission.”

### *Scope of Application*

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3. This Protocol applies to VMS data transmitted to, received by, stored, and, used by the Secretariat, the Commission and its Members, and authorized contractors, from authorized NPFC vessels in the Convention Area.

### *General Provisions*

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#### *Accountability and Control System*

4. All VMS data shall be considered confidential.
5. It is the responsibility of each Commission Member, and the Secretariat, to take all necessary measures to comply with this Protocol when transmitting and receiving VMS data.
6. Prior to accessing VMS data, authorized contractors shall be informed that VMS data is confidential and shall sign the Confidentiality Agreement (attached as Appendix 1) stipulating that they have been informed that the VMS data is confidential and that they have reviewed, are familiar with, and agree to the procedures to protect confidential VMS data set forth in the Confidentiality Agreement.
7. Where VMS data is transmitted by the Secretariat, with the approval of the Commission, to a party not already authorized to receive VMS data in accordance with this protocol, the Secretariat shall remain responsible for such data. The third party must receive written authorization from Secretariat to receive VMS data and shall be required to sign the Confidentiality Agreement (attached as Appendix 1). Breach of the Confidentiality Agreement constitutes breach of this Protocol, and will result in access to confidential VMS data being revoked, until corrective actions deemed appropriate by the Commission and the Secretariat have been taken. The third party will maintain the data provided to it in a manner no less stringent than the security standards established by the Commission.
8. The Executive Secretary will report to the Commission annually on the compliance with this Protocol, including any breach thereof.

### *Data Purposes*

9. All VMS data collection, access, storage, use, and dissemination shall only be undertaken for the purposes of monitoring, control, and surveillance in the Convention Area, supporting search and rescue operations, and fulfilling the functions of the Commission, as established in Article 7(1) and (2) of the Convention, including scientific purposes as defined above, and subject to any additional relevant regulations, protocols, CMMs or policies approved by the Commission.

### *Safeguards*

10. All authorized personnel having access to VMS data are prohibited from unauthorized use or disclosure of such data.
11. All VMS data shall be protected against loss or theft, as well as unauthorized access, dissemination, copying, use, or modification, by security safeguards, in accordance with the Data Retention and Security Section of this Protocol.

### *Data Access and Use*

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12. VMS data should only be accessed and/or used by authorized personnel in the Secretariat, authorized MCS entities and personnel, and authorized contractors, for the identified purposes in this Protocol or for other purposes identified by the Commission.
13. The Secretariat shall not make VMS data available to a Member where the Commission has established that the Member has not complied with this Protocol, or the CMM for VMS.

### *Use for Inspection Presence in Convention Area*

14. For a Member who has an Inspection Presence in the Convention Area, VMS data shall be made available electronically in accordance with the following provisions:
  - a) Each Member shall identify a point of contact for VMS data;
  - b) Each Member who has an Inspection Presence in the Convention Area shall provide the Secretariat with the geographic area (in multiples of 10 degrees latitude and longitude with a north and south latitude boundary and an east and west longitude boundary) of the planned boarding and inspection MCS activities at least 72 hours in advance, when practicable;

- c) Without prejudice and pursuant to CMM 2017-09, and following the notification process outlined above, the Secretariat shall make VMS data available electronically for the area defined in paragraph 14 b) as it is received, to each Member who has an Inspection Presence in the Convention Area. The provisions of this paragraph shall expire at the end of the next scheduled Commission meeting.
  - d) Each Member who has an Inspection Presence in the Convention Area shall only make VMS data available to authorities or inspectors, as defined in the CMM for High Seas Boarding and Inspection Procedures for the North Pacific Fisheries Commission (NPFC) responsible for fisheries monitoring, control, and surveillance activities in the Convention Area unless the data is being used in an investigation, or a judicial, or administrative proceeding, and subject to any relevant domestic laws and policies, and has requested VMS data in support of HSBI/MCS activities.
- 15.** Where the fishing vessel to which the VMS data pertains has been involved in an alleged violation of a CMM, the Convention, or domestic laws or regulations, the VMS data pertaining to the alleged violation may be retained, and the Secretariat will be notified, by Members who have an inspection presence in the Convention Area until appropriate proceedings, including investigations, and judicial or administrative proceedings, have concluded.
- 16.** Should no VMS data be retained pursuant to paragraph 15, each Member who has an Inspection Presence in the Convention Area shall delete all VMS data received from the Secretariat within seven days following the completion of monitoring, control, and surveillance activities in the Convention Area. The Member shall also submit a written confirmation to the Secretariat of the deletion of the VMS data within seven working days following the completion of monitoring, control, and surveillance activities.

*Use for Search and Rescue Operations*

- 17.** For the purpose of supporting search and rescue operations by a Commission Member, the Secretariat shall make VMS data available upon request from a Member.

## *Data Retention and Security*

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### *Data Retention*

- 18.** All VMS data transmitted to the Secretariat in accordance with the Convention and CMMs shall be retained by the Secretariat.
- 19.** Each Commission Member shall retain VMS data for fishing vessels flying its flag for at least one year.

### *Data Security*

- 20.** Each Commission Member and the Executive Secretary shall ensure the security of VMS data in their respective electronic data processing facilities, particularly where the use of VMS data involves transmission over a network.
- 21.** Security measures must be appropriate to the level of risk posed by the transmission, processing, and storage of VMS data. At a minimum, the following security requirements must be implemented prior to transmitting or receiving VMS data:
  - a)** The Executive Secretary shall ensure that regional system access to VMS data under its control is protected such that all data that enters the system is securely stored and will not be accessed by or tampered with from unauthorized individuals by implementing, at minimum, the following measures:
    - i.** physical access to the computer system which transmits, uses, and stores VMS data is controlled;
    - ii.** each user of the system is assigned a unique identification and associated password, and each time the user logs on to the system, he or she must provide the correct password;
    - iii.** user access shall be audited annually for analysis and detection of security breaches; and
    - iv.** each user shall be given access only to the data necessary for his or her task.

- b)** Data exchange protocols for electronic transmission of VMS data between Commission Members and the Secretariat shall be duly tested by the Secretariat and periodically reviewed by the Commission. Electronic transmission is subject to security procedures established in this Protocol.
- c)** Appropriate encryption protocols duly tested by the Secretariat and periodically reviewed by the Commission shall be applied by authorized contractors, including the use of cryptographic techniques to ensure confidentiality and authenticity.
- d)** Security procedures shall be designed by authorized contractors addressing access to the system hardware and software, system administration and maintenance, backup, and general usage of the system. Each Commission Member, and the Executive Secretary, shall ensure proper maintenance of system security and restrict access to the system accordingly. Each Commission Member shall liaise with the Secretariat in order to identify and resolve any security breaches or issues.

APPENDIX 1

**Confidentiality Agreement  
For Accessing North Pacific Fisheries Commission (NPFC) Confidential Vessel Monitoring  
System (VMS) Data**

Applicant Name, contact information, and signature:

<b>Full Name</b>	<b>Agency/Organization, Address, Email, and Phone</b>	<b>Signature and Date</b>

In return for the NPFC Secretariat granting me access to confidential NPFC VMS data, I hereby make the following declarations and promises:

1. I am (check the appropriate box):
  - a.  a contractor employed by the NPFC, or one of its Members, whose official duties require access to confidential VMS data.
  - b.  an employee of an organization, which the NPFC Secretariat has authorized in writing to receive confidential VMS data.
  
2. I am requesting access to confidential NPFC VMS data:
  - a. for the following purposes (provide a detailed explanation, attaching an additional sheet if necessary):
  - b. on behalf of the following organization: \_\_\_\_\_.

3. I have read and understood the NPFC Data-Sharing and Data-Security Protocols for Vessel Monitoring System (VMS) Data (“Protocols”). I understand that the VMS data I am requesting are confidential, as defined in the Protocols. I agree to abide by the provisions of the Protocols that address protecting and safeguarding confidential VMS data.
4. I agree to abide by any additional written conditions regarding the use of confidential VMS data the Secretariat attaches to this Confidentiality Agreement.
5. I agree to abide by the NPFC Data Sharing and Data Security Protocols [*Note: They are currently being drafted*].
6. I agree that the confidential VMS data shall be used only for the purposes for which I am requesting the data, be accessed only by me and other individuals who have signed a Confidentiality Agreement, and be destroyed upon completion of the usage for which the data are being requested. I further agree to report the destruction of the confidential VMS data to the Secretariat.
7. I agree to make no unauthorized copies of the requested confidential VMS data. If a copy of all, or part, of the data is made by me, all copies, and/or parts thereof, will be registered with the Secretariat and will be destroyed upon completion of the purpose for which I requested the data.
8. Prior to the publication of any report in which I intend to use requested confidential VMS data, I agree to provide the report to the Secretariat for clearance to ensure that no confidential VMS data will be published.
9. I agree to provide a copy of any published reports referenced in paragraph 8 to the Secretariat.
10. I agree not to disclose, divulge, or transfer, either directly or indirectly, the requested confidential VMS data to any third party without the prior written consent of the Secretariat.

11. I agree to promptly notify the Secretariat, in writing, of any unauthorized or inadvertent disclosure of confidential VMS data.
12. I assume all liability, if any, with respect to my breach of this Confidentiality Agreement after I receive the requested confidential VMS data.
13. In the event of my breach of this Confidentiality Agreement, I understand that the Secretariat will not grant me access to confidential VMS data until corrective actions deemed appropriate by the Secretariat have been taken by me, my employer, or by the Member under whose supervision I work.

This Agreement is effective on the date indicated below upon signature of an authorized representative of the Secretariat.

\_\_\_\_\_

Authorized NPFC Secretariat Representative

\_\_\_\_\_

Date

## NPFC COMPLIANCE MONITORING REPORT - 2019

The following is presented in accordance with CMM 2019-13, Conservation and Management Measure for the Compliance Monitoring Scheme for NPFC. This report is in accordance with paragraph 8 of the CMM.

- a. Present all available information relating to each Member's or CNCP's implementation of each obligation arising from the Convention or CMMs;*
- b. Report on any compliance issues that were identified from the previous year's Final Compliance Report (i.e., Resolved Non-Compliance, Non-Compliant, or Flag State Investigation) and any corrective actions reported by the Member or CNCP; and,*
- c. Identify the potential areas of non-compliance for each Member and CNCP and, as appropriate, request any follow-up information relating to the previous year's compliance issues."*

### COM 05 Endorsement of TCC task regarding effort indicators:

- a. That the Commission task the TCC, working with the SC, to develop advice on effort indicators, including for CMMs 2017-07 and 2017-08, that would effectively control fishing effort.*

### Observation:

The data presented here relies upon the number of authorized vessels. To facilitate the discussion on effort as outlined by COM 05, active vessels are also noted for the consideration by members. The number of authorized fishing vessels does not indicate the impact of actual fishing operations on the health of the stocks.

Noting the COM 05 tasking to develop advice on effort indicators Members should note that more robust effort indicators are already being reported for Pacific Saury in each Member's Annual Reports namely: active vessels, catch, and days fished.

**Reporting Period:** The period of this report is for calendar year 2019, noting that the CMM came into force on 29 November 2019, however compliance is assessed in accordance with the measures in force at the time, namely CMM 2018-05 and CMM 2018-08

**Reporting Obligations:** The Conservation and Management Measures assessed for this report include:

CMM 2019-05 Bottom Fisheries and VMEs in the NW Pacific, Paragraph 8	Table 1
CMM 2019-08 Pacific Saury, Paragraphs 1 and 2.	Tables 2 & 3

Table 1

Reporting Obligation:

Members	Compliance Status 2018	CMM 2019-05 Para 8 Observers				
		Information Source (Annual Report/ Vessel Registry/ VMS)	Further Information	Potential Compliance Issue?	Additional Information Requested?	Member Response/Additional Information
		All vessels authorized to bottom fishing in the western part of the Convention Area shall carry an observer on board.				
China	N/A	N/A	China does not participate in the bottom fisheries in the NPFC Convention Area			
Japan	N/A	Annual Report	<p><b>Annual Report</b>  <b>3.2 Observer program as required by the Commission</b>  <b>(1) Bottom fisheries</b>            .....</p> <p><b><i>B. Scientific Observer Program Design and Coverage</i></b>            In 2019, all commercial bottom fishing vessels that operated in the Convention area (i.e., three trawl vessels and one gillnet vessel) were covered by the observer program. The observer coverage was 100% (for areas, seasons, vessels and fishing days), which follows the conservation and management measures.</p>	None	None	

**Annual Report Active Bottom Fishing Vessels & Vessel Registry– Japan**

<i>YEAR</i>	<i>No Fishing Days</i>	<i>Ships Name</i>	<i>Gear Type</i>	<i>Gross Tonnage</i>	<i>Power</i>	<i>Overall Length</i>
2019	232	Kaiyo Maru No.38	Trawl	1483	2206	65.80
2019	171	Dairin Maru No.5	Trawl	833	1912	52.00
2019	191	Kaiyo Maru No.51	Trawl	1598	2999	56.97
2019	143	Shoushin Maru No.88	Gill Net	734	735	51.60

<b>South Korea</b>	N/A	Annual Report	<p><b><u>Annual Report</u></b>                      South Korea had one bottom trawl vessel (NO.96 OYANG) operated in the convention area, and one observer boarded on the vessel to cover all fishing day. The observer collected information including; the vessel and gear characteristics, effort and catch information on target species, discard on gear and waste, biological measurements of target and non-target species, and bycatch of VMEs.                      The observer was on board throughout the vessel's operation, 71 days to fish around the sea mounts. The vessel operated 35 days around the sea mounts and the observer covered these all days.</p>	None	None	
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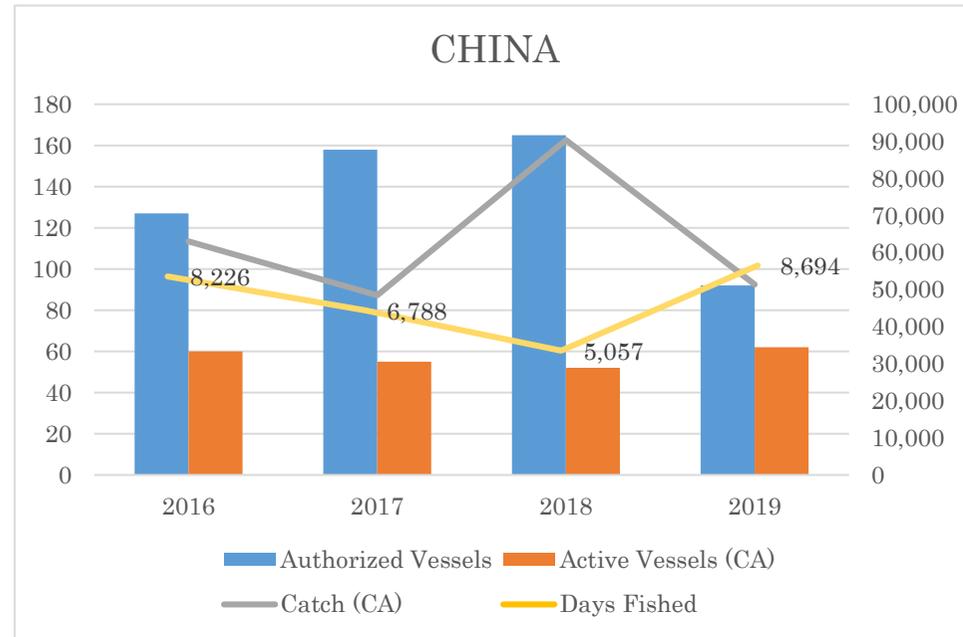
<b>Annual Report Active Bottom Fishing Vessels &amp; Vessel Registry– Korea</b>						
<i>YEAR</i>	<i>No Fishing Days</i>	<i>Ships Name</i>	<i>Gear Type</i>	<i>Gross Tonnage</i>	<i>Power</i>	<i>Overall Length</i>
2019	71	NO.96 OYANG	Trawl	1183	2900 hp	60.53
<b>Russia</b>	N/A	Annual Report	<u><b>Annual Report</b></u> Observer program as required by the Commission There were no commercial bottom fishing operations in the CA.	None	None	
<b>Chinese Taipei</b>	N/A	N/A	Chinese Taipei does not participate in the bottom fisheries in the NPFC Convention Area			
<b>Vanuatu</b>	N/A	N/A	Vanuatu does not participate in the bottom fisheries in the NPFC Convention Area			

Table 2

Members	Compliance Status 2018	CMM 2019-08 Para 1 Pacific Saury – Effort Management				
		<b>REQUIREMENT:</b> Members of the Commission, not described under Paragraph 2, and that are currently fishing for Pacific saury shall refrain from expansion, in the Convention Area, of the number of fishing vessels entitled to fly their flags and authorized to fish for Pacific saury from the historical existing level.				
		Information Source (Annual Report/ Vessel Registry/ VMS)	Further Information	Potential Compliance Issue?	Additional Information Requested?	Member Response/Additional Information
China	N/A	Vessel Registry  Note the table below regarding the number of <u>authorized</u> vessels taken from the Vessel Register for the years between 2016 and 2019.		There has been no increase in authorized vessels between 2018 and 2019, however there was an increase between 2016-2018.	None	

CHINA

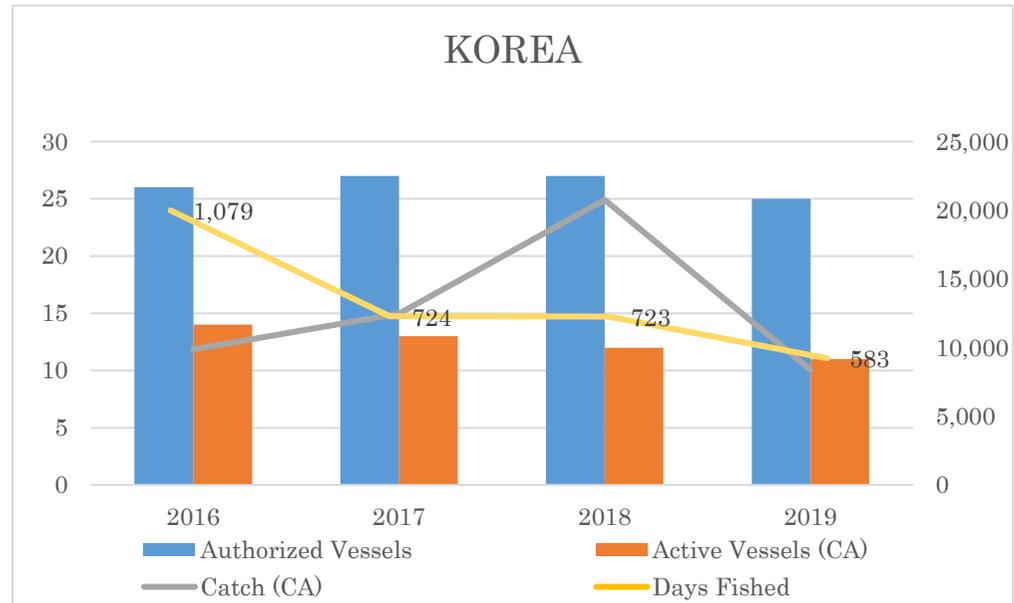
	Authorized Vessels	Active Vessels (CA)	Catch (CA)	Days Fished (CA)
2016	127	60	63,016	8,226
2017	158	55	48,458	6,788
2018	165	52	90,339	5,057
2019	92	62	51,404	8,694



<b>Japan</b>	N/A	N/A	Japan is not governed by this paragraph. It is governed by Paragraph 2		None	
<b>Korea</b>	N/A	Vessel Registry  Note the table below regarding the number of <u>authorized</u> vessels taken from the Vessel Register for the years between 2016 and 2019.		There has been no increase in authorized vessels between 2016 and 2019.	None	

KOREA

	Authorized Vessels	Active Vessels (CA)	Catch (CA)	Days Fished (CA)
2016	26	14	9,883	1,079
2017	27	13	12,471	724
2018	27	12	20,759	723
2019	25	11	8,375	583

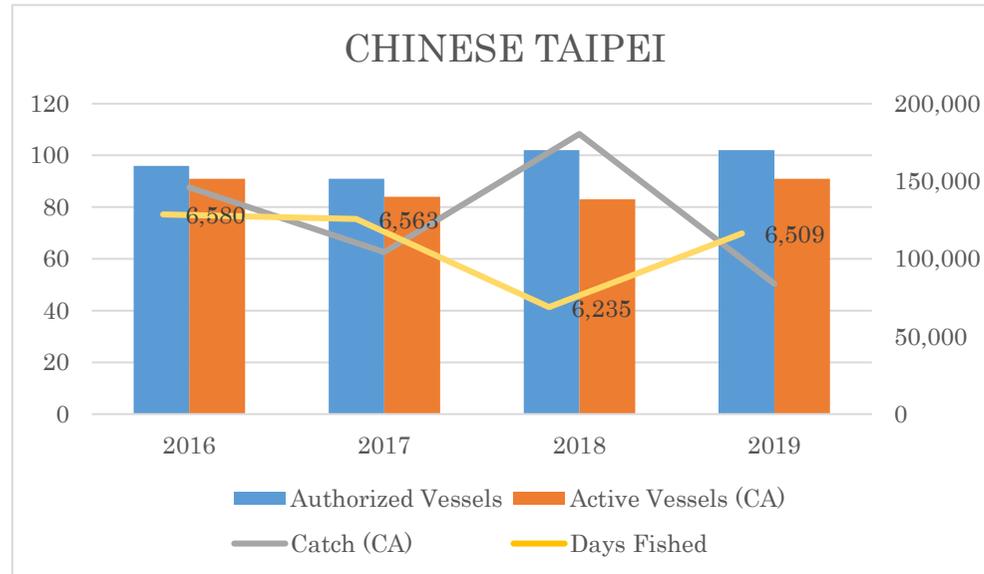


<b>Russia</b>	N/A	N/A	Russia is not governed by this paragraph. It is governed by Paragraph 2		None	
<b>Chinese Taipei</b>	N/A	Vessel Registry  Note the table below regarding the number of <u>authorized</u> vessels taken from the Vessel Register for the years between 2016 and		None (number of vessels remain below limits stated in Annual Reports 2015-2020)	None	Chinese Taipei noted its domestic decision to limit numbers of authorized vessels to 111 in years 2017-2017 and reduced it to 108 vessels in 2018-2019 according to Annex 3 of the Annual Reports from 2015-2020 (for the 2019 fishery)

2019.

<https://www.npfc.int/annual-reports-members>

CHINESE TAIPEI	Authorized Vessels according to the VR	Active Vessels (CA)	Catch (CA)	Days Fished (CA)
2016	96	91	146,025	6,580
2017	91	84	104,405	6,563
2018	102	83	180,466	6,235
2019	102	91	83,941	6,509



Vanuatu

N/A

Vessel Registry  
 Note the table below regarding the number of authorized vessels taken from the Vessel Register for the years between 2016 and 2019. In the case of Vanuatu the 2016 statistics came from their 2018 annual report which had

There has been no increase in authorized vessels between 2016 and 2019.

None

	back dated information.				
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VANUATU

	Authorized Vessels	Active Vessels (CA)	Catch (CA)	Days Fished (CA)
2016	4	4	7,331	312
2017	4	4	4,437	291
2018	4	4	8,231	277
2019	4	4	3,465	276

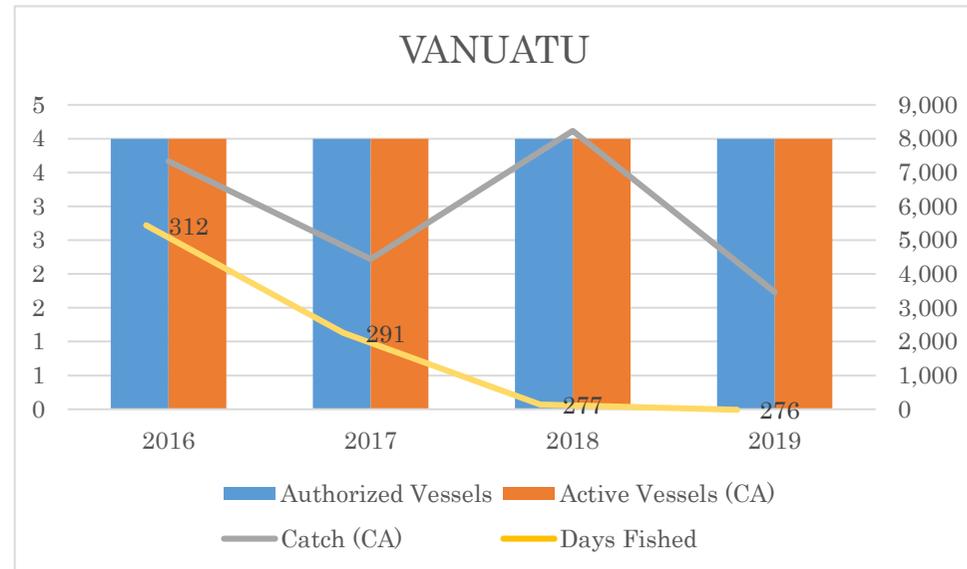


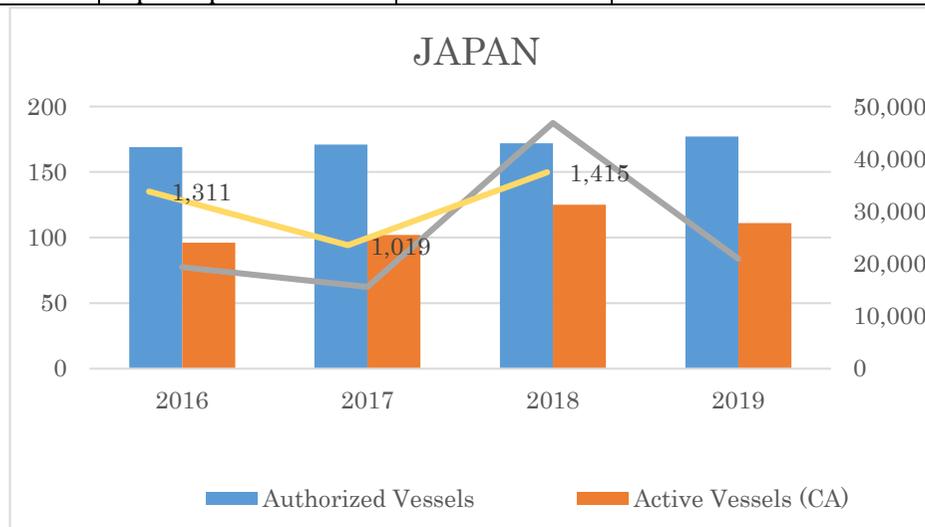
Table 3

Members	Compliance Status 2018	CMM 2019-08 Para 2 Pacific Saury – Effort Management				
		<p><b>REQUIREMENT:</b> Members fishing for Pacific saury in areas of their jurisdiction that are adjacent to the Convention Area shall refrain from rapid expansion, in the Convention Area, of the number of fishing vessels entitled to fly their flags and authorized to fish for Pacific saury from the historical existing level.</p>				
		Information Source (Annual Report/ Vessel Registry/ VMS)	Further Information	Potential Compliance Issue?	Additional Information Requested?	Member Response/Additional Information
China	N/A	N/A	This paragraph does not apply to China.			
Japan	N/A	<b>Vessel Registry</b> Note the table below regarding the number of <u>authorized</u> vessels taken from the Vessel Register for the years between 2016 and 2019.		There has been a gradual increase in the number of authorized vessels between 2016 and 2019, however it cannot be considered a rapid expansion.	None	Please find the below information from Japan

JAPAN

	Authorized Vessels	Active Vessels (CA)	Catch (CA)	Days Fished (CA)
2016	169	96	19,384	1,311
2017	171	102	15,594	1,019
2018	172	125	46,859	1,415
2019	177	111	20,986	

JAPAN



**Additional Information from Japan**

In Japan, no fishing vessels are authorized to fish for Pacific Saury without a fishing license issued by the Ministry of Agriculture, Forestry and Fisheries (MAFF). The fishing license covers the north Pacific Ocean including both EEZs and the high seas.

The number of authorized Japanese fishing vessels for Pacific saury is shown in “Number of vessels” in the column “NW under “Stick-held dip net” of Japan’s Annual Summary Footprint - Pacific Saury. The number of authorized Japanese fishing vessels for Pacific Saury has been clearly decreasing in recent years.



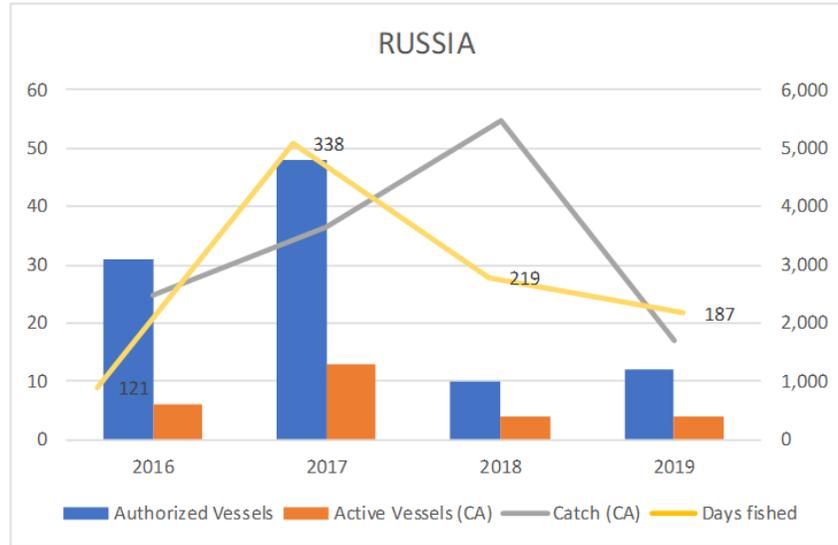
NPFC-2020-AR-Annual Summary Footpr

<b>South Korea</b>	N/A	N/A	This paragraph does not apply to South Korea.			
<b>Russia</b>	N/A	Vessel Registry  Note the table below regarding the number of <u>authorized</u> vessels taken from the Vessel Register for the years between 2016 and 2019.		There has been a gradual increase in the number of authorized vessels between 2016 and 2017 however, Russia did not indicate target species. Further, there has been a rapid decline in numbers of authorized vessels since 2018.	None	

RUSSIA

	Authorized Vessels	Active Vessels (CA)	Catch (CA)	Days Fished (CA)
2016	31	6	2,463	121
2017	48	13	3,658	338
2018	10	4	5,459	219
2019	12	4	1,683	187

\* Russia has not provided authorized dates or species for 2016 & 2017



<b>Chinese Taipei</b>	N/A	N/A	This paragraph is not applicable to Chinese Taipei.			
<b>Vanuatu</b>	N/A	N/A	This paragraph does not apply to Vanuatu			

## List of Reporting Obligations for 2022

The table below includes the full list obligations with the word ‘shall’ for ease of review.

Obligation to be Assessed	Obligation/Paragraph	Automatic response for inclusion in the Draft Compliance Report
	<b>CMM 2019-01 Vessel Registration</b>	
	<b><u>NPFC Vessel Registry</u></b>	
	1. For the purpose of the effective implementation of the Convention, each Commission member or Cooperating non-Contracting Party shall:	
CMM 2019-01 01	Maintain a record of fishing vessels entitled to fly its flag and authorized to be used for fishing activities in the Convention Area in accordance with the information requirements in the Annex.	If not a repeated case of non-compliance, and where a report is received subsequent to a deadline, then no further action is necessary and Member/CNCP shall receive an automatic response of Resolved Non-Compliance.
CMM 2019-01 02	Update pertinent information required from paragraph 1 in the NPFC Vessel Registry established under Article 13, paragraph 10 of the Convention, noting that vessel submissions which do not include the initial data elements as indicated in the Annex will not be accepted by the database.	If not a repeated case of non-compliance, and where a report is received subsequent to a deadline, then no further action is necessary and Member/CNCP shall receive an automatic response of Resolved Non-Compliance.
CMM 2019-01 03	Promptly update the NPFC Vessel Registry with: (a) any additions to the record; e.g., new vessel authorizations; (b) any modifications to this information with dates of such modifications; and (c) any deletions from the record, specifying which of the following reasons is applicable:	If not a repeated case of non-compliance, and where a report is received subsequent to a deadline, then no further action is necessary and Member/CNCP shall receive an automatic response of Resolved Non-Compliance.

	<p>(i) the voluntary relinquishment of the fishing by the fishing vessel owner or operator; (ii) the withdrawal or non-renewal of the Article 13 paragraph 2 of the Convention;</p> <p>(iii) the fact that the fishing vessel concerned is no longer entitled to fly its flag;</p> <p>(iv) the scrapping, decommissioning or loss of the fishing vessel concerned; or</p> <p>(v) any other grounds, with a specific explanation provided.</p>	
CMM 2019-01 04	Provide to the Commission, as part of the annual report required pursuant to Article 16 of the Convention, the names of the fishing vessels entered in the record that conducted fishing activities during the previous calendar year.	If not a repeated case of non-compliance, and where a report is received subsequent to a deadline, then no further action is necessary and Member/CNCP shall receive an automatic response of Resolved Non-Compliance.
<b><u>Vessel Marking</u></b> CMM 2019-01 05	Each Commission Member and Cooperating non Contracting Party shall ensure that every fishing vessel authorized to fly its flag bear markings that are readily identified in accordance with the <i>FAO Standard Specifications for the Marking and Identification of Fishing Vessels</i> , and recognize that non-compliance with these standards shall be considered a serious violation according to Article 17, paragraph 5 of the NPFC Convention and Article 21 Paragraph 11(f) of the United Nations Fish Stocks Agreement.	No automatic response has been assigned at this time.
<b><u>General</u></b> CMM 2019-01 20	Each Commission member and Cooperating non-Contracting Party entering vessels on the NPFC Vessel Registry of the Interim Register shall enter the required data for its vessels or vessels listed on the Interim Registry immediately after it has so authorized the vessel to conduct fishing activities and shall not authorize the vessel to conduct such fishing activities in the NPFC Convention Area until the vessel has been accepted by the database.	No automatic response has been assigned at this time.
<b>CMM 2019-02 IUU Vessel List</b>		

	24. Members/CNCPs shall take all necessary non-discriminatory measures under their applicable legislation, international law and each Members/CNCPs' international obligations, and pursuant to paras 56 and 66 of the IPOA-IUU to:	
CMM 2019-02 24(a)	remove or withdraw vessels on the NPFC IUU Vessel List from the NPFC Vessel Registry;	No automatic response has been assigned at this time.
CMM 2019-02 24(b)	ensure that fishing vessels, support vessels, mother ships or cargo vessels flying their flag do not participate in any transshipment or joint fishing operations with, support or re-supply vessels on the NPFC IUU Vessel List;	No automatic response has been assigned at this time.
CMM 2019-02 24(c)	prohibit the entry into their ports of vessels included on the NPFC IUU Vessel List, except in the case of investigation or <i>force majeure</i> ;	No automatic response has been assigned at this time.
CMM 2019-02 24(d)	prohibit the chartering of a vessel on the NPFC IUU Vessel List;	No automatic response has been assigned at this time.
CMM 2019-02 24(e)	refuse to grant their flag to vessels on the NPFC IUU Vessel List, unless the ownership of the vessel has subsequently changed and the new owner has provided sufficient evidence demonstrating that the previous owner or operator has no legal, beneficial or financial interest in, or control of the vessels, or the Member concerned is satisfied that, having taken into account all relevant facts, the vessel is no longer engaged in or associated with IUU fishing activities;	No automatic response has been assigned at this time.
CMM 2019-02 24(f)	prohibit commercial transactions, imports, landings and/or transshipment of species covered by the Convention from vessels on the IUU Vessel List;	No automatic response has been assigned at this time.
<b>CMM 2016-03 Transshipments</b>		

CMM2016-03 03(a)	<p>For transshipments in the Convention Area, offloading and receiving vessels flying the flag of a Member of the Commission (known as the “Member”) <b>must</b> provide advance notice to that Member. The advance notice must contain identification information for the offloading and receiving vessels, information on the product being transshipped, and information on the location of the transshipment.</p>	<p>If not a repeated case of non-compliance, and where a report is received subsequent to a deadline, then no further action is necessary and Member/CNCP shall receive an automatic response of Resolved Non-Compliance.</p>
CMM2016-03 03(b)	<p>Within 15 days after a transshipment has occurred, the <b>offloading</b> vessel must provide its flag member with a declaration of the transshipment that includes identification information for the offloading and receiving vessels and information on the product transshipped, including bottom fisheries:</p> <ul style="list-style-type: none"> <li>i) Date and time of commencement of transshipment.</li> <li>ii) Date and time of completion of transshipment.</li> <li>iii) Position at commencement of transshipment (name of port, or if at sea, latitude and longitude to nearest 1/10th of a degree).</li> <li>iv) Position at completion of transshipment (name of port, or if at sea, latitude and longitude to nearest 1/10th of a degree).</li> <li>v) Description of product type by species (e.g. whole, frozen fish in 20 kg cartons).</li> <li>vi) Number of cartons, net weight (kg) of product, by species.</li> <li>vii) Total net weight of product transshipped (kg).</li> <li>viii) Hold numbers in receiving vessel in which product is stowed.</li> <li>ix) If at sea, next destination port of receiving vessel.</li> <li>x) If at sea, next port arrival date estimate.</li> <li>xi) Port(s) and estimate of date(s) transshipped product is expected to be landed.</li> </ul>	<p>If not a repeated case of non-compliance, and where a report is received subsequent to a deadline, then no further action is necessary and Member/CNCP shall receive an automatic response of Resolved Non-Compliance.</p>

CMM2016-03 03(c)	<p>Within 15 days after a transshipment has occurred, the <b>receiving</b> vessel, except when flying the same flag as the offloading vessel, must provide the flag member of the offloading vessel with a declaration of the transshipment that includes identification information about the offloading and receiving vessels and information on the product that was transshipped, including:</p> <ul style="list-style-type: none"> <li>i) Date and time of commencement of transshipment.</li> <li>ii) Date and time of completion of transshipment.</li> <li>iii) Position at commencement of transshipment (name of port, or if at sea, latitude and longitude to nearest 1/10th of a degree).</li> <li>iv) Position at completion of transshipment (name of port, or if at sea, latitude and longitude to nearest 1/10th of a degree).</li> <li>v) Description of product type by species (e.g. whole, frozen fish in 20 kg cartons).</li> <li>vi) Number of cartons, net weight (kg) of product, by species.</li> <li>vii) Total net weight of product transshipped (kg).</li> <li>viii) Hold numbers in receiving vessel in which product is stowed.</li> <li>ix) Port(s) and estimate of date(s) transshipped product is expected to be landed.</li> <li>x) Actual port(s) of landing.</li> </ul>	If not a repeated case of non-compliance, and where a report is received subsequent to a deadline, then no further action is necessary and Member/CNCP shall receive an automatic response of Resolved Non-Compliance.
<b>CMM 2017-09 High Seas Boarding and Inspection</b>		
CMM 2017-09 07	Each Member of the Commission shall ensure that vessels flying its flag accept boarding and inspection by authorized inspectors in accordance with these procedures. Such authorized inspectors shall comply with these procedures in the conduct of any such activities.	No automatic response has been assigned at this time.
14. Each Contracting Party that intends to carry out boarding and inspection activities pursuant to these procedures shall so notify the Commission, through the Executive Secretary, and shall provide the following:		
CMM 2017-09 14(a)	with respect to each inspection vessel it assigns to boarding and inspection activities under these	If not a repeated case of non-compliance, and where a report is received subsequent to a deadline, then no

	<p>procedures:</p> <ul style="list-style-type: none"> <li>i) details of the vessel (name, description, photograph, registration number, port of registry (and, if different from the port of registry, port marked on the vessel hull), international radio call sign and communication capability);</li> <li>ii) An example of the credentials issued to the inspectors by its authorities;</li> <li>iii) notification that the inspection vessel is clearly marked and identifiable as being on government service;</li> <li>iv) notification that the crew has received and completed training in carrying out boarding and inspection activities at sea in accordance with any standards and procedures as may be adopted by the Commission.</li> </ul>	<p>further action is necessary and Member/CNCP shall receive an automatic response of Resolved Non-Compliance.</p>
CMM 2017-09 14(b)	<p>with respect to inspectors it assigns pursuant to these procedures:</p> <ul style="list-style-type: none"> <li>i) the names of the authorities responsible for boarding and inspection;</li> <li>ii) notification that such authorities' inspectors are fully familiar with the fishing activities to be inspected and the provisions of the Convention and conservation and management measures in force; and</li> <li>iii) notification that such authorities' inspectors have received and completed training in carrying out boarding and inspection activities at sea in accordance with any standards and procedures as may be adopted by the Commission.</li> </ul>	<p>If not a repeated case of non-compliance, and where a report is received subsequent to a deadline, then no further action is necessary and Member/CNCP shall receive an automatic response of Resolved Non-Compliance.</p>
CMM 2017-09 15	<p>Where military vessels are used as a platform for the conduct of boarding and inspection, the authorities of the inspection vessel shall ensure that the boarding and inspection is carried out by inspectors fully trained in fisheries enforcement procedures and duly authorized for</p>	<p>No automatic response has been assigned at this time.</p>

	<p>this purpose under national laws, and that boardings from such military vessels and inspectors conform to the procedures contained within these Boarding and Inspection Procedures.</p>	
CMM 2017-09 18	<p>The Executive Secretary shall ensure that the register of authorized inspection vessels and authorities or inspectors is at all times available to all Members of the Commission and shall immediately circulate any changes therein. Updated lists shall be posted on the Commission website. Each Member of the Commission shall take necessary measures to ensure that these lists are circulated in a timely manner to each of its fishing vessels operating in the Convention Area.</p>	No automatic response has been assigned at this time.
CMM 2017-09 20-25	<p>20. Authorized inspectors shall carry an approved identity card identifying the inspector as authorized to carry out boarding and inspection procedures under the auspices of the Commission and in accordance with these procedures.</p> <p>21. An authorized inspection vessel that intends to board and inspect a fishing vessel on the high seas that is engaged in or reported to have engaged in a fishery regulated pursuant to the Convention shall, prior to initiating the boarding and inspection:</p> <ol style="list-style-type: none"> <li>a. make best efforts to establish contact with the fishing vessel by radio, by the appropriate International Code of Signals or by other accepted means of alerting the vessel;</li> <li>b. provide the information to identify itself as an authorized inspection vessel - name, registration number, international radio call sign and contact frequency;</li> <li>c. communicate to the master of the vessel its intention to board and inspect the vessel under the authority of the Commission and pursuant to these procedures; and</li> </ol>	No automatic response has been assigned at this time.

	<p>d. initiate notice through the authorities of the inspection vessel of the boarding and inspection to the authorities of the fishing vessel.</p> <p>22. In carrying out boarding and inspection pursuant to these procedures, the authorized inspection vessel and authorized inspectors shall make their best efforts to communicate with the master of the fishing vessels in a language that the master can understand. In order to facilitate communications between the inspectors and the master of the vessel, the Commission shall develop a standardized multi-language questionnaire, which shall be circulated to all Contracting Parties with authorized inspection vessels.</p> <p>23. Authorized inspectors shall have the authority to inspect the vessel, its license, gear, equipment, records, facilities, fish and fish products and any relevant documents necessary to verify compliance with the conservation and management measures in force pursuant to the Convention.</p> <p>24. Boarding and inspection pursuant to these procedures shall:</p> <ul style="list-style-type: none"> <li>a. be carried out in accordance with internationally accepted principles of good seamanship so as to avoid risks to the safety of fishing vessels and crews;</li> <li>b. be conducted as much as possible in a manner so as not to interfere unduly with the lawful operation of the fishing vessel;</li> <li>c. take reasonable care to avoid action that would adversely affect the quality of the catch; and</li> <li>d. not be conducted in such manner as to constitute harassment of a fishing vessel, its officers or crew.</li> </ul> <p>25. In the conduct of a boarding and inspection, the authorized inspectors shall:</p>	
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	<ul style="list-style-type: none"> <li>a. present their identity card to the master of the vessel and a copy of the text of the relevant measures in force pursuant to the Convention in the relevant area of the high seas;</li> <li>b. not interfere with the master's ability to communicate with the authorities of the fishing vessel;</li> <li>c. complete the inspection of the vessel within 4 (four) hours unless evidence of a serious violation is found;</li> <li>d. collect and clearly document any evidence they believe indicates a violation of measures in force pursuant to the Convention;</li> <li>e. provide to the master prior to leaving the vessel a copy of an interim report on the boarding and inspection including any objection or statement which the master wishes to include in the report;</li> <li>f. promptly leave the vessel following completion of the inspection if they find no evidence of a serious violation; and</li> <li>g. provide a full report on the boarding and inspection to the authorities of the fishing vessel, pursuant to paragraph 31, which shall also include any master's statement.</li> </ul>	
CMM 2017-09 26	<p>26. During the conduct of a boarding and inspection, the master of the fishing vessel shall:</p> <ul style="list-style-type: none"> <li>a. follow internationally accepted principles of good seamanship so as to avoid risks to the safety of authorized inspection vessels and inspectors;</li> <li>b. accept and facilitate prompt and safe boarding by the authorized inspectors;</li> <li>c. cooperate with and assist in the inspection of the vessel pursuant to these procedures;</li> <li>d. not assault, resist, intimidate, interfere with, or unduly obstruct or delay the inspectors in the performance of their duties;</li> <li>e. allow the inspectors to communicate with the crew of the inspection vessel, the authorities of</li> </ul>	No automatic response has been assigned at this time.

	<p>the inspection vessel, any embarked observers, as well as with the authorities of the fishing vessel being inspected;</p> <p>f. provide the inspectors onboard with reasonable facilities, including, where appropriate, food and accommodation; and</p> <p>g. facilitate safe disembarkation by the inspectors</p>	
CMM 2017-09 28	<p>The authorities of the fishing vessel, unless generally accepted international regulations, procedures and practices relating to safety at sea make it necessary to delay the boarding and inspection, shall direct the master to accept the boarding and inspection. If the master does not comply with such direction, the Member shall suspend the vessel's authorization to fish and order the vessel to return immediately to port. The Member shall immediately notify the authorities of the inspection vessel and the Commission of the action it has taken in these circumstances.</p>	No automatic response has been assigned at this time.
CMM 2017-09 31	<p>Authorized inspectors shall prepare a full report on each boarding and inspection they carry out pursuant to these procedures in accordance with a format specified by the Commission. The authorities of the inspection vessel from which the boarding and inspection was carried out shall transmit a copy of the boarding and inspection report to the authorities of the fishing vessel being inspected, as well as the Commission, within 3 (three) full working days of the completion of the boarding and inspection. Where it is not possible for the authorities of the inspection vessel to provide such report to the authorities of the fishing vessel within this timeframe, the authorities of the inspection vessel shall inform the authorities of the fishing vessel and shall specify the time period within which the report will be provided.</p>	<p>If not a repeated case of non-compliance, and where a report is received subsequent to a deadline, then no further action is necessary and Member/CNCP shall receive an automatic response of Resolved Non-Compliance.</p>
CMM 2017-09 32	<p>Such report shall include the names and authority of the inspectors and clearly identify any observed activity or condition that the authorized inspectors believe to be a violation of the Convention or conservation and management measures in force and indicate the nature</p>	No automatic response has been assigned at this time.

	of specific factual evidence of such violation.	
CMM 2017-09 33	In the case of any boarding and inspection of a fishing vessel during which the authorized inspectors observe an activity or condition that would constitute a serious violation, as defined in paragraph 38, the authorities of the inspection vessels shall immediately notify the authorities of the fishing vessel, directly as well as through the Commission.	No automatic response has been assigned at this time.
CMM 2017-09 34	Upon receipt of a notification under paragraph 33, the authorities of the fishing vessels shall without delay: <ul style="list-style-type: none"> <li>a. assume their obligation to investigate and, if the evidence warrants, take enforcement action against the fishing vessel in question and so notify the authorities of the inspection vessel, as well as the Commission; or</li> <li>b. authorize the authorities of the inspection vessel to complete investigation of the possible violation and so notify the Commission.</li> </ul>	No automatic response has been assigned at this time.
CMM 2017-09 36	In the case of 34(b) above, the authorities of the inspection vessel shall provide the specific evidence collected by the authorized inspectors, along with the results of their investigation, to the authorities of the fishing vessel immediately upon completion of the investigation.	No automatic response has been assigned at this time.
CMM 2017-09 37	Upon receipt of a notification pursuant to paragraph 33, the authorities of the fishing vessel shall make best effort to respond without delay and in any case no later than within 3 (three) full working days.	No automatic response has been assigned at this time.
CMM 2017-09 41	Contracting Parties that authorize inspection vessels to operate under these procedures shall report annually to the Commission on the boarding and inspections carried out by its authorized inspection vessels, as well as upon possible violations observed.	If not a repeated case of non-compliance, and where a report is received subsequent to a deadline, then no further action is necessary and Member/CNCP shall receive an automatic response of Resolved Non-Compliance.
CMM 2017-09 42	Contracting Parties shall include in their annual statement of compliance within their Annual Report to the Commission under Article 16 of the Convention action that they have taken in response to boarding and inspections of their fishing vessels that resulted in	If not a repeated case of non-compliance, and where a report is received subsequent to a deadline, then no further action is necessary and Member/CNCP shall receive an automatic response of Resolved Non-Compliance.

	observation of alleged violations, including any proceedings instituted and sanctions applied.	
<b>CMM 2019-05 Bottom Fisheries and VMEs in the NW Pacific</b>		
<b>4. Measures</b> Members of the Commission shall take the following measures in order to achieve sustainable management of fish stocks and protection of VMEs in the western part of the Convention Area:		
CMM 2019-05 04(a)	Limit fishing effort in bottom fisheries on the western part of the Convention Area to the level agreed in February 2007 in terms of the number of fishing vessels and other parameters which reflect the level of fishing effort, fishing capacity or potential impacts on marine ecosystems.	No automatic response has been assigned at this time.
CMM 2019-05 04(b)	Not allow bottom fisheries to expand into the western part of the Convention Area where no such fishing is currently occurring, in particular, by limiting such bottom fisheries to seamounts located south of 45 degrees North Latitude and refrain from bottom fisheries in other areas of the western part of the Convention Area covered by these measures and also not allow bottom fisheries to conduct fishing operation in areas deeper than 1,500m.	No automatic response has been assigned at this time.
CMM 2019-05 04(d)	Any determinations pursuant to subparagraph C that any proposed fishing activity will not have SAIs on marine species or any VME are to be in accordance with the Science-based Standards and Criteria (Annex 2), which are consistent with the FAO International Guidelines for the Management of Deep-sea Fisheries in the High Seas.	No automatic response has been assigned at this time.
CMM 2019-05 04(e)	Any determinations, by any flag State or pursuant to any subsequent arrangement for the management of the bottom fisheries in the areas covered by these measures, that fishing activity would not have SAIs on marine species or any VMEs, shall be made publicly available through agreed means.	No automatic response has been assigned at this time.
CMM 2019-05 04(f)	Prohibit its vessels from engaging in directed fishing on the following taxa: <i>Alcyonacea</i> , <i>Antipatharia</i> ,	No automatic response has been assigned at this time.

	<i>Gorgonacea</i> , and <i>Scleractinia</i> as well as any other indicator species for VMEs as may be identified from time to time by the SC and approved by the Commission.	
CMM 2019-05 04(g)	Further, considering accumulated information regarding fishing activities in the western part of the Convention Area, in areas where, in the course of fishing operations, cold water corals more than 50Kg are encountered in one gear retrieval, Members of the Commission shall require vessels flying their flag to cease bottom fishing activities in that location. In such cases, the vessel shall not resume fishing activities until it has relocated a sufficient distance, which shall be no less than 2 nautical miles, so that additional encounters with VMEs are unlikely. All such encounters, including the location and the species in question, shall be reported to the Secretariat as soon as possible, who shall notify the other Members of the Commission so that appropriate measures can be adopted in respect of the relevant site. It is agreed that the cold water corals include: <i>Alcyonacea</i> , <i>Antipatharia</i> , <i>Gorgonacea</i> , and <i>Scleractinia</i> .	No automatic response has been assigned at this time.
CMM 2019-05 04(h)	C-H seamount and Southeastern part of Koko seamount, specifically for the latter seamount, the area South of 34 degrees 57 minutes North, East of the 400m isobaths, East of 171 degrees 54 minutes East, North of 34 degrees 50 minutes North, are closed precautionary for potential VME conservation. Fishing in these areas requires exploratory fishery protocol (Annex 1).	No automatic response has been assigned at this time.
CMM 2019-05 04(i)	Ensure that the distance between the footrope of the gill net and sea floor is greater than 70 cm.	No automatic response has been assigned at this time.
CMM 2019-05 04(j)	Apply a bottom fisheries closure from November to December.	No automatic response has been assigned at this time.
CMM 2019-05 04(k)	Limit annual catch of North Pacific armorhead to 15,000 tons for Japan.	If annual quota is exceeded, then Member/CNCP shall receive an automatic response of Non-Compliant and quota adjustment will be made to ensure 100% payback by Member/CNCP in the following year.

CMM 2019-05 05	<p>Members of the Commission shall submit to the SC their assessments of the impacts of fishing activity on marine species or any VMEs, including the proposed management measures to prevent such impact. Such submissions shall include all relevant data and information in support of any such assessment. Procedures for such reviews including procedures for the provision of advice and recommendations from the SC to the submitting Member are attached (Annex 3). Members will only authorize bottom fishing activity pursuant to para 4 (C).</p>	<p>No automatic response has been assigned at this time.</p>
CMM 2019-05 06(a)	<p>In implementing paragraphs 4A and 4B, the Members of the Commission shall provide for each year, the number of vessels by gear type, size of vessels (tons), number of fishing days or days on the fishing grounds, total catch by species, and areas fished (names of seamounts) to the Secretariat. The Secretariat shall circulate the information received to the other Members consistent with the approved Interim Data Handling and Data Sharing Protocol. To support assessments of the fisheries and refinement of conservation and management measures, Members of the Commission are to provide update information on an annual basis.</p>	<p>If not a repeated case of non-compliance, and where a report is received subsequent to a deadline, then no further action is necessary and Member/CNCP shall receive an automatic response of Resolved Non-Compliance.</p>

CMM 2019-05 06(b)	<p>(i) Collection of scientific information from each bottom fishing vessel operating in the western part of the Convention Area.</p> <p>(a) Catch and effort data</p> <p>(b) Related information such as time, location, depth, temperature, etc.</p> <p>(ii) As appropriate the collection of information from research vessels operating in the western part of the Convention Area.</p> <p>(a) Physical, chemical, biological, oceanographic, meteorological, etc.</p> <p>(b) Ecosystem surveys.</p> <p>(iii) Collection of observer data</p> <p>Duly designated observers from the flag member shall collect information from bottom fishing vessels operating in the western part of the Convention Area. Observers shall collect data in accordance with Annex 5. Each Member of the Commission shall submit the reports to the Secretariat in accordance with Annex 4. The Secretariat shall compile this information on an annual basis and make it available to the Members of the Commission.</p>	If not a repeated case of non-compliance, and where a report is received subsequent to a deadline, then no further action is necessary and Member/CNCP shall receive an automatic response of Resolved Non-Compliance.
CMM 2019-05 07	To strengthen its control over bottom fishing vessels flying its flag, each Member of the Commission shall ensure that all such vessels operating in the western part of the Convention Area be equipped with an operational vessel monitoring system.	No automatic response has been assigned at this time.
CMM 2019-05 08	All vessels authorized to bottom fishing in the western part of the Convention Area shall carry an observer on board.	No automatic response has been assigned at this time.
<b>CMM 2019-06 Bottom Fisheries and VMEs in the NE Pacific</b>		
<b>CMM 2019-07 Chub Mackerel</b>		
CMM 2019-07 01	Members of the Commission and Cooperating non-Contracting Parties (CNCPs) with substantial harvest of chub mackerel in the Convention Area shall refrain from	No automatic response has been assigned at this time.

	expansion, in the Convention Area, of the number of fishing vessels entitled to fly their flags and authorized to fish for chub mackerel from the historical existing level until the stock assessment by the SC has been completed.	
CMM 2019-07 05	Members of the Commission and CNCPs shall ensure that fishing vessels flying their flag operating in the Convention Area to fish chub mackerel are to be equipped with an operational vessel monitoring system that is activated at all times.	No automatic response has been assigned at this time.
CMM 2019-07 06	Members of the Commission and CNCPs shall provide their data on chub mackerel separated by the Convention Area and the areas under national jurisdiction adjacent to the Convention Area in accordance with the data requirements adopted by the Commission in the Annual Report by the end of February, every year. The Commission shall review such information at the annual meeting of every year.	If not a repeated case of non-compliance, and where a report is received subsequent to a deadline, then no further action is necessary and Member/CNCP shall receive an automatic response of Resolved Non-Compliance.
<b>CMM 2019-08 Pacific Saury</b>		
CMM 2019-08 01	Members of the Commission, not described under Paragraph 2, and that are currently fishing for Pacific saury shall refrain from expansion, in the Convention Area, of the number of fishing vessels entitled to fly their flags and authorized to fish for Pacific saury from the historical existing level.	No automatic response has been assigned at this time.
CMM 2019-08 02	Members fishing for Pacific saury in areas of their jurisdiction that are adjacent to the Convention Area shall refrain from rapid expansion, in the Convention Area, of the number of fishing vessels entitled to fly their flags and authorized to fish for Pacific saury from the historical existing level. <sup>1</sup>	No automatic response has been assigned at this time.
CMM 2019-08 08	To comply with the provisional measures above, Members of the Commission shall report to the Executive Secretary in the electronic format, weekly catches of Pacific saury in the Convention Area by	No automatic response has been assigned at this time.

<sup>1</sup> Paragraph 2 applies to Russia and Japan

	fishing vessels flying their flags by Wednesday of the next week. The Executive Secretary shall make available the compiled catch of Pacific saury in the Convention Area on the Commission's website without delay.	
CMM 2019-08 12	Members of the Commission shall ensure that fishing vessels flying its flag operating in the Convention Area to fish Pacific saury be equipped with an operational vessel monitoring system that is activated at all times.	No automatic response has been assigned at this time.
CMM 2019-08 13	In order to prevent discards and contribute to the proper stock assessment, Members of the Commission shall take necessary measures to ensure that fishing vessels flying their flags in the Convention Area retain all the catch of Pacific saury on board.	No automatic response has been assigned at this time.
<b>CMM 2019-10 Sablefish in the Northeastern Pacific Ocean</b>		
CMM 2019-10 02	Members of the Commission with current harvest of sablefish in the eastern part of the Convention Area shall refrain from expansion of their fishery in this area from the existing historical level.	No automatic response has been assigned at this time.
CMM 2019-10 05	Members referenced in paragraph 2 and Members fishing for Sablefish in areas of their jurisdiction that are adjacent to the eastern part of the Convention Area shall adhere to the exploratory fishing protocol as set out in Annex 1 of CMM 2017-06 when considering new and exploratory bottom fishing activities in the Convention Area.	No automatic response has been assigned at this time.
CMM 2019-10 07	Members of the Commission shall ensure that fishing vessels flying their flag operating in the eastern part of the Convention Area to fish sablefish are to be equipped with an operational vessel monitoring system that is activated at all times.	No automatic response has been assigned at this time.
CMM 2019-10 08	All vessels authorized to fish sablefish in the eastern part of the Convention Area shall have 100% observer coverage.	No automatic response has been assigned at this time.
<b>CMM 2019-11 Japanese Sardine and Japanese Flying Squid</b>		
CMM 2019-11 01	Members of the Commission and Cooperating non-Contracting Parties (CNCPs) with substantial harvest	No automatic response has been assigned at this time.

	of any of Japanese sardine and Japanese flying squid (hereinafter referred to as “the two Pelagic Species”) in the Convention Area shall refrain from expansion, in the Convention Area, of the number of fishing vessels entitled to fly their flags and authorized to fish for such species from the historical existing level until the stock assessment for such species by the SC has been completed.	
CMM 2019-11 05	Members of the Commission and CNCPs shall ensure that fishing vessels flying their flag operating in the Convention Area authorized to fish the two Pelagic Species are to be equipped with an operational vessel monitoring system that is activated at all times.	No automatic response has been assigned at this time.
CMM 2019-11 06	Members of the Commission and CNCPs shall provide their data on the two Pelagic Species in accordance with the data requirements adopted by the Commission in the Annual Report by the end of February, every year. The Commission shall review such information at the annual meeting of every year.	If not a repeated case of non-compliance, and where a report is received subsequent to a deadline, then no further action is necessary and Member/CNCP shall receive an automatic response of Resolved Non-Compliance.
<b>CMM 2019-12 Regional Vessel Monitoring System</b>		
CMM 2019-12 05	Each Member, CNCP and Relevant non-Member shall ensure that its vessels authorized pursuant to the relevant CMM for Vessel Registration under NPFC in the Convention Area are equipped with an MTU that complies with the guidance on minimum standards for MTUs contained in Annex I.	No automatic response has been assigned at this time.
CMM 2019-12 06	Each Member, CNCP and Relevant non-Member shall ensure that MTUs are installed on their flagged fishing vessels.	No automatic response has been assigned at this time.
CMM 2019-12 07	Each Member, CNCP and Relevant non-Member shall ensure its authorized NPFC vessels provide accurate VMS data to the Secretariat via its FMC, in accordance with this CMM.	No automatic response has been assigned at this time.

CMM 2019-12 08	All Members, CNCP and Relevant non-Members shall ensure that its flagged vessels that are authorized under NPFC and present in the Convention Area transmit VMS data every hour to their FMC.	No automatic response has been assigned at this time.
CMM 2019-12 11	Each Member, CNCP and Relevant non-Member shall ensure that their FMC automatically transmits VMS data to the Secretariat, which shall be received no later than 60 minutes upon receipt of the data at their FMC.	No automatic response has been assigned at this time.
CMM 2019-12 12	Each Member, CNCP and Relevant non-Member shall ensure that their FMC can automatically receive VMS data and transmit VMS data to the Secretariat.	No automatic response has been assigned at this time.
CMM 2019-12 13	Each Member, CNCP and Relevant non-Member shall provide the Secretariat with VMS contact points in their FMCs including the name, position, email address and phone number of their VMS contact points. The Secretariat will make a list of VMS contact points available to all Members and Cooperating non-Contracting Parties.	If not a repeated case of non-compliance, and where a report is received subsequent to a deadline, then no further action is necessary and Member/CNCP shall receive an automatic response of Resolved Non-Compliance.
CMM 2019-12 17	In the event that an MTU has failed to transmit VMS data for four hours, the flag Member or CNCP shall require the fishing vessel master to manually report every four hours to the FMC or the Secretariat by other means of communication.	No automatic response has been assigned at this time.
CMM 2019-12 19	The flag Member or CNCP shall require an MTU that fails to transmit VMS data in accordance with this measure, be repaired or replaced as soon as possible and, in any event, within thirty (30) days of the VMS data transmission failure.	No automatic response has been assigned at this time.
CMM 2019-12 20	Where domestic legislation prevents compliance with paragraph 18 above, a Member, CNCP or Relevant non-Member shall require an MTU that fails to transmit VMS data in accordance with this measure, be repaired within 60 days. This provision shall expire July 31, 2020.	No automatic response has been assigned at this time.

CMM 2019-12 21	If the fishing vessel returns to port following an MTU VMS data transmission failure, the Member, CNCP or Relevant non-Member shall not permit the vessel to undertake fishing in the Convention Area until the MTU has been replaced in accordance with the guidance in Annex I or is repaired and is able to transmit VMS data.	No automatic response has been assigned at this time.
CMM 2019-12 22	If a Member or CNCP or Relevant non-Member finds that an MTU has failed to transmit VMS data for twelve hours, the Member or CNCP or Relevant non-Member shall immediately notify the fishing vessel master, owner or authorized representative of this failure. If a failure to transmit occurs more than two times within a period of one year, the flag Member or CNCP or Relevant non-Member of the fishing vessel shall investigate the matter, including having an authorized official examine the MTU on board the vessel. The outcome of this investigation shall be forwarded to the Secretariat within fifteen (15) days of its completion.	No automatic response has been assigned at this time.

## Introduction of a Boarding Ladder for High Seas Boarding & Inspection

### UPDATE Commission Meeting:

- Language of requirement removed from CMM and Annex
  - Encouragement for vessels greater than 250GT
- 

### NPFC CMM HSBI 2017-09

#### *Amend:*

9. These procedures shall be implemented in a transparent and non-discriminatory manner, taking into account, inter alia:

(a) such factors as the presence of observers on board a vessel and the frequency and results of past inspections; and

(b) the full range of measures to monitor compliance with the provisions of the Convention and agreed conservation and management measures, including inspection activities carried out by the authorities of Members of the Commission in respect of their own flag vessels.

**ADD: (c) that NPFC Member inspectors are at risk of serious injury during the boarding process and that minimum standards for boarding ladders are to be implemented to the extent possible minimize this risk.**

26. During the conduct of a boarding and inspection, the master of the fishing vessel shall:

(a) follow internationally accepted principles of good seamanship so as to avoid risks to the safety of authorized inspection vessels and inspectors;

(b) accept and facilitate prompt and safe boarding by the authorized inspectors;

**(c) be encouraged to provide a boarding ladder in accordance with Annex A**

## ANNEX A

### Boarding Ladder Requirements

Commencing on March 1<sup>st</sup>, 2022, the Master of a fishing vessel with fishing vessel with a registered tonnage greater than or equal to 250 GT (Gross Tonnage) or GRT (Gross Register Tonnage), as registered in the NPFC Vessel Registry, is encouraged to provide a board ladder that meets the following guidelines:

- (a) A boarding ladder shall be provided for the purpose of enabling Authorized Inspectors to safely embark and disembark at-sea pursuant to the provisions of CMM 2017-09.
- (b) The ladder shall be secured in an area that is clear of any possible discharges, lines, or obstructions from the vessel.
- (c) The ladder shall be placed as near to the mid-length of the vessel as practicable.
- (d) Handholds shall be provided to ensure a safe passage from the deck to the head of the ladder and vice versa.
- (e) The rigging of the ladder and the embarkation and disembarkation of an Authorized Inspector shall be overseen by a responsible crew member of the vessel, who shall have communication with the bridge.
- (f) The steps of the ladder shall be:
  - i. made of hardwood (or of a suitable equivalent material).
  - ii. free from sharp edges or splinters.
  - iii. provided with an effective non-slip surface.
  - iv. not less than 480 mm long, 115 mm wide and 25 mm in depth.
  - v. equally spaced apart to ensure safe and ergonomic climbing of the ladder by an Authorized Inspector.
  - vi. secured in such a manner that they will remain horizontal.
- (g) The side ropes of the ladder shall:
  - i. consist of two uncovered manila ropes not less than 65 mm in circumference on each side.
  - ii. shall be continuous with no joins.
  - iii. shall have ends secured to prevent unravelling.
  - iv. Battens (span boards) made of hardwood or a material of equivalent properties, in one piece, shall be provided to prevent the boarding ladder from twisting.
  - v. An authorized inspector shall have the discretion to instruct a vessel master to move or reconfigure the boarding ladder if deemed unsafe for use.

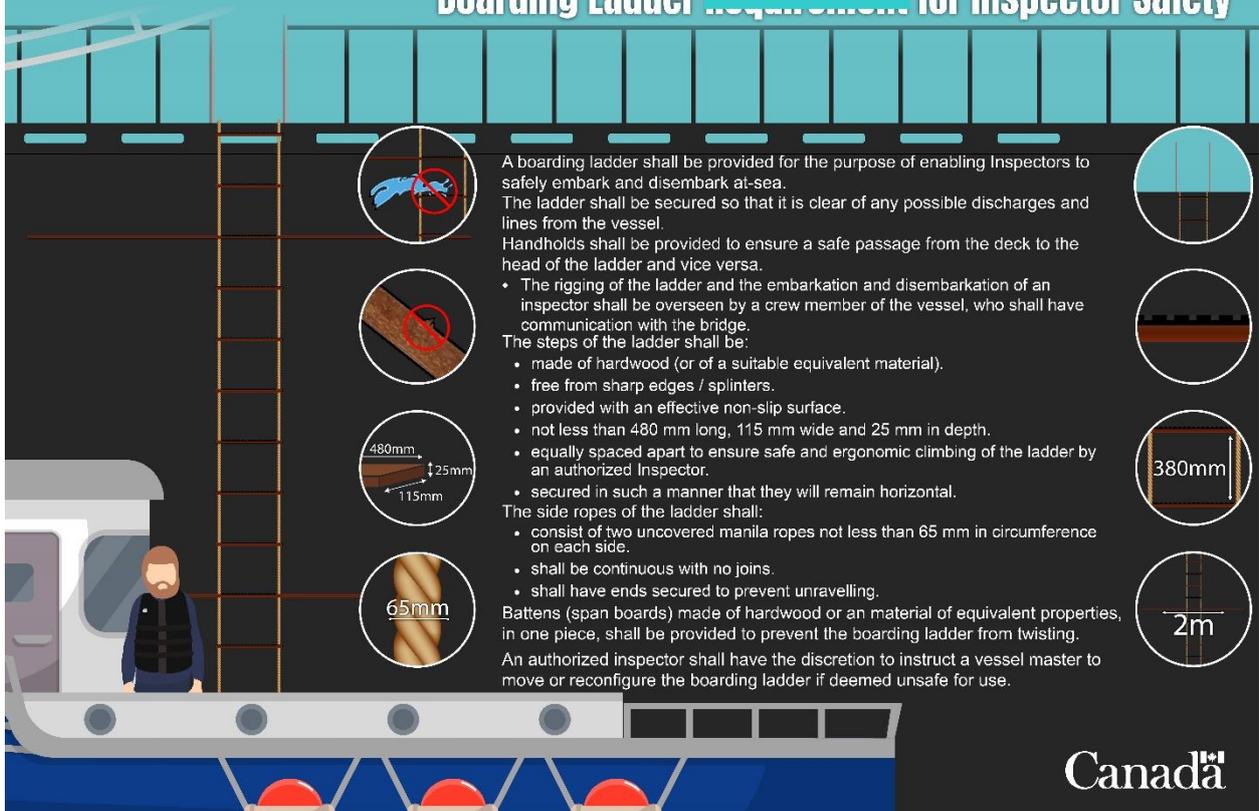
**Note: A graphic regarding the boarding ladder is attached hereto.**



Fisheries and Oceans  
Canada

Pêches et Océans  
Canada

## Boarding Ladder Requirements for Inspector Safety



A boarding ladder shall be provided for the purpose of enabling Inspectors to safely embark and disembark at-sea. The ladder shall be secured so that it is clear of any possible discharges and lines from the vessel. Handholds shall be provided to ensure a safe passage from the deck to the head of the ladder and vice versa.

- The rigging of the ladder and the embarkation and disembarkation of an inspector shall be overseen by a crew member of the vessel, who shall have communication with the bridge.

The steps of the ladder shall be:

- made of hardwood (or of a suitable equivalent material),
- free from sharp edges / splinters.
- provided with an effective non-slip surface.
- not less than 480 mm long, 115 mm wide and 25 mm in depth.
- equally spaced apart to ensure safe and ergonomic climbing of the ladder by an authorized Inspector.
- secured in such a manner that they will remain horizontal.

The side ropes of the ladder shall:

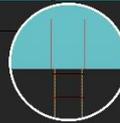
- consist of two uncovered manila ropes not less than 65 mm in circumference on each side.
- shall be continuous with no joins.
- shall have ends secured to prevent unravelling.

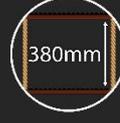
Battens (span boards) made of hardwood or an material of equivalent properties, in one piece, shall be provided to prevent the boarding ladder from twisting.

An authorized inspector shall have the discretion to instruct a vessel master to move or reconfigure the boarding ladder if deemed unsafe for use.










**CONSERVATION AND MANAGEMENT MEASURE ON INFORMATION  
REQUIREMENTS FOR VESSEL REGISTRATION**

*The North Pacific Fisheries Commission (NPFC),*

*Recalling* Article 4 of the Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas of 24 November 1993 that stipulates to maintain a record of fishing vessels entitled to fly its flag and authorized to be used for fishing on the high seas, and to take such measures as may be necessary to ensure that all such fishing vessels are entered in that record,

*Recognizing* Article 7, paragraph 2 (d) of the Convention regarding the establishment of appropriate cooperative mechanisms for effective monitoring, control and surveillance to ensure enforcement of the conservation and management measures adopted by the Commission including mechanisms to prevent, deter and eliminate IUU fishing,

*Reaffirming* that Article 13, paragraph 1 of the Convention that members of the Commission or Cooperating non-Contracting Parties shall take necessary measures to ensure that fishing vessels entitled to fly its flag operating in the Convention Area comply with the provisions of the Convention and measures adopted pursuant to the Convention and such vessels do not engage in any activities that undermine the effectiveness of such measures and do not conduct unauthorized fishing activities within areas under national jurisdiction of another State adjacent to the Convention Area,

*Also reaffirming* that Article 13, paragraph 2 of the Convention that no members or Cooperating non-Contracting Parties of the Commission shall allow any fishing vessel entitled to fly its flag to be used for fishing activities in the Convention Area unless it has been authorized to do so by the appropriate authority or authorities of that member of the Commission or Cooperating non-Contracting Parties. Each member of the Commission, or Cooperating non-Contracting Parties, shall authorize the use of vessels entitled to fly its flag in the Convention Area only where it is able to exercise effectively its responsibilities in respect of those vessels under this Convention, the 1982 Convention and the 1995 Agreement,

*Also recognizing* that members of the Commission or Cooperating non-Contracting Parties have the need to conduct transshipment with carrier vessels that are flagged to Commission members, Cooperating non-Contracting Parties[],

*Noting* the decision by the IMO Assembly in its 30<sup>th</sup> session to expand eligibility for IMO numbers to fishing vessels less than 100 gross tons down to a size limit of 12 meters in length overall authorized to operate outside waters under national jurisdiction of the flag State to assist in identifying and tracking fishing vessels and to tackle illegal, unreported and unregulated fishing,

*Adopts* the following conservation and management measures in accordance with Article 7, Article 13, paragraph 8 and Article 15 of the Convention:

### **NPFC Vessel Registry**

For the purpose of the effective implementation of the Convention, each Commission member or Cooperating non-Contracting Party shall:

1. Maintain a record of fishing vessels entitled to fly its flag and authorized to be used for fishing activities in the Convention Area in accordance with the information requirements in the Annex.
2. Update pertinent information required from paragraph 1 in the NPFC Vessel Registry established under Article 13, paragraph 10 of the Convention, noting that vessel submissions which do not include the initial data elements as indicated in the Annex will not be accepted by the database.
3. Promptly update the NPFC Vessel Registry with:
  - a) any additions to the record; e.g. new vessel authorizations;
  - b) any modifications to this information with dates of such modifications; and
  - c) any deletions from the record, specifying which of the following reasons is applicable:
    - i) the voluntary relinquishment of the fishing authorization by the fishing vessel owner or operator;
    - ii) the withdrawal or non-renewal of the fishing authorization issued in respect of the fishing vessel under Article 13, paragraph 2 of the Convention;
    - iii) the fact that the fishing vessel concerned is no longer entitled to fly its flag;
    - iv) the scrapping, decommissioning, or loss of the fishing vessel concerned; or
    - v) any other grounds, with a specific explanation provided.
4. Provide to the Commission, as part of the annual report required pursuant to Article 16 of the Convention, the names of the fishing vessels entered in the record that conducted fishing activities during the previous calendar year.

### **Vessel Marking**

5. Each Commission Member and Cooperating non Contracting Party shall ensure that every fishing vessel authorized to fly its flag bear markings that are readily identified in accordance with the FAO Standard Specifications for the Marking and Identification of Fishing Vessels, and recognize that non-compliance with these standards shall be considered a serious violation according to Article 17, paragraph 5 of the NPFC Convention and Article 21 Paragraph 11(f) of the United Nations Fish Stocks Agreement.

## **General**

6. Commission Members and Cooperating non-Contracting Parties shall ensure they have maintained the NPFC Vessel Registry of the vessels based on the information provided to it and make the record publicly available as appropriate and subject to any legal confidentiality regulations of the individual Commission member and Cooperating non-Contracting Party.
7. The Commission member or Cooperating non-Contracting Parties entering vessels identified in paragraph 2 on the NPFC Vessel Registry established under paragraph 1 shall attest that the vessel or vessels being added recommended are not vessels:
  - a) with a history of illegal, unreported or unregulated (IUU) fishing, unless the ownership of the vessel has subsequently changed and the new owner has provided sufficient evidence demonstrating that the previous owner or operator has no legal, beneficial or financial interest in, or control of the vessels, or Commission members or Cooperating non-Contracting Parties concerned is satisfied that, having taken into account all relevant facts, the vessel is no longer engaged in or associated with IUU fishing; or
  - b) that are currently listed on any of the IUU vessel lists adopted by regional fishery management organizations (RFMOs)
8. If a fishing vessel with such an IUU history or on an RFMO IUU Vessel list as noted in paragraph 7 without the appropriate justification noted therein, is uploaded to, or found on the NPFC Vessel Registry, the Executive Secretary shall remove the vessel from the appropriate vessel registry with notification of such action to the flag member.
9. Each Commission Member and Cooperating non-Contracting Party entering vessels on the NPFC Vessel Registry must enter the required data for its vessels, immediately after it has so authorized the vessel to conduct fishing activities.

An authorized vessel cannot conduct fishing activities in the Convention Area until the vessel has been accepted in the NPFC Vessel Registry.
10. The Commission shall also provide to any Commission Member or Cooperating non-Contracting Party, upon request, information about any vessel entered on the Commission record that is not otherwise publicly available, as appropriate.
11. This CMM shall replace the NPFC CMM 2019-01.

**List of Fields in the NPFC Vessel Registry and their Format and Content**

“Asterisks (\*) denote ‘initial data elements’ required to commence fishing activities in the Convention Area.”

	Field	Field Name	Field Format	Field Description/Instructions	Example	Ref.
		NPFC ID	Number (integer)	This number is assigned automatically upon entry of vessel information.	1099	
*	(a)	Flag State	Text	The registered flag state – in UPPER CASE.	CANADA	
*	(b)	Authorizing Member	Text	Country/Member name – in UPPER CASE.	CHINA	
*	(c)	Name of fishing vessel	Text	Name of the fishing vessel as indicated on flag State registration – in UPPER CASE.	HAPPY NO. 123	CMM 2019-01
(where applicable)	(d)	Previous name(s) of fishing vessel	Text	List of the previous name(s) of the fishing vessel in UPPER CASE. <ul style="list-style-type: none"> <li>If the Member/CNCP knows the vessel has no previous names, use “N/A”.</li> </ul>	UNHAPPY NO. 1; IMHERE NO. 2	CMM 2019-01

				<ul style="list-style-type: none"> <li>If the Member/CNCP does not know if the vessel has any previous names, use "NONE KNOWN".</li> </ul> <p>If multiple previous vessel names, separate entries with ";" (semi-colon).</p>		
*	(e)	Registration number	Text	Alphanumeric registration identifier assigned by the flag country/Member, as indicated on flag country/Member registration – in UPPER CASE.	ABCD1234	CMM 2019-01
(where applicable)	(f)	Previous registration number(s)	Text	Alphanumeric registration identifier assigned by the flag country, as indicated on flag State registration – in UPPER CASE.  If multiple previous registration numbers, separate entries with ";" (semi-colon).	EFGH5678; IJKLO109	CMM 2019-01
	(g)	Port of registry	Text	Country/Member name – in UPPER CASE.	PANAMA	CMM 2019-01
(where applicable)	(h)	Previous port(s) of registry	Text	Country/Member name – in UPPER CASE,  If multiple previous ports of registry, separate entities with ";" (semi-colon).	CANADA; JAPAN	CMM 2019-01

*	(i)	IMO number* *Required for vessels which are eligible to receive IMO numbers	Number (integer)	A seven-digit number assigned to all vessels by HIS.  Enter "Pending IMO" if not yet available.  All fishing vessels are required to have an IMO number by 1 January 2020.	1234567  PENDING IMO	CMM 2019-01
*	(j)-1	Name of owner(s)	Text	All in UPPER CASE.  If multiple owners, separate entries with " ; ".  If company, enter full name of the company.  If personal name, enter last/family name, first/given name(s) (separated by a comma).	DOE, JANE; GOOD CATCH INC.;	CMM 2019-01
*	(j)-2	Address of owner(s)	Text	All in UPPER CASE.  Separate components of each address with a comma.  If more than one address, separate addresses with " ; " (semi-colon).	2F, HAKUYO HALL, TOKYO UNIVERSITY OF MARINE AND TECHNOLOGY, 4-5- 7 KONAN, MINATO-KU TOKYO 108-8477 JAPAN.	CMM 2019-01
*	(k)-1	Name of master	Text	All in UPPER CASE.	DOE, JANE	CMM 2019-01

				Enter last/family name, first/given name(s).		
*	(k)-2	Citizenship of master	Text	All in UPPER CASE. If multiple masters, separate entries with “;” (semi-colon).	RUSSIA	CMM 2019-01
(if any)	(l)	Previous flag	Text	List previous flag(s) of the vessel, if any. <ul style="list-style-type: none"><li>If vessel has no previous flag, enter “N/A”.</li></ul> If multiple previous flags, separate entries with “;” (semi-colon).	JAPAN; REPUBLIC OF KOREA	CMM 2019-01
* (where applicable)	(m)	International Radio Call Sign (IRCS)	Text	Alphanumeric code. All in CAPS without space.	BZ1VK	CMM 2019-01
(where applicable)	(n)	Maritime Mobile Service Identity (MMSI)	Number (integer)	A nine-digit number.	123456789	CMM 2019-01
	(o)	Vessel communication types and numbers, including when available: satellite-based telephony or data services/devices.	Number	Enter description of each of any communication devices on board the vessel that use Inmarsat A, B, or C, or that have a satellite telephone number.	C:123344556	CMM 2019-01

				If no such communication devices are on board, enter "NONE".		
*	(p)	Vessel Photo  Full length color photograph(s) showing Side view including IRCS. Photographs must show clear and unobstructed views that demonstrate compliance with vessel marking requirements to be accepted by the Secretariat for addition to the database; Provision of additional photographs showing bow and stern view are encouraged	PNG JPEG	Upload file containing vessel photo. Enter the name of the electronic data file, using the following format:  [NPFC ID #]_[Vessel Name]_[Date of Photograph: dd.mm.yyyy]	1551_JOY NO. 345_06.12.2019	CMM 2019-01
*	(q)-1	Where (country/Member) built.	Text	Country/Member name – in UPPER CASE.	JAPAN	CMM 2019-01
*	(q)-2	When built (year).	Number (integer)	Enter the year the vessel was built in.	1996	CMM 2019-01
*	(r)	Type of vessel, as specified in standard abbreviations under the	Text	Enter vessel type(s) as listed under the FAO ISSCFV.	JIGGER VESSELS	CMM 2019-01

		current <i>FAO International Standard Statistical Classification of Fishery Vessels by Vessel Types</i> (ISSCFV).				
	(s)	Normal crew complement	Number (integer)	The number of crew members normally on board the vessel, including officers.	35	CMM 2019-01
	(t)	Type of gear  Type of fishing method or methods, as specified in standard abbreviations under the current <i>FAO International Standard Statistical Classification of Fishing Gear</i> (ISSCFG) and additions as requested by Members to accommodate gear not in the ISSCFG.	Text	Enter gear type(s) as listed under the FAO ISSCFG.	LIFT NETS (NEI)	CMM 2019-01
*	(u)-1	Type of length  [Length*, including type of length* and unit of measurement.*]	Text	Enter length overall (LOA), length between perpendiculars, waterline length, or registered length.	Length overall (LOA)	CMM 2019-01

*	(u)-2	Length	Number (decimal)		109.00	CMM 2019-01
*	(u)-3	Length measurement unit	Text	Enter metres or feet.	Metres	CMM 2019-01
	(w)-1	Type of Depth  [Depth, including type of depth and unit of measurement.]	Text	Enter draft/draught or moulded depth.	Draft/draught Moulded depth	CMM 2019-01
	(w)-2	Depth	Number (decimal)		10.50	
	(w)-3	Depth measurement unit	Text	Enter metres or feet.	Metres	CMM 2019-01
*	(x)-1	Type of beam  [Beam*, including type of beam* and unit of measurement.*]	Text	Enter moulded breadth or extreme breadth.	Moulded breath.	CMM 2019-01
*	(x)-2	Beam	Number (decimal)		18.00	CMM 2019-01
*	(x)-3	Beam measurement unit	Text	Enter metres or feet.	Metres	CMM 2019-01
*	(y)-1	Tonnage	Number (decimal)		5005.00	CMM 2019-01

		[Gross register tonnage*, or gross tonnage* (specify which)]				
*	(y)-2	Tonnage type	Text	Enter gross register tonnage (GRT) or gross tonnage (GT).	GRT	CMM 2019-01
	(z)-1	Power of main engine or engine(s) [Power of main engine or engines, including unit of measurement.]	Number (decimal)		3000.00	CMM 2019-01
	(z)-2	Engine measurement unit	Text	Enter kilowatts (kW), horsepower (hp), or pferdestärke.	Kilowatts (kW)	CMM 2019-01
*	(aa)	Domestic Licence Authorization  The nature of authorization to fish granted by the flag state in its domestic licence, such as type or method of fisheries authorized and main target species, and authorized periods.	Text and/or number. For date - DAY/ MONTH/ YEAR	Enter start and end dates of domestic licence authorization, target species, and authorization number.	12-05-2019 – 11-10-2020 Pacific Saury 1135	CMM 2019-01

*	(aa)-1	<p>NPFC Commission Authorization period – the dates for the authorization to operate in the NPFC Convention Area by the Member commencing on the date of notification of the authorization to extend to the date of the domestic authorization period up to a maximum of five years from the notification date.</p> <p>Gear and species will be same as ‘Domestic Licence’, but identified according to the drop down list of individual target species (see example).</p>	For date – DAY/ MONTH/ YEAR	<p>System automatically enters notification date for commencement of authorization; Member enters end date, e.g., date of licence period if within 5 years from notification date, OR maximum of 5-year period from notification date.</p> <p>The target species for each authorization period must be listed separately</p>	28 November 2020 – 27 November 2025 and species from drop down list – one of: Bottom fish; Mackerel; Japanese flying squid; neon flying squid; Japanese sardine, etc.. (maximum authorization period)	CMM 2019-01
	(b)	Fish hold capacity, in cubic metres.	Number (decimal)	The total amount of fish capable of being stored on the vessel, excluding bait and fish kept for crew consumption.	7151.00 m <sup>3</sup>	CMM 2019-01
	(c)	Freezer: number of freezers, type(s),	Text; Number (decimal)	Freezer type: enter ice, brine, air blast, air coil, and/or plate freezer.	2-Air blast-55 cubic metres	CMM 2019-01

		capacity, and unit of measurement.  [Freezer type and capacity, including unit of measurement.]		Capacity unit: enter tons/day, metric ton/day, lbs/day, cubic metres, and/or cubic feet.		
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### **Specifications for the Marking and Identification of Fishing Vessels**

#### *Purpose*

1. These specifications are intended to implement the *FAO Standard Specifications for the Marking and Identification of Fishing Vessels* for the North Pacific Fisheries Commission (NPFC).

#### *General Provisions*

2. Each Commission Member and Cooperating non-Contracting Party shall ensure that each fishing vessel entitled to fly its flag and authorized to be used for fishing in the Convention Area is:
  - a) marked and identifiable with their International Telecommunication Union Radio Call Sign (IRCS); and
  - b) where an IRCS has not been assigned, the vessel shall be marked and identifiable with the characters allocated by the International Telecommunication Union (ITU) to the flag State and followed by, as appropriate, the licence or registration number assigned by the flag State. In such cases, a hyphen shall be placed between the nationality identification characters, and the licence or registration number identifying the vessel.
3. In order to avoid confusion with the letters I and O, it is recommended that the numbers 1 and 0, which are specifically excluded from the ITU call signs, be avoided by national authorities when allocating licence or registration numbers.
4. Apart from the fishing vessel's name or identification mark and the port of registry as required by international practice or national legislation, the marking system as specified shall, in order to avoid confusion, be the only other vessel identification mark consisting of letters and numbers to be painted on the hull or superstructure.

#### *Application of Markings*

5. Each Commission Member and Cooperating non-Contracting Party shall ensure that the markings are prominently displayed at all times:

- a) on the vessel's side or superstructure, port and starboard; fixtures inclined at an angle to the vessel's side or superstructure are permitted provided that the angle of inclination does not prevent sighting of the sign from another vessel or from the air; and
  - b) on a deck, except as provided for in paragraph 7. Should an awning or other temporary cover be placed so as to obscure the mark on a deck, the awning or cover shall also be marked. These marks should be placed athwartships with the top of the numbers or letters towards the bow.
6. Each Commission Member and Cooperating non-Contracting Party shall ensure that markings are:
- a) placed as high as possible above the waterline on both sides, and that such parts of the hull as the flare of the bow and the stern shall be avoided;
  - b) so placed as to not be obscured by the fishing gear whether it is stowed or in use;
  - c) clear of flow from scuppers or overboard discharges including areas which might be prone to damage or discolouration from the catch of certain types of species; and
  - d) not extended below the waterline.
7. Undecked vessels shall not be required to display the markings on a horizontal surface. However, owners should be encouraged, where practical, to fit a board on which the markings may be clearly seen from the air.
8. Vessels fitted with sails may display the markings on the sail in addition to the hull.
9. Boats, skiffs, and craft carried by the vessel for fishing operations shall bear the same mark as the vessel concerned.

*Specifications for Markings*

10. Each Commission Member and Cooperating non-Contracting Party shall ensure that:

- a) block lettering and numbering is used throughout;
- b) the width of the letters and numbers is in proportion to the height;
- c) the height ( $h$ ) of the letters and the numbers shall be in proportion to the size of the vessel in accordance with the following:
  - i) for marks to be placed on the hull, superstructure, and/or inclined surfaces:

<u>Length of vessel overall (LOA) in metres</u> (m)	Height of letters and numbers in metres (m) is not less than:
25 m and over	1.0 m
20 m but less than 25 m	0.8 m
15 m but less than 20 m	0.6 m
12 m but less than 15 m	0.4 m
5 m but less than 12 m	0.3 m
Under 5 m	0.1 m

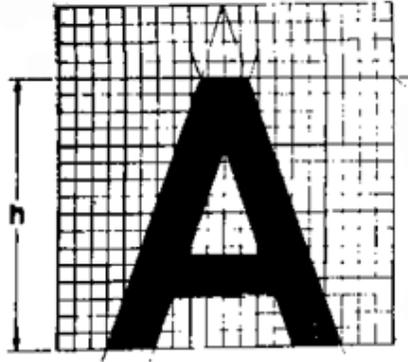
- ii) for marks to be placed on deck: the height shall not be less than 0.3 metres (m) for all classes of vessels of 5 metres (m) and over.
- d) the length of the hyphen shall be half the height of the letters and numbers;
- e) the width of the stroke for all letters, numbers, and the hyphen shall be  $h/6$ ;
- f) the space between letters and/or numbers shall not exceed  $h/4$ , nor be less than  $h/6$ ; and
- g) the space between adjacent letters having sloping sides shall not exceed  $h/8$ , nor be less than  $h/10$ , for example A V.

*Specifications for Painting of Markings*

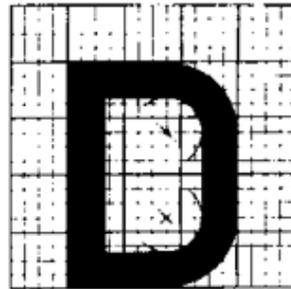
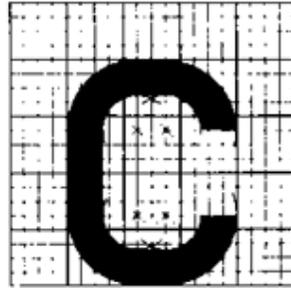
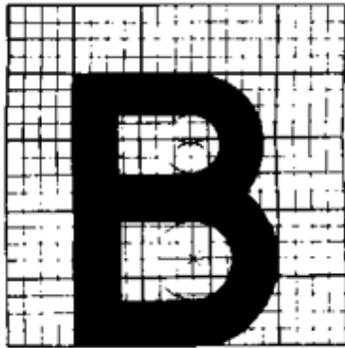
- 11.** Each Commission Member and Cooperating non-Contracting Party shall ensure that:
- a)** the markings are either white on a background, or black on a white background;
  - b)** the background shall extend to provide a border around the mark of not less than  $h/6$ ;
  - c)** good quality marine paint is used throughout;
  - d)** where retro-reflective or heat generating substances are used, the markings meet the requirements of this Annex; and
  - e)** the markings and background are maintained in good condition at all times.

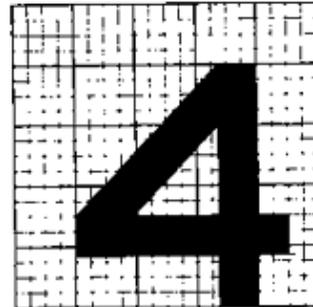
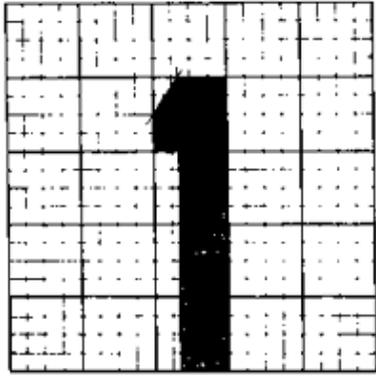
*Review and Amendment of Specifications*

- 12.** The Commission shall keep these specifications under review, and may amend them as appropriate.



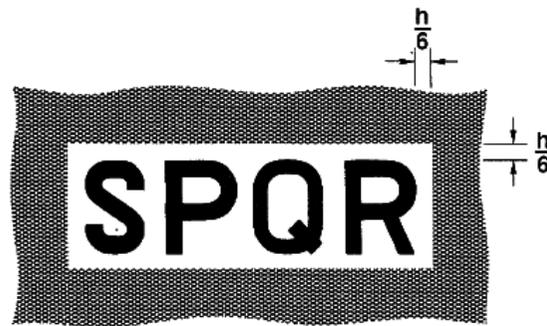
→ 0.15 ←





Examples of placement of the marks  
Exemples d'emplacement des marques  
Ejemplos de colocación de las marcas

CONTRAST / CONTRASTE / CONTRASTE



COLOURED BACKGROUND / FOND COLORE / FONDO EN COLOR



Group No. 1  
FACTORY TRAWLER

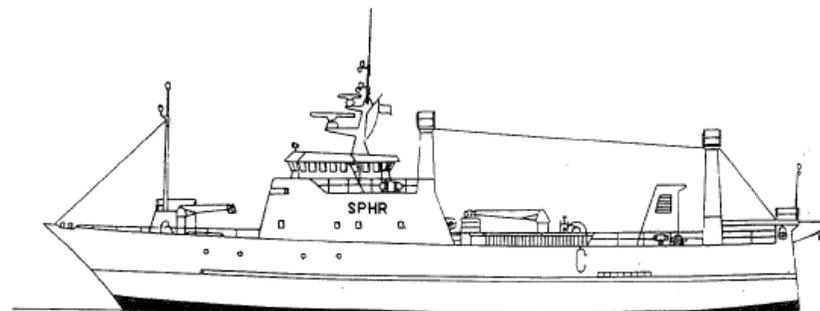
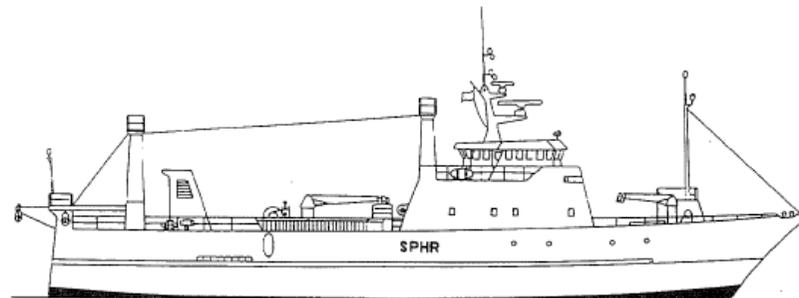
Length over all: 68 m  
Call sign: POLAND  
Letter height: 1 m

Groupe N° 1  
CHALUTIER-USINE

Longueur hors tout: 68 m  
Indicatif d'appel: POLOGNE  
Hauteur des lettres: 1 m

Grupo N° 1  
ARRASTRERO FACTORIA

Eslora máxima: 68 m  
Distintivos de llamado: POLONIA  
Altura de letra: 1 m



Group No. 1  
TUNA FURSE SEINER

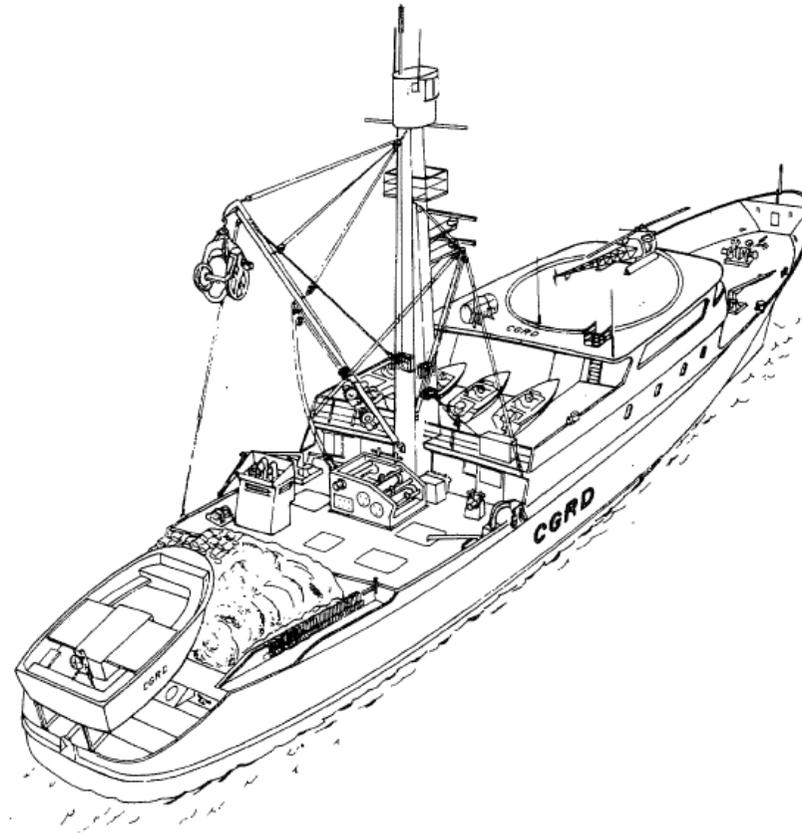
Length over all: 64 m  
Call sign: CANADA  
Letter height: 1 m  
- on superstructure:  
0,40 m  
- on skiff: 0.40 m

Groupe N° 1  
THONIER-SENNEUR

Longueur hors tout: 64 m  
Indicatif d'appel: CANADA  
Hauteur des lettres: 1 m  
- sur les superstructures:  
0,40 m  
- sur le bateau annexe:  
0,40 m

Grupo N° 1  
CERQUERO ATUNERO

Eslora máxima: 64 m  
Distintivos de llamado: CANADA  
Altura de letra: 1 m  
- sobre la subestructura:  
0,40 m  
- sobre la barca auxiliar:  
0,40 m



Group No. 1  
POLE AND LINE VESSEL/  
AMERICAN TYPE

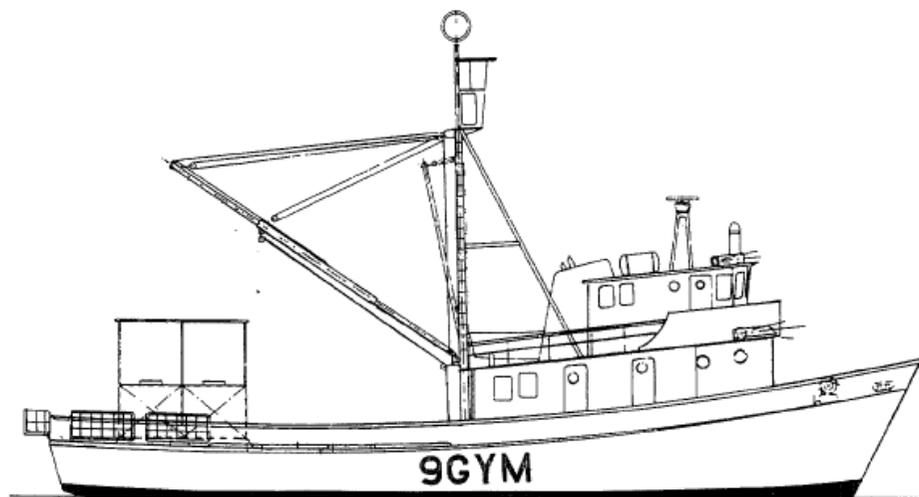
Length over all: 28 m  
Call sign: GHANA  
Letter height: 1 m

Groupe N° 1  
CANNEUR, TYPE AMERICAIN

Longueur hors tout: 28 m  
Indicatif d'appel: GHANA  
Hauteur des lettres: 1 m

Grupo N° 1  
EMBARCACION PARA LA PESCA CON  
LINEA Y CAÑA, TIPO AMERICANO

Eslora máxima: 28 m  
Distintivos de llamado: GHANA  
Altura de letra: 1 m



Group No. 1  
LONGLINER

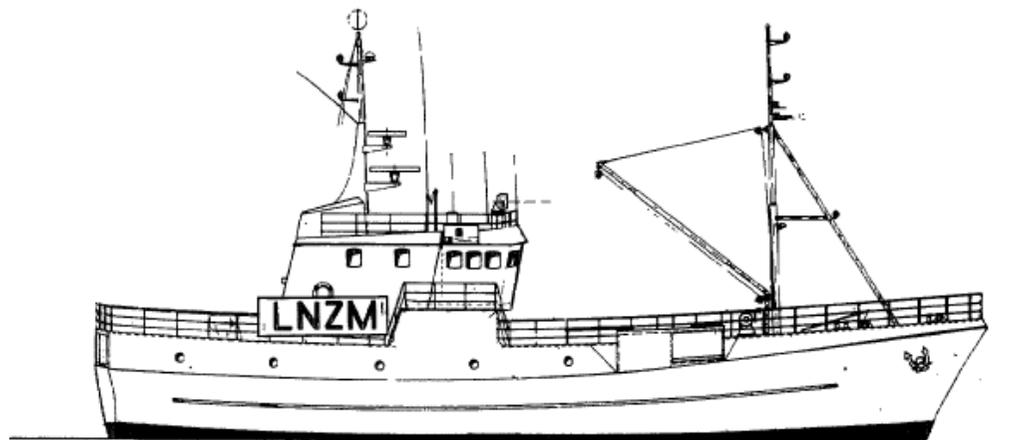
Length over all: 33.50 m  
Call sign: NORWAY  
Letter height: 1 m

Groupe N° 1  
PALANGRIER

Longueur hors tout: 33,50 m  
Indicatif d'appel: NORVEGE  
Hauteur des lettres: 1 m

Grupo N° 1  
PALANGRERO

Eslora máxima: 33,50 m  
Distintivos de llamado: NORUEGA  
Altura de letra: 1 m



Group No. 2  
POLE AND LINE, JAPANESE  
TYPE

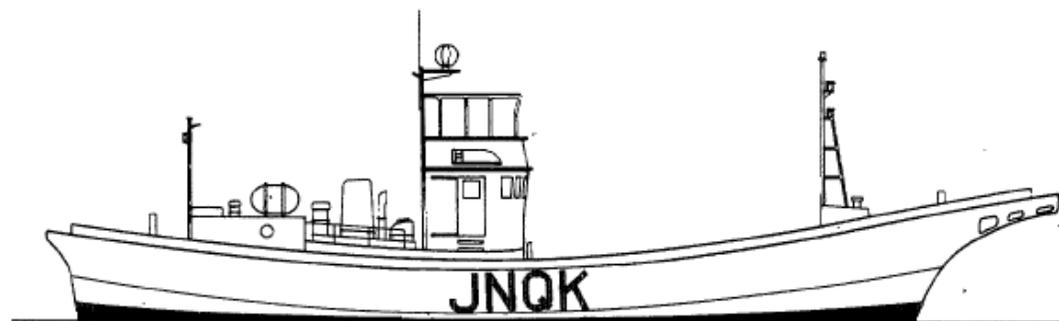
Length over all: 21.55 m  
Call sign: JAPAN  
Letter height: 0.8 m

Groupe N° 2  
CANNEUR, TYPE JAPONAISE

Longueur hors tout: 21,55 m  
Indicatif d'appel: JAPON  
Hauteur des lettres: 0,8 m

Grupo N° 2  
EMBARCACION, PARA LA PESCA CON  
LINEA Y CANA, TIPO JAPONES

Eslora máxima: 21,55 m  
Distintivos de llamado: JAPON  
Altura de letra: 0,8 m



Group No. 2  
PURSE SEINER

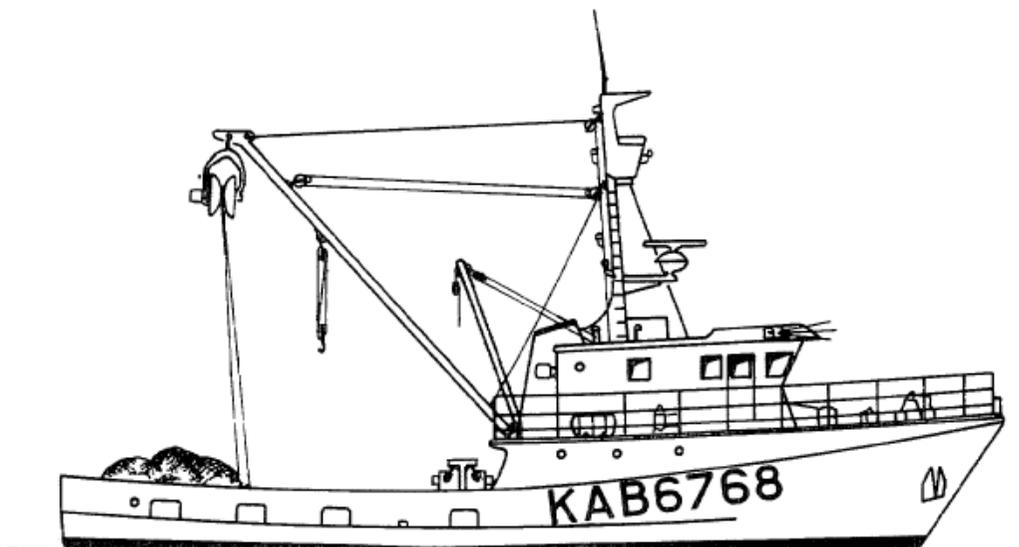
Length over all: 22 m  
Call sign: U.S.A.  
Letter height: 0.8 m

Groupe N° 2  
SENNEUR

Longueur hors tout: 22 m  
Indicatif d'appel: ETATS-UNIS  
Hauteur des lettres: 0,8 m

Grupo N° 2  
CERQUERO

Eslora máxima: 22 m  
Distintivos de llamado: ESTADOS  
UNIDOS  
Altura de letra: 0,8 m



Group No. 2  
SCALLOP DREDGER

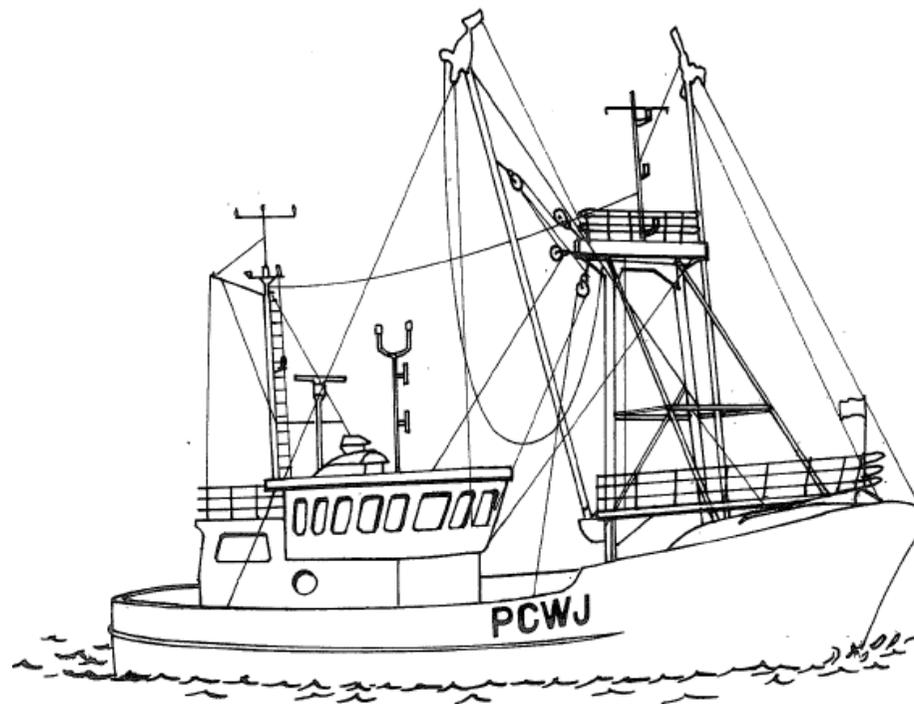
Length over all: 22 m  
Call sign: NETHERLANDS  
Letter height: 0.8 m

Groupe N° 2  
DRAGUEUR

Longueur hors tout: 22 m  
Indicatif d'appel: PAYS-BAS  
Hauteur des lettres: 0,8 m

Grupo N° 2  
RASTRERO

Eslora máxima: 22 m  
Distintivos de llamado: PAISES  
BAJOS  
Altura de letra: 0,8 m



Group No. 2  
TRAWLER/SEINER

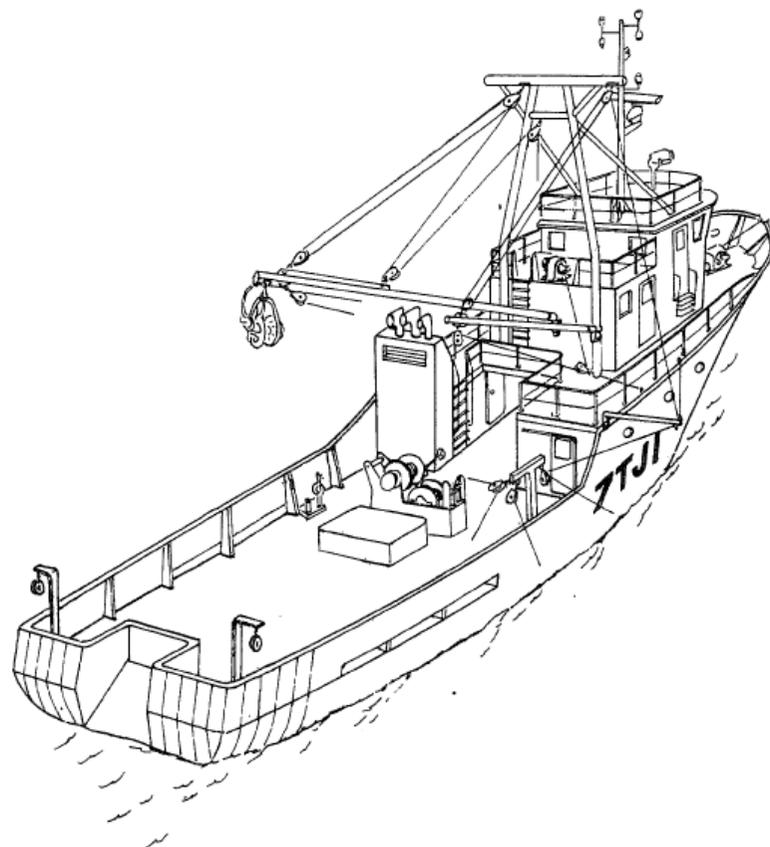
Length over all: 20 m  
Call sign: ALGERIA  
Letter height: 0.8 m

Groupe N° 2  
CHALUTIER-SENNEUR

Longueur hors tout: 20 m  
Indicatif d'appel: ALGERIE  
Hauteur des lettres: 0,8 m

Grupo N° 2  
ARRASTRERO-CERQUERO

Eslora máxima: 20 m  
Distintivos de llamado: ARGELIA  
Altura de letra: 0,8 m



Group No. 2  
MEDIUM-SIZED SHELTER DECK  
STERN TRAWLER

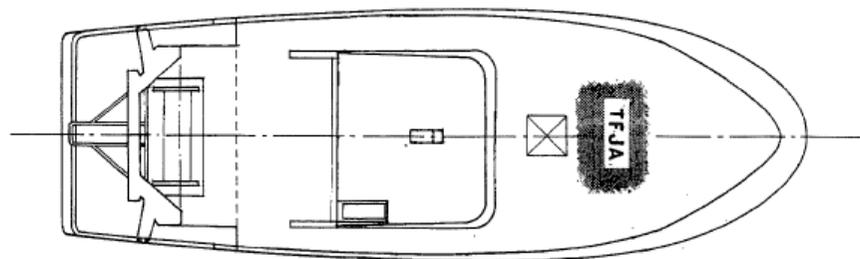
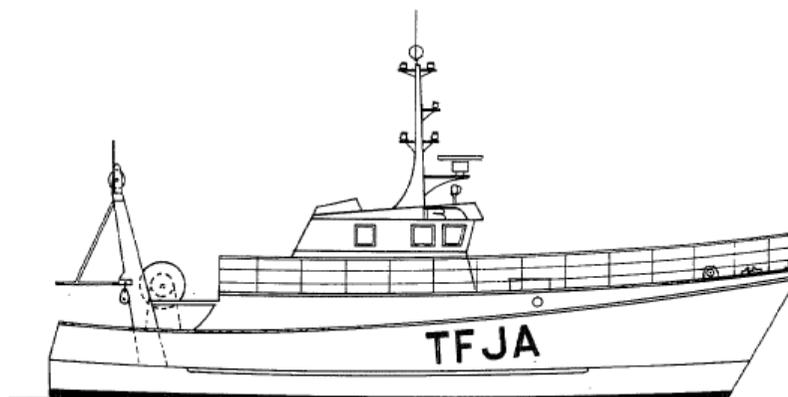
Length over all: 22 m  
Call sign: ICELAND  
Letter height: 0,8 m  
- on deck: 0,3 m

Groupe N° 2  
CHALUTIER PECHE ARRIERE DE  
TAILLE MOYENNE A PONT COUVERT

Longueur hors tout: 22 m  
Indicatif d'appel: ISLANDE  
Hauteur des lettres: 0,8 m  
- sur le pont: 0,3 m

Grupo N° 2  
ARRASTRERO POR LA POPA MEDIANO  
CON CUBIERTA PROTEGIDA

Eslora máxima: 22 m  
Distintivos de llamado:  
ISLANDIA  
Altura de letra: 0,8 m  
- sobre la cubierta: 0,3 m



Group No. 3  
OUTRIGGER TRAWLER

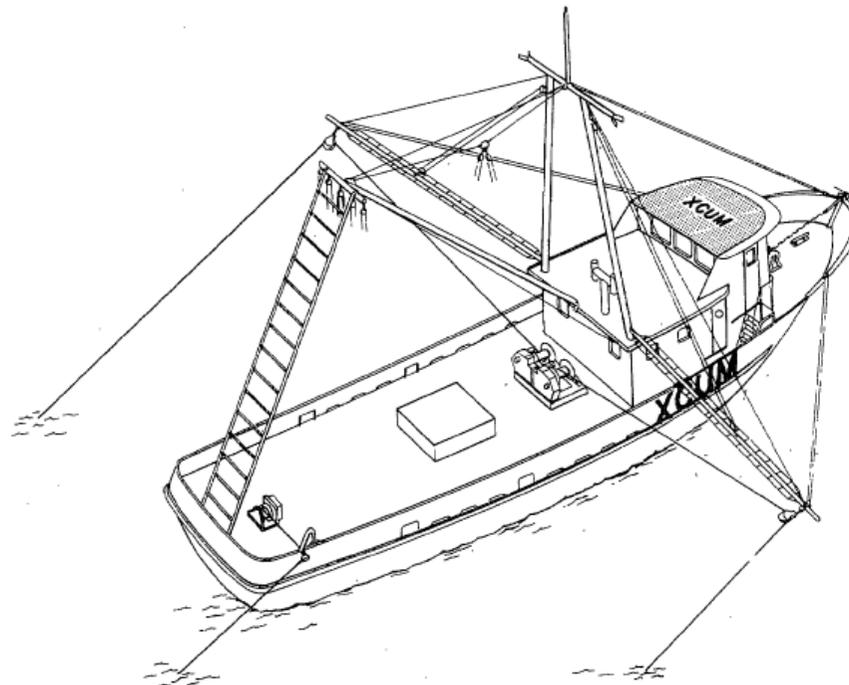
Length over all: 18 m  
Call sign: MEXICO  
Letter height: 0.6 m  
- on wheelhouse top:  
0.3 m

Groupe N° 3  
CHALUTIER A TANGONS

Longueur hors tout: 18 m  
Indicatif d'appel: MEXIQUE  
Hauteur des lettres: 0,6 m  
- sur le timonerie: 0,3 m

Grupo N° 3  
ARRASTRERO CON HORQUETA

Eslora máxima: 18 m  
Distintivos de llamado: MEXICO  
Altura de letra: 0,6 m  
- sobre caseta de gobierno:  
0,3 m



Group No. 3  
SEINE NETTER

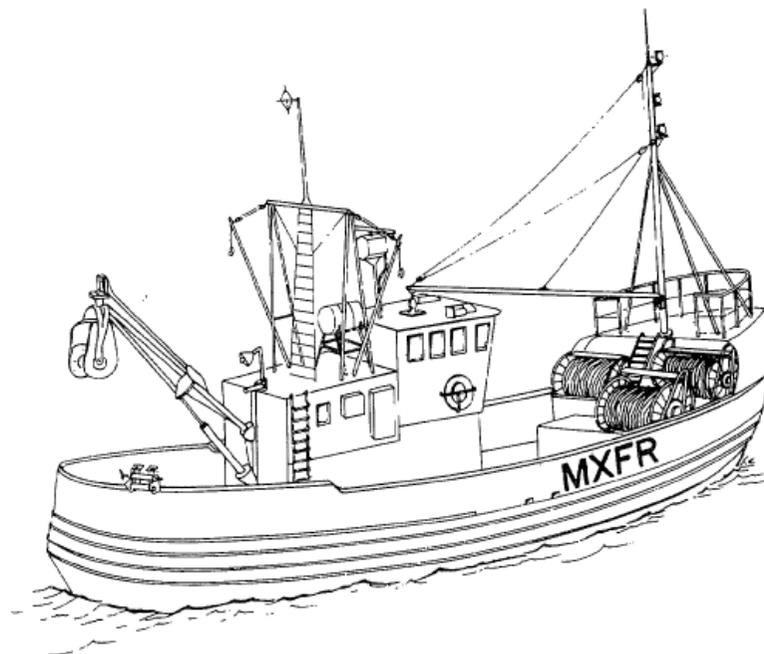
Length over all: 16 m  
Call sign: U.K.  
Letter height: 0.6 m

Groupe N° 3  
SENNEUR A SENNE DE FOND

Longueur hors tout: 16 m  
Indicatif d'appel: ROYAUME-  
UNI  
Hauteur des lettres: 0,6 m

Grupo N° 3  
CERQUERO DE RED DE TIRO

Eslora máxima: 16 m  
Distintivos de llamado: REINO  
UNIDO  
Altura de letra: 0,6 m



Group No. 3  
TROLLER

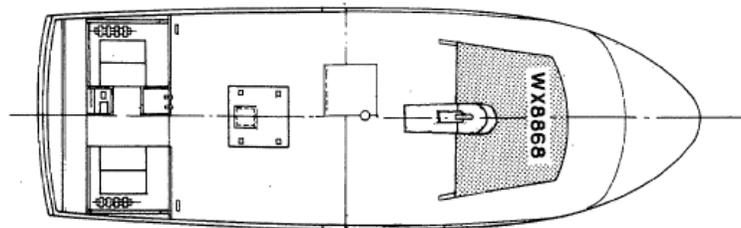
Length over all: 16.80 m  
Call sign: U.S.A.  
Letter height: 0.6 m  
- on wheelhouse: 0.3 m

Groupe N° 3  
LIGNEUR A LIGNES DE TRAINE

Longueur hors tout: 16,80 m  
Indicatif d'appel: ETATS-UNIS  
Hauteur des lettres: 0,6 m  
- sur le timonerie: 0,3 m

Grupo N° 3  
CURRICANERO

Eslora máxima: 16,80 m  
Distintivos de llamado: ESTADOS  
UNIDOS  
Altura de letra: 0,6 m  
- sobre caseta de gobierno:  
0,3 m



Group No. 4  
SMALL LONGLINER

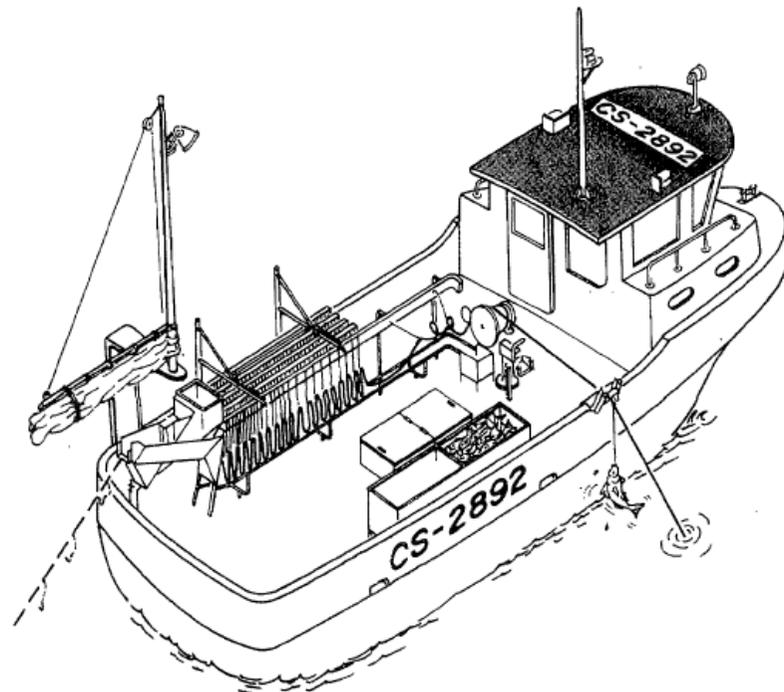
Length over all: 14 m  
Call sign: PORTUGAL + No.  
Letter height: 0.4 m  
- on wheelhouse: 0.3 m

Groupe N° 4  
PALANGRIER DE PETITE TAILLE

Longueur hors tout: 14 m  
Indicatif d'appel: PORTUGAL  
+ N°  
Hauteur des lettres: 0,4 m  
- sur la timonerie: 0,3 m

Grupo N° 4  
PALANGRERO PEQUEÑO

Eslora máxima: 14 m  
Distintivos de llamado:  
PORTUGAL + N°  
Altura de letra: 0,4 m  
- sobre la caseta de gobierno:  
0,3 m



Group No. 4  
SMALL STERN TRAWLER

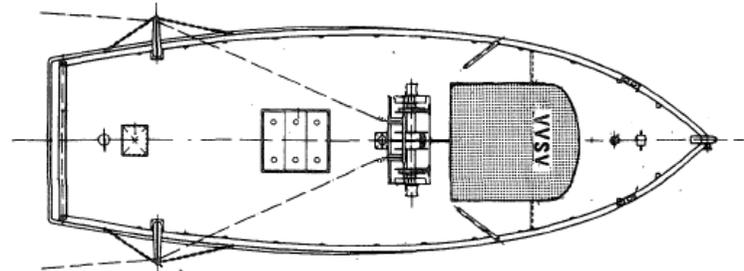
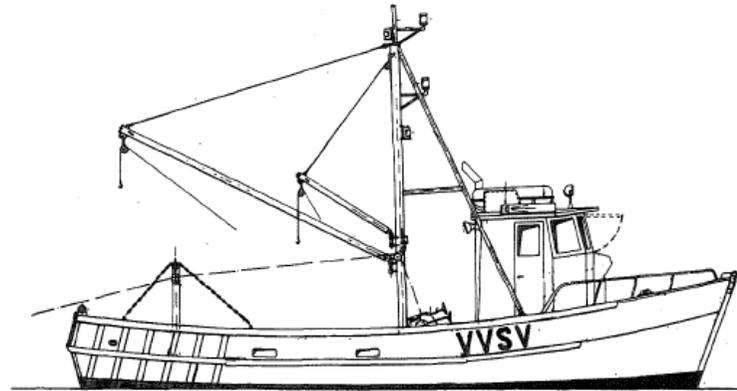
Length over all: 13 m  
Call sign: INDIA  
Letter height: 0.4 m  
- on wheelhouse top:  
0.3 m

Groupe N° 4  
CHALUTIER PECHE ARRIERE DE  
PETITE TAILLE

Longueur hors tout: 13 m  
Indicatif d'appel: INDE  
Hauteur des lettres: 0,4 m  
- sur le timonerie: 0,3 m

Grupo N° 4  
ARRASTRERO POR LA POPA PEQUEÑA

Eslora máxima: 13 m  
Distintivos de llamado: INDIA  
Altura de letra: 0,4 m  
- sobre caseta de gobierno:  
0,3 m

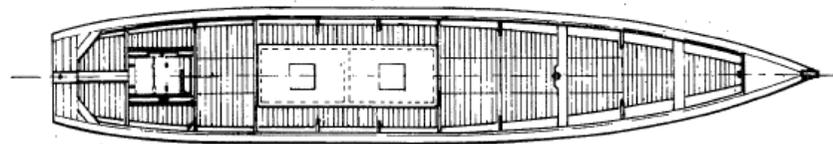
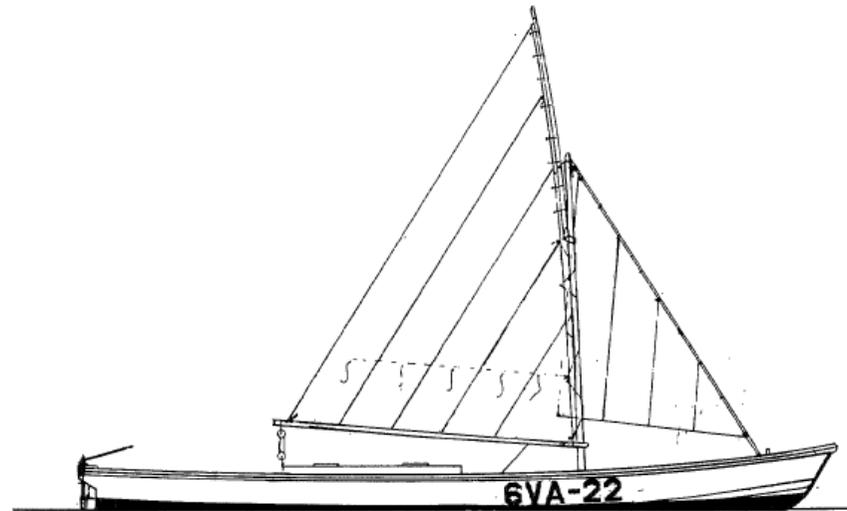


Group No. 4  
HANDLINER

Length over all: 14.80 m  
Call sign: SENEGAL + No.  
Letter height: 0.4 m

Groupe N° 4  
LIGNEUR A LIGNES A MAIN  
Longueur hors tout: 14,80 m  
Indicatif d'appel: SENEGAL  
+ N°  
Hauteur des lettres: 0,4 m

Grupo N° 4  
EMBARCACION PARA LA PESCA CON  
LINEAS DE MANO  
Eslora máxima: 14,80 m  
Distintivos de llamado: SENEGAL  
+ N°  
Altura de letra: 0,4 m



Group No. 5  
MULTIPURPOSE VESSEL

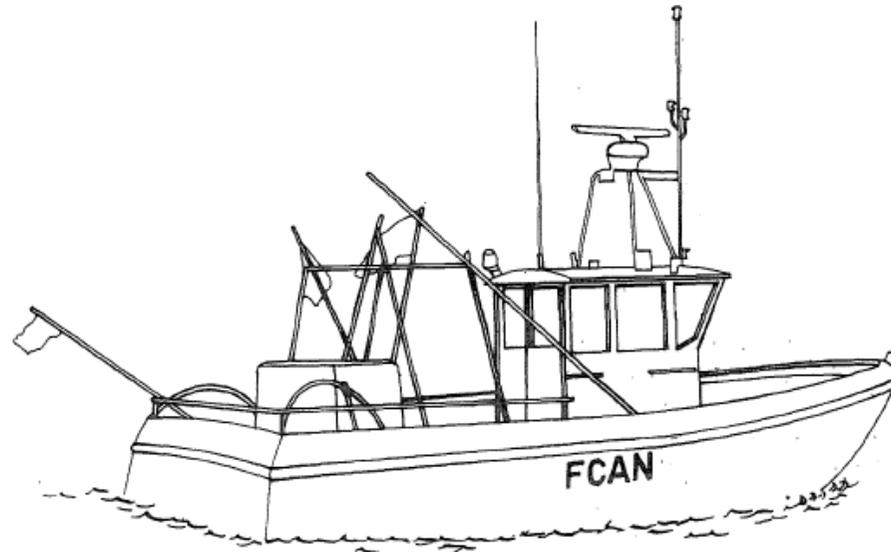
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Call sign: FRANCE  
Letter height: 0.30 m

Groupe N° 5  
NAVIRE POLYVALENT

Longueur hors tout: 9 m  
Indicatif d'appel: FRANCE  
Hauteur des lettres: 0,30 m

Grupo N° 5  
EMBARCACION POLYVALENT

Eslora máxima: 9 m  
Distintivos de llamado: FRANCIA  
Altura de letra: 0,30 m



Group No. 5  
VESSEL WITH SAIL

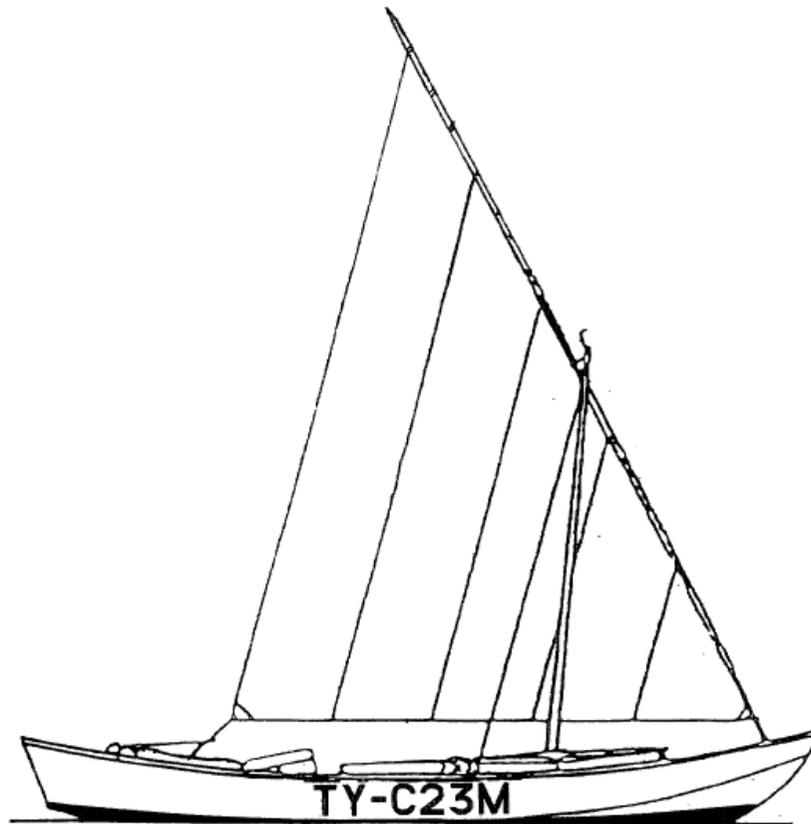
Length over all: 7.4 m  
Call sign: BENIN + No.  
Letter height: 0.30 m

Groupe N° 5  
BATEAU AVEC VOILE

Longueur hors tout: 7,4 m  
Indicatif d'appel: BENIN +  
N°  
Hauteur des lettres: 0,30 m

Grupo N° 5  
BARCO CON VELA

Eslora máxima: 7,4 m  
Distintivos de llamado: BENIN +  
N°  
Altura de letra: 0,30 m



Group No. 5  
HANDLINER

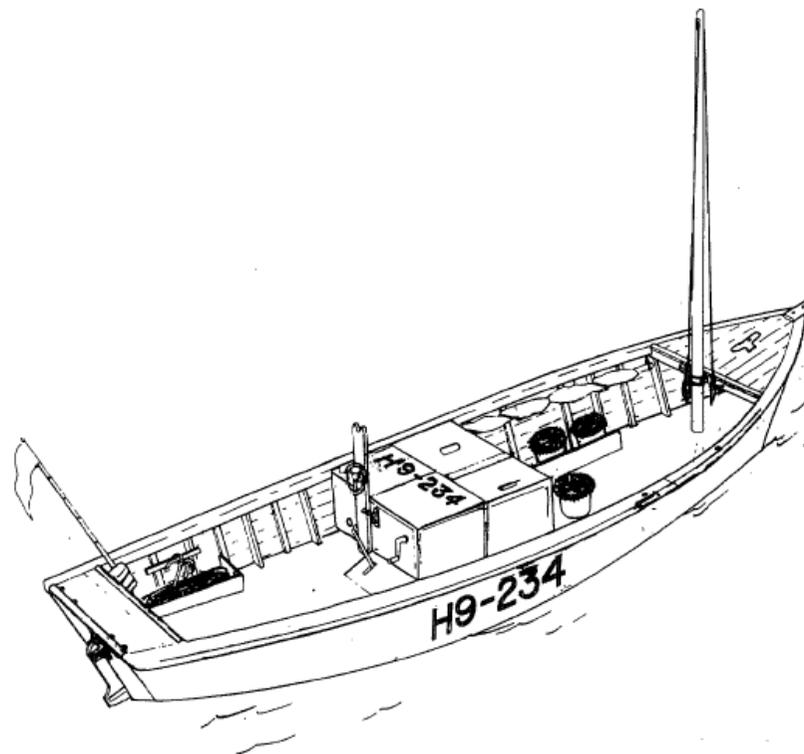
Length over all: 7.60 m  
Call sign: PANAMA + No.  
Letter height: 0.3 m  
- on engine box: 0.10 m

Groupe N° 5  
LIGNEUR A LIGNES A MAIN

Longueur hors tout: 7,60 m  
Indicatif d'appel: PANAMA +  
N°  
Hauteur des lettres: 0,3 m  
- sur coffe du moteur:  
0,10 m

Grupo N° 5  
EMBARCACION PARA LA PESCA CON  
LINEAS DE MANO

Eslora máxima: 7,60 m  
Distintivos de llamado: PANAMA  
+ N°  
Altura de letra: 0,3 m  
- sobre alojamiento del motor:  
0,10 m



Group No. 5  
SMALL POT FISHING VESSEL

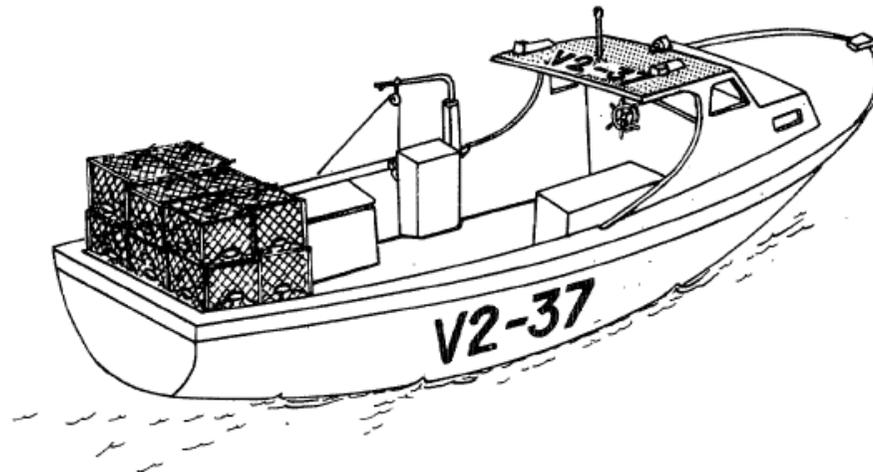
Length over all: 6 m  
Call sign: ANTIGUA  
Letter height: 0.3 m  
- on the cuddy: 0.10 m

Groupe N° 5  
CASEYEUR DE PETITE TAILLE

Longueur hors tout: 6 m  
Indicatif d'appel: ANTIGUA  
Hauteur des lettres: 0,3 m  
- sur la tille: 0,10 m

Grupo N° 5  
EMBARCACION PARA LA PESCA CON  
NASAS PEQUEÑA

Eslora máxima: 6 m  
Distintivos de llamado: ANTIGUA  
Altura de letra: 0,3 m  
- sobre la camarote de proa:  
0,10 m



Group No. 6  
OUTBOARD POWERED BOAT

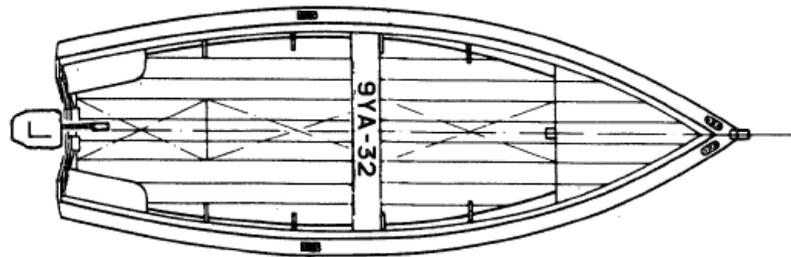
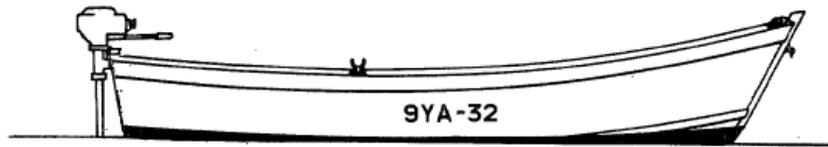
Length over all: 4.80 m  
Call sign: TRINIDAD AND  
TOBAGO + No.  
Letter height: 0.10 m  
- on seat: 0.10 m

Groupe N° 6  
BATEAU A MOTEUR HORS-BORD

Longueur hors tout: 4,80 m  
Indicatif d'appel: TRINITE-  
ET-TOBAGO + N°  
Hauteur des lettres: 0,10 m  
- sur le banc: 0,10 m

Grupo N° 6  
LANCHA CON MOTOR FUERA DE BORDA

Eslora máxima: 4,80 m  
Distintivos de llamado:  
TRINIDAD Y TABAGO + N°  
Altura de letra: 0,10 m  
- sobre banco: 0,10 m



**CONSERVATION AND MANAGEMENT MEASURE FOR  
HIGH SEAS BOARDING AND INSPECTION PROCEDURES FOR THE  
NORTH PACIFIC FISHERIES COMMISSION**

1. The following procedures are established by the North Pacific Fisheries Commission, in accordance with Article 7, paragraph 2-c of its Convention, to govern high seas boarding and inspection of fishing vessels in the Convention Area.

**Definitions**

2. For the purposes of interpreting and implementing these procedures, the following definitions shall apply:
- a. “Convention” means the Convention on the Conservation and Management of High Seas Fisheries resources in the North Pacific Ocean;
  - b. “Commission” means the North Pacific Fisheries Commission (NPFC) established under Article 5 of the Convention;
  - c. “Authorities of the Inspection Vessel” means the authorities of the Contracting Party under whose jurisdiction the inspection vessel is operating;
  - d. “Authorities of the Fishing Vessel” means the authorities of the Member of the Commission under whose jurisdiction the fishing vessel is operating;
  - e. “Authorized inspection vessel” means any vessel included in the Commission’s register of vessels as authorized to engage in boarding and inspection activities pursuant to these procedures;
  - f. “Authorized inspector” means inspectors employed by the authorities responsible for boarding and inspection included in the Commission register and authorized to conduct boarding and inspection activities pursuant to these procedures;
  - g. “Fishing activity” means the activities established under Article 1 (i) of the Convention;
  - h. “Fishing vessels” means any vessel described under Article 1 (j) of the Convention.

**PURPOSE**

3. Boarding and inspection and related activities conducted pursuant to these procedures shall be for the purpose of ensuring compliance with the provisions of the Convention and conservation and management measures adopted by the Commission and in force.

**AREA OF APPLICATION**

4. These procedures shall apply throughout the Convention Area, which consists of the high seas areas of the North Pacific Ocean as specified in Article 4 of the Convention.

**GENERAL RIGHTS AND OBLIGATIONS**

5. Each Contracting Party may, subject to the provisions of these procedures, carry out boarding and inspection on the high seas of fishing vessels engaged in or reported to have engaged in a

fishery regulated pursuant to the Convention.

6. These procedures shall also apply in their entirety as between a Contracting Party and a Fishing Entity, subject to a notification to that effect to the Commission from the parties concerned.

7. Each Member of the Commission shall ensure that vessels flying its flag accept boarding and inspection by authorized inspectors in accordance with these procedures. Such authorized inspectors shall comply with these procedures in the conduct of any such activities.

## **GENERAL PRINCIPLES**

8. These procedures are intended to implement and give effect to, and are to be read consistently with, Article 7.2.c and Article 17.6 of the Convention.

9. These procedures shall be implemented in a transparent and non-discriminatory manner, taking into account, inter alia:

- a. such factors as the presence of observers on board a vessel and the frequency and results of past inspections; and
- b. the full range of measures to monitor compliance with the provisions of the Convention and agreed conservation and management measures, including inspection activities carried out by the authorities of Members of the Commission in respect of their own flag vessels.
- c. that NPFC Member inspectors are at risk of serious injury during the boarding process and that minimum standards for boarding ladders are to be implemented to the extent possible minimize this risk.

10. While not limiting efforts to ensure compliance by all vessels, priority for boarding and inspection efforts pursuant to these procedures may be given to:

- a. fishing vessels that are not on the NPFC Record of Fishing Vessels and are flagged to Members of the Commission;
- b. fishing vessels reasonably believed to engage or to have been engaged in any activity in contravention of the Convention or any conservation and management measure adopted thereunder;
- c. fishing vessels that are entitled to fly the flag of a Member of the Commission that does not dispatch patrol vessels to the area of application to monitor its own fishing vessels;
- d. fishing vessels without observers on board if so required by the Convention, Article 7.2b;
- e. fishing vessels with a known history of violating conservation and management measures adopted by international agreement or any domestic laws and regulations.

11. The Commission shall keep the implementation of these procedures under review.

12. The interpretation of these procedures shall rest with the Commission.

## **PARTICIPATION**

13. The Commission shall maintain a register of all authorized inspection vessels and authorities or inspectors. Only vessels and authorities or inspectors listed on the Commission's register are authorized under these procedures to board and inspect fishing vessels of Commission Members and Cooperating Non-Contracting Parties on the high seas within the Convention Area.

14. Each Contracting Party that intends to carry out boarding and inspection activities pursuant to these procedures shall so notify the Commission, through the Executive Secretary, and shall provide the following:

- a. with respect to each inspection vessel it assigns to boarding and inspection activities under these procedures:
  - i) details of the vessel (name, description, photograph, registration number, port of registry (and, if different from the port of registry, port marked on the vessel hull), international radio call sign and communication capability);
  - ii) An example of the credentials issued to the inspectors by its authorities;
  - iii) notification that the inspection vessel is clearly marked and identifiable as being on government service;
  - iv) notification that the crew has received and completed training in carrying out boarding and inspection activities at sea in accordance with any standards and procedures as may be adopted by the Commission.
- b. with respect to inspectors it assigns pursuant to these procedures:
  - i) the names of the authorities responsible for boarding and inspection;
  - ii) notification that such authorities' inspectors are fully familiar with the fishing activities to be inspected and the provisions of the Convention and conservation and management measures in force; and
  - iii) notification that such authorities' inspectors have received and completed training in carrying out boarding and inspection activities at sea in accordance with any standards and procedures as may be adopted by the Commission.

15. Where military vessels are used as a platform for the conduct of boarding and inspection, the authorities of the inspection vessel shall ensure that the boarding and inspection is carried out by inspectors fully trained in fisheries enforcement procedures and duly authorized for this purpose under national laws, and that boardings from such military vessels and inspectors conform to the procedures contained within these Boarding and Inspection Procedures.

16. Authorized inspection vessels and inspectors notified by Contracting Parties pursuant to paragraph 14 shall be included on the Commission register once the Executive Secretary confirms that they meet the requirements of that paragraph.

17. To enhance the effectiveness of the Commission's boarding and inspection procedures, and to maximize the use of trained inspectors, Contracting Parties may identify opportunities to place authorized inspectors on inspection vessels of another Contracting Party. Where appropriate, Contracting Parties should seek to conclude bilateral arrangements to this end or otherwise facilitate communication and coordination between them for the purpose of implementing these procedures.

18. The Executive Secretary shall ensure that the register of authorized inspection vessels and authorities or inspectors is at all times available to all Members of the Commission and shall immediately circulate any changes therein. Updated lists shall be posted on the Commission website. Each Member of the Commission shall take necessary measures to ensure that these lists are circulated in a timely manner to each of its fishing vessels operating in the Convention Area.

## **PROCEDURES**

19. The Commission shall develop an NPFC inspection flag, which shall be flown by authorized inspection vessels, in clearly visible fashion.

20. Authorized inspectors shall carry an approved identity card identifying the inspector as authorized to carry out boarding and inspection procedures under the auspices of the Commission and in accordance with these procedures.

21. An authorized inspection vessel that intends to board and inspect a fishing vessel on the high seas that is engaged in or reported to have engaged in a fishery regulated pursuant to the Convention shall, prior to initiating the boarding and inspection:

- a. make best efforts to establish contact with the fishing vessel by radio, by the appropriate International Code of Signals or by other accepted means of alerting the vessel;
- b. provide the information to identify itself as an authorized inspection vessel - name, registration number, international radio call sign and contact frequency;
- c. communicate to the master of the vessel its intention to board and inspect the vessel under the authority of the Commission and pursuant to these procedures; and
- d. initiate notice through the authorities of the inspection vessel of the boarding and inspection to the authorities of the fishing vessel.

22. In carrying out boarding and inspection pursuant to these procedures, the authorized inspection vessel and authorized inspectors shall make their best efforts to communicate with the master of the fishing vessels in a language that the master can understand. In order to facilitate communications between the inspectors and the master of the vessel, the Commission shall develop a standardized multi-language questionnaire, which shall be circulated to all Contracting Parties with authorized inspection vessels.

23. Authorized inspectors shall have the authority to inspect the vessel, its license, gear, equipment, records, facilities, fish and fish products and any relevant documents necessary to verify compliance with the conservation and management measures in force pursuant to the Convention.

24. Boarding and inspection pursuant to these procedures shall:

- a. be carried out in accordance with internationally accepted principles of good seamanship so as to avoid risks to the safety of fishing vessels and crews;
- b. be conducted as much as possible in a manner so as not to interfere unduly with the lawful operation of the fishing vessel;
- c. take reasonable care to avoid action that would adversely affect the quality of the catch; and

- d. not be conducted in such manner as to constitute harassment of a fishing vessel, its officers or crew.
25. In the conduct of a boarding and inspection, the authorized inspectors shall:
- a. present their identity card to the master of the vessel and a copy of the text of the relevant measures in force pursuant to the Convention in the relevant area of the high seas;
  - b. not interfere with the master's ability to communicate with the authorities of the fishing vessel;
  - c. complete the inspection of the vessel within 4 (four) hours unless evidence of a serious violation is found;
  - d. collect and clearly document any evidence they believe indicates a violation of measures in force pursuant to the Convention;
  - e. provide to the master prior to leaving the vessel a copy of an interim report on the boarding and inspection including any objection or statement which the master wishes to include in the report;
  - f. promptly leave the vessel following completion of the inspection if they find no evidence of a serious violation; and
  - g. provide a full report on the boarding and inspection to the authorities of the fishing vessel, pursuant to paragraph 31, which shall also include any master's statement.
26. During the conduct of a boarding and inspection, the master of the fishing vessel shall:
- a. follow internationally accepted principles of good seamanship so as to avoid risks to the safety of authorized inspection vessels and inspectors;
  - b. accept and facilitate prompt and safe boarding by the authorized inspectors;
  - c. be encouraged to provide a boarding ladder in accordance with Annex A
  - d. cooperate with and assist in the inspection of the vessel pursuant to these procedures;
  - e. not assault, resist, intimidate, interfere with, or unduly obstruct or delay the inspectors in the performance of their duties;
  - f. allow the inspectors to communicate with the crew of the inspection vessel, the authorities of the inspection vessel, any embarked observers, as well as with the authorities of the fishing vessel being inspected;
  - g. provide the inspectors onboard with reasonable facilities, including, where appropriate, food and accommodation; and
  - h. facilitate safe disembarkation by the inspectors.
27. If the master of a fishing vessel refuses to allow an authorized inspector to carry out a boarding and inspection in accordance with these procedures, such master shall offer an explanation of the reason for such refusal. The authorities of the inspection vessel shall immediately notify the authorities of the fishing vessel, as well as the Commission, of the master's refusal and any explanation.
28. The authorities of the fishing vessel, unless generally accepted international regulations, procedures and practices relating to safety at sea make it necessary to delay the boarding and inspection, shall direct the master to accept the boarding and inspection. If the master does not comply with such direction, the Member shall suspend the vessel's authorization to fish and order the vessel to return immediately to port. The Member shall immediately notify the authorities of the inspection vessel and the Commission of the action it has taken in these circumstances.

## **USE OF FORCE**

29. The use of force shall be prohibited except when and to the degree necessary to ensure the safety of the inspectors during the conduct of their boarding and inspection activities. The degree of force used shall not exceed that reasonably required in the circumstances.

30. Any incident involving the use of force shall be immediately reported to the authorities of the fishing vessel, as well as to the Executive Secretary for distribution to the Commission.

## **INSPECTION REPORTS**

31. Authorized inspectors shall prepare a full report on each boarding and inspection they carry out pursuant to these procedures in accordance with a format specified by the Commission. The authorities of the inspection vessel from which the boarding and inspection was carried out shall transmit a copy of the boarding and inspection report to the authorities of the fishing vessel being inspected, as well as the Commission, within 3 (three) full working days of the completion of the boarding and inspection. Where it is not possible for the authorities of the inspection vessel to provide such report to the authorities of the fishing vessel within this timeframe, the authorities of the inspection vessel shall inform the authorities of the fishing vessel and shall specify the time period within which the report will be provided.

32. Such report shall include the names and authority of the inspectors and clearly identify any observed activity or condition that the authorized inspectors believe to be a violation of the Convention or conservation and management measures in force and indicate the nature of specific factual evidence of such violation.

## **SERIOUS VIOLATIONS**

33. In the case of any boarding and inspection of a fishing vessel during which the authorized inspectors observe an activity or condition that would constitute a serious violation, as defined in paragraph 38, the authorities of the inspection vessels shall immediately notify the authorities of the fishing vessel, directly as well as through the Commission.

34. Upon receipt of a notification under paragraph 33, the authorities of the fishing vessels shall without delay:

- a. assume their obligation to investigate and, if the evidence warrants, take enforcement action against the fishing vessel in question and so notify the authorities of the inspection vessel, as well as the Commission; or
- b. authorize the authorities of the inspection vessel to complete investigation of the possible violation and so notify the Commission.

35. In the case of 34(a) above, the authorities of the inspection vessel shall provide, as soon as practicable, the specific evidence collected by the authorized inspectors to the authorities of the fishing vessel.

36. In the case of 34(b) above, the authorities of the inspection vessel shall provide the specific evidence collected by the authorized inspectors, along with the results of their investigation, to the authorities of the fishing vessel immediately upon completion of the investigation.

37. Upon receipt of a notification pursuant to paragraph 33, the authorities of the fishing vessel shall make best effort to respond without delay and in any case no later than within 3 (three) full working days.

38. For the purposes of these procedures, a serious violation means the following violations of the provisions of the Convention or conservation and management measures adopted by the Commission:

- a. fishing without a valid license, permit or authorization issued by the Member whose flag the fishing vessel is entitled to fly, in accordance with Article 13 of the Convention;
- b. significant failure to maintain records of catch and catch-related data in accordance with the Commission's reporting requirements or significant misreporting of such catch and/or catch-related data;
- c. fishing in a closed area;
- d. fishing during a closed season;
- e. intentional taking or retention of species in contravention of any applicable conservation and management measure adopted by the Commission;
- f. significant violation of catch limits or quotas in force pursuant to the Convention;
- g. using prohibited fishing gear;
- h. falsifying or intentionally concealing the markings, identity or registration of a fishing vessel;
- i. concealing, tampering with or disposing of evidence relating to investigation of a violation;
- j. multiple violations which taken together constitute a serious disregard of measures in force pursuant to the Commission;
- k. refusal to accept a boarding and inspection, other than as provided in paragraphs 27 and 28;
- l. assault, resist, intimidate, sexually harass, interfere with, or unduly obstruct or delay an authorized inspector; and
- m. intentionally tampering with or disabling the vessel monitoring system;
- n. such other violations as may be determined by the Commission, once these are included and circulated in a revised version of these procedures.

## **ENFORCEMENT**

39. Any evidence obtained as a result of a boarding and inspection pursuant to these procedures with respect to violation by a fishing vessel of the Convention or conservation and management measures adopted by the Commission and in force shall be referred to the authorities of the fishing vessel for action in accordance with Article 17 of the Convention.

40. For the purposes of these procedures, the authorities of the fishing vessels shall regard interference by their fishing vessels, captains or crew with an authorized inspector or an authorized inspection vessel in the same manner as any such interference occurring within its exclusive jurisdiction.

## **ANNUAL REPORTS**

41. Contracting Parties that authorize inspection vessels to operate under these procedures shall report annually to the Commission on the boarding and inspections carried out by its authorized inspection vessels, as well as upon possible violations observed.

42. Contracting Parties shall include in their annual statement of compliance within their Annual Report to the Commission under Article 16 of the Convention action that they have

taken in response to boarding and inspections of their fishing vessels that resulted in observation of alleged violations, including any proceedings instituted and sanctions applied.

## **OTHER PROVISIONS**

43. Authorized inspection vessels, while carrying out activities to implement these procedures, shall engage in surveillance aimed at identifying fishing vessels of non-Members undertaking fishing activities on the high seas in the Convention area. Any such vessels identified shall be immediately reported to the Executive Secretary for distribution to the Commission.

44. The authorized inspection vessel shall attempt to inform any fishing vessel identified pursuant to paragraph 43 that has been sighted or identified as engaging in fishing activities that are undermining the effectiveness of Convention and that this information will be sent to the Executive Secretary for distribution to the Members of the Commission and the non-Member whose flag the fishing vessel is entitled to fly of the vessel in question.

45. If warranted, the authorized inspectors may request permission from the fishing vessel and/or the non-Member whose flag the vessel is entitled to fly to board a vessel identified pursuant to paragraph 43. If the vessel master or the vessel's non-Member whose flag the vessel is entitled to fly consents to a boarding, the findings of any subsequent inspection shall be transmitted to the Executive Secretary. The Executive Secretary shall distribute this information to all Commission Members as well as to the non-Member whose flag the vessel is entitled to fly.

46. Contracting Parties shall be liable for damage or loss attributable to their action in implementing these procedures when such action is unlawful or exceeds that reasonably required in the light of available information.

## **COMMISSION COORDINATION AND OVERSIGHT**

47. Authorized inspection vessels in the same operational area should seek to establish regular contact for the purpose of sharing information on areas in which they are patrolling, on sightings and on boarding and inspections they have carried out, as well as other operational information relevant to carrying out their responsibilities under these procedures.

48. The Commission shall keep under continuous review the implementation and operation of these procedures, including review of annual reports relating to these procedures provided

by Members. In applying these procedures, Contracting Parties may seek to promote optimum use of the authorized inspection vessels and authorized inspectors by:

- a. identifying priorities by area and/or by fishery for boarding and inspections pursuant to these procedures;
- b. ensuring that boarding and inspection on the high seas is fully integrated with the other monitoring, compliance and surveillance tools available pursuant to the Convention;
- c. ensuring non-discriminatory distribution of boarding and inspections on the high seas among fishing vessels of Members of the Commission without compromising the opportunity of Contracting Parties to investigate possible serious violations; and
- d. taking into account high seas enforcement resources assigned by Members of the Commission to monitor and ensure compliance by their own fishing vessels, particularly for small boat fisheries whose operations extend onto the high seas in areas adjacent to waters under their jurisdiction.

## **SETTLEMENT OF DISAGREEMENTS**

49. In the event of a disagreement concerning the application or implementation of these procedures, the parties concerned shall consult in an attempt to resolve the disagreement.

50. If the disagreement remains unresolved following the consultations, the Executive Secretary of the Commission shall, at the request of the parties concerned, and with the consent of the Commission, refer the disagreement to the Technical and Compliance Committee (TCC). The TCC shall establish a panel of five representatives, acceptable to the parties to the disagreement, to consider the matter.

51. A report on the disagreement shall be drawn up by the panel and forwarded through the TCC Chair to the Executive Secretary for distribution to the Commission within two months of the TCC meeting at which the case is reviewed.

52. Upon receipt of such report, the Commission may provide appropriate advice with respect to any such disagreement for the consideration of the Members concerned.

53. Application of these provisions for the settlement of disagreements shall be non-binding. These provisions shall not prejudice the rights of any Member to use the dispute settlement procedures provided in the Convention.

## Boarding Ladder Guidelines

Commencing on March 1<sup>st</sup>, 2022, the Master of a fishing vessel with fishing vessel with a registered tonnage greater than or equal to 250 GT (Gross Tonnage) or GRT (Gross Register Tonnage), as registered in the NPFC Vessel Registry, is encouraged to provide a board ladder that meets the following guidelines:

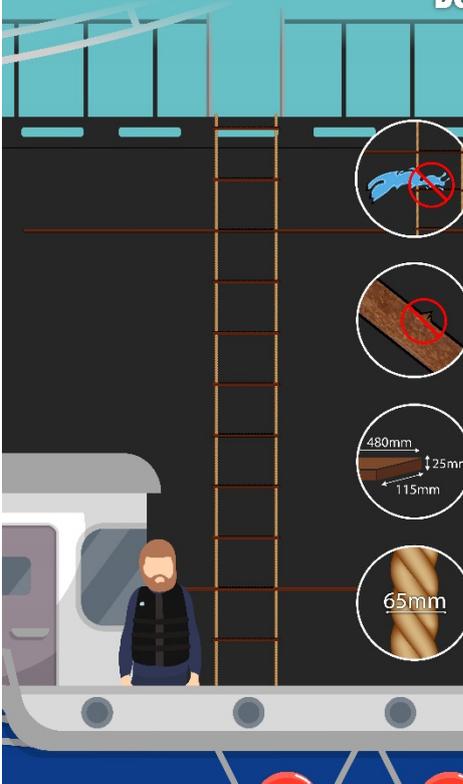
- (a) A boarding ladder shall be provided for the purpose of enabling Authorized Inspectors to safely embark and disembark at-sea pursuant to the provisions of CMM 2017-09.
- (b) The ladder shall be secured in an area that is clear of any possible discharges, lines, or obstructions from the vessel.
- (c) The ladder shall be placed as near to the mid-length of the vessel as practicable.
- (d) Handholds shall be provided to ensure a safe passage from the deck to the head of the ladder and vice versa.
- (e) The rigging of the ladder and the embarkation and disembarkation of an Authorized Inspector shall be overseen by a responsible crew member of the vessel, who shall have communication with the bridge.
- (f) The steps of the ladder shall be:
  - i. made of hardwood (or of a suitable equivalent material).
  - ii. free from sharp edges or splinters.
  - iii. provided with an effective non-slip surface.
  - iv. not less than 480 mm long, 115 mm wide and 25 mm in depth.
  - v. equally spaced apart to ensure safe and ergonomic climbing of the ladder by an Authorized Inspector.
  - vi. secured in such a manner that they will remain horizontal.
- (g) The side ropes of the ladder shall:
  - i. consist of two uncovered manila ropes not less than 65 mm in circumference on each side.
  - ii. shall be continuous with no joins.
  - iii. shall have ends secured to prevent unravelling.
  - iv. Battens (span boards) made of hardwood or a material of equivalent properties, in one piece, shall be provided to prevent the boarding ladder from twisting.
  - v. An authorized inspector shall have the discretion to instruct a vessel master to move or reconfigure the boarding ladder if deemed unsafe for use.

**Note: A graphic regarding the boarding ladder is attached hereto.**


Fisheries and Oceans  
Canada


Pêches et Océans  
Canada

## Boarding Ladder for Inspector Safety



A boarding ladder shall be provided for the purpose of enabling Inspectors to safely embark and disembark at-sea. The ladder shall be secured so that it is clear of any possible discharges and lines from the vessel. Handholds shall be provided to ensure a safe passage from the deck to the head of the ladder and vice versa.

- The rigging of the ladder and the embarkation and disembarkation of an inspector shall be overseen by a crew member of the vessel, who shall have communication with the bridge.

The steps of the ladder shall be:

- made of hardwood (or of a suitable equivalent material),
- free from sharp edges / splinters.
- provided with an effective non-slip surface.
- not less than 480 mm long, 115 mm wide and 25 mm in depth.
- equally spaced apart to ensure safe and ergonomic climbing of the ladder by an authorized Inspector.
- secured in such a manner that they will remain horizontal.

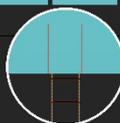
The side ropes of the ladder shall:

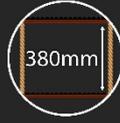
- consist of two uncovered manila ropes not less than 65 mm in circumference on each side.
- shall be continuous with no joins.
- shall have ends secured to prevent unravelling.

Battens (span boards) made of hardwood or an material of equivalent properties, in one piece, shall be provided to prevent the boarding ladder from twisting.

An authorized inspector shall have the discretion to instruct a vessel master to move or reconfigure the boarding ladder if deemed unsafe for use.









**CONSERVATION AND MANAGEMENT MEASURE ON THE VESSEL MONITORING  
SYSTEM (VMS)**

*The North Pacific Fisheries Commission (NPFC),*

*Recalling* Article 2 of the Convention on the Conservation and Management of High Seas Fisheries resources in the North Pacific Ocean (Convention), 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

*Recognizing* Article 7, paragraph 2 (e) of the Convention regarding the development of standards, specifications and procedures for Members of the Commission to report movements and activities using real-time satellite position-fixing transmitters for vessels engaged in fishing activities in the Convention Area and, in accordance with those procedures, coordinate timely dissemination of data collected from Members' satellite vessel monitoring systems,

*Reaffirming* that Article 13, paragraph 1 of the Convention that Members of the Commission or Cooperating Non-Contracting Parties (CNCPS) shall take necessary measures to ensure that fishing vessels entitled to fly their flag operating in the Convention Area comply with the provisions of the Convention and measures adopted pursuant to the Convention and such vessels do not engage in any activities that undermine the effectiveness of such measures and do not conduct unauthorized fishing activities within areas under national jurisdiction of another State adjacent to the Convention Area,

*Determined* to ensure effective monitoring, control and surveillance (MCS) and to address the challenge of illegal, unreported and unregulated (IUU) fishing in the Convention Area,

*Adopts* the following conservation and management measure (CMM) in accordance with Article 7 of the Convention:

**Definitions**

1. For the purpose of this CMM, the following definitions apply:

- (a) "Convention" means the Convention on the Conservation and Management of High

Seas Fisheries resources in the North Pacific Ocean.

- (b) “Convention Area” means the area of the high seas areas of the North Pacific Ocean as specified in Article 4 of the Convention.
- (c) “Commission” means the North Pacific Fisheries Commission (NPFC) established under Article 5 of the Convention.
- (d) “Fishing activities” means the activities established under Article 1 (i) of the Convention.
- (e) “Fisheries monitoring center (FMC)” means the authorized authority or agency of a Member or CNCP responsible for managing VMS for its flagged fishing vessels.
- (f) “Fishing vessels” means any vessel described under Article 1 (j) of the Convention.
- (g) “Inspection Presence in the Convention Area” means the Member is authorized by the High Seas Boarding Inspection Procedure to conduct inspections and is planning for or actively engaged in surveillance in the Convention Area.
- (h) “Manually report” means the transmission via any alternative means of the date/time, current geographical position (latitude and longitude) course and speed when an MTU fails to transmit VMS data.
- (i) “Mobile transmitting unit (MTU)” means a satellite communication device capable of receiving and transmitting VMS data.
- (j) “VMS” means a satellite-based monitoring system that transmits VMS data from MTUs on fishing vessels to FMCs.
- (k) “VMS data” means data transmitted by an MTU including:
  - (i) MTU unique identifier;
  - (ii) the current geographical position (latitude and longitude) of the vessel (accurate to within 100m); and,
  - (iii) the date and time (expressed in Coordinated Universal Time (UTC)) of the fixing of the position of the vessel in paragraph 1(k)(ii).

### **Purpose**

2. The VMS supports the Convention’s objective to ensure the long-term conservation and sustainable use of the fisheries resources in the Convention Area. The VMS forms an important part of the Commission’s MCS regime to ensure compliance with, and enforcement of, the provisions of the Convention and CMMs. The purpose of the VMS is to continuously monitor the positions and movements of all fishing vessels in the Convention Area for compliance purposes. VMS data may also be used to support scientific processes as agreed by the Commission.

### **Application**

3. The VMS applies to all authorized NPFC vessels in the Convention Area.

4. A Member or CNCP may request that waters under their jurisdiction be also covered by the VMS. This request shall be provided to the Commission for their consideration and approval.

#### **Mobile transmitting units (MTUs)**

5. Each Member or CNCP shall ensure that its vessels authorized pursuant to the relevant CMM for Vessel Registration under NPFC in the Convention Area are equipped with an MTU that complies with the guidance on minimum standards for MTUs contained in Annex I.
6. Each Member or CNCP shall ensure that MTUs are installed on their flagged fishing vessels in the Convention Area in accordance with relevant domestic legal obligations, procedures and conditions.

#### **VMS data transmission requirements**

7. Each Member or CNCP shall ensure its authorized NPFC vessels provide accurate VMS data to the Secretariat via its FMC, in accordance with this CMM.
8. All Members or CNCPs shall ensure that its flagged vessels that are authorized under NPFC and present in the Convention Area transmit VMS data every hour to their FMC.
9. A Member or CNCP may require its fishing vessels to transmit VMS data directly to the Secretariat.
10. Each Member or CNCP shall ensure that their FMC automatically transmits VMS data to the Secretariat, which shall be received no later than 60 minutes upon receipt of the data at their FMC.

#### **Fisheries monitoring centers (FMCs)**

11. Each Member or CNCP shall ensure that their FMC can automatically receive VMS data and transmit VMS data to the Secretariat.
12. Each Member or CNCP shall provide the Secretariat with VMS contact points in their FMCs including the name, position, email address and phone number of their VMS contact points. The Secretariat will make a list of VMS contact points available to all Members and Cooperating non-Contracting Parties.

#### **Data access and use**

13. All VMS data received by the Secretariat shall be treated as confidential information in accordance with NPFC's Data-Sharing and Data-Security Protocols for Vessel Monitoring

System (VMS) Data.

14. Subject to the adoption of the NPFC's Data-Sharing and Data-Security Protocols for Vessel Monitoring System (VMS) by the Commission, the Secretariat shall provide VMS data:
  - (a) By electronic means to a Member who has an inspection presence in the Convention Area; or
  - (b) upon request from a Member to support search and rescue (SAR)

### **Data sharing and Security**

15. Subject to NPFC's Data-Sharing and Data-Security Protocols for Vessel Monitoring System (VMS) Data, VMS data shall only be accessed and used for the purposes included in this measure or for any other purposes as agreed by the Commission.

### **VMS data transmission failure**

16. In the event that an MTU has failed to transmit VMS data for four hours, the flag Member or CNCP shall require the fishing vessel master to manually report every four hours to the FMC or the Secretariat by other means of communication.
17. A Member or CNCP may also require its fishing vessels to manually report directly to the Secretariat.
18. The flag Member or CNCP shall require an MTU that fails to transmit VMS data in accordance with this measure, be repaired or replaced as soon as possible and, in any event, within thirty (30) days of the VMS data transmission failure.
19. If the fishing vessel returns to port following an MTU VMS data transmission failure, the Member or CNCP shall not permit the vessel to undertake fishing in the Convention Area until the MTU has been replaced in accordance with the guidance in Annex I or is repaired and is able to transmit VMS data.
20. If a Member or CNCP finds that an MTU has failed to transmit VMS data for twelve hours, the Member or CNCP shall immediately notify the fishing vessel master, owner or authorized representative of this failure.
21. If a failure to transmit occurs more than two times within a period of one year, the flag Member or CNCP of the fishing vessel shall investigate the matter, including having an authorized official examine the MTU on board the vessel. The outcome of this investigation shall be forwarded to the Secretariat within fifteen (15) days of its completion.

**Review**

22. The Secretariat shall report on the implementation of this measure annually to the Technical and Compliance Committee (TCC). The TCC shall review the implementation of the VMS after two years and make recommendations to the Commission as may be necessary.

**Guidance on minimum standards for mobile transmitting units (MTUs)**

1. The mobile transmitting unit (MTU) shall automatically and independently of any intervention by the fishing vessel, transmit VMS data as required by NPFC.
2. The VMS data shall be obtained from a satellite-based positioning system.
3. MTUs on fishing vessels must be capable of transmitting VMS data at least every fifteen minutes.
4. MTUs on fishing vessels must be tamper-proof so as to preserve the security and integrity of VMS data.
5. Storage of VMS data and other relevant information within the MTU must be safe, secure and integrated within a single unit under normal operating conditions.
6. It must not be reasonably possible for anyone, other than the Fisheries Monitoring Centre (FMC), to alter any of the VMS data stored in an MTU, including the frequency of position VMS data transmission to the FMC.
7. Any features built into the MTU or its software to assist with servicing shall not allow unauthorized access to the MTU that could potentially compromise the operation of the VMS.
8. MTUs shall be installed on fishing vessels by an authorized installer in accordance with the manufacturer's specifications and applicable standards and in accordance with a flag State's relevant domestic legal obligations, procedures and conditions.
9. Under normal satellite navigation operating conditions, VMS data must include the geographical location of a fishing vessel within an accuracy of 100 meters.
10. The MTU and/or the VMS service provider must be able send VMS data to multiple independent destinations.
11. The MTU and its component parts shall be fully integrated and housed in the same tamper-proof physical enclosure.
12. The MTU must have:
  - (a) all components sealed by the manufacturer; or
  - (b) official seals<sup>1</sup>, individually identified with unique serial numbers, applied.
13. Relevant domestic legal obligations, procedures and conditions for MTU installation on fishing vessels should be forwarded by members and cooperating non-Contracting Parties to the Secretariat or made available upon request.
14. The MTU must have an alternate power unit, to act as a backup in case of failure of the main power, to enable the MTU to continue to meet the VMS data transmission requirements of

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<sup>1</sup> Official seals or other mechanisms must be of such a type to indicate whether the MTU has been accessed or tampered with.

this CMM.

15. The MTU should include audible or visible alarms to indicate a unit malfunction.

CMM 2021-05  
(Entered into force 10 July 2021)

**CONSERVATION AND MANAGEMENT MEASURE  
FOR BOTTOM FISHERIES AND PROTECTION OF VULNERABLE MARINE  
ECOSYSTEMS IN THE NORTHWESTERN PACIFIC OCEAN**

*The North Pacific Fisheries Commission (NPFC),*

*Strongly supporting* protection of vulnerable marine ecosystems (VMEs) and sustainable management of fish stocks based on the best scientific information available;

*Recalling* the United Nations General Assembly Resolutions (UNGA) on Sustainable Fisheries, particularly paragraphs 66 to 71 of the UNGA59/25 in 2004, paragraphs 69 to 74 of UNGA60/31 in 2005, and paragraphs 69 and 80 to 91 of UNGA61/105 in 2006;

*Noting*, in particular, paragraphs 66 and 69 of UNGA59/25 that call upon States to take action urgently to address the issue of bottom trawl fisheries on VMEs and to cooperate in the establishment of new regional fisheries management organizations or arrangements;

*Recognizing further* that fishing activities, including bottom fisheries, are an important contributor to the global food supply and that this must be taken into account when seeking to achieve sustainable fisheries and to protect VMEs;

*Recognizing* the importance of collecting scientific data to assess the impacts of these fisheries on marine species and VMEs;

*Concerned* about possible adverse impacts of unregulated expansion of bottom fisheries on marine species and VMEs in the western part of the Convention Area.

*Adopts* the following Conservation and Management Measure:

1. Scope

A. Coverage

These Measures are to be applied to all bottom fishing activities throughout the high seas areas of the Northwestern Pacific Ocean, defined, for the purposes of this document, as those occurring in the Convention Area as set out in Article 4 of the Convention text to the west of

the line of 175 degrees W longitude (here in after called “the western part of the Convention Area”) including all such areas and marine species other than those species already covered by existing international fisheries management instruments, including bilateral agreements and Regional Fisheries Management Organizations or Arrangements.

#### B. Management target

Bottom fisheries conducted by vessels operating in the western part of the Convention Area.

### 2. General purpose

Sustainable management of fish stocks and protection of VMEs in the western part of the Convention Area.

The objective of these Measures 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.

These measures shall set out to prevent significant adverse impacts on VMEs in the Convention Area of the North Pacific Ocean, acknowledging the complex dependency of fishing resources and species belonging to the same ecosystem within VMEs.

The Commission shall re-evaluate, and as appropriate, revise, the definition based on further consideration of the work done through FAO and by NPFC.

### 3. Principles

The implementation of this CMM shall:

- (a) be based on the best scientific information available,
- (b) be in accordance with existing international laws and agreements including UNCLOS and other relevant international instruments,
- (c) establish appropriate and effective conservation and management measures,
- (d) be in accordance with the precautionary approach, and
- (e) incorporate an ecosystem approach to fisheries management.

### 4. Measures

Members of the Commission shall take the following measures in order to achieve sustainable management of fish stocks and protection of VMEs in the western part of the Convention Area:

- A. Limit fishing effort in bottom fisheries on the western part of the Convention Area to the level agreed in February 2007 in terms of the number of fishing vessels and other parameters which reflect the level of fishing effort, fishing capacity or potential impacts on marine ecosystems.
- B. Not allow bottom fisheries to expand into the western part of the Convention Area where no such fishing is currently occurring, in particular, by limiting such bottom fisheries to seamounts located south of 45 degrees North Latitude and refrain from bottom fisheries in other areas of the western part of the Convention Area covered by these measures and also not allow bottom fisheries to conduct fishing operation in areas deeper than 1,500m.
- C. Notwithstanding subparagraphs A and B above, exceptions to these restrictions may be provided in cases where it can be shown that any fishing activity beyond such limits or in any new areas would not have significant adverse impacts (SAIs) on marine species or any VME. Such fishing activity is subject to an exploratory fishery protocol (Annex 1).
- D. Any determinations pursuant to subparagraph C that any proposed fishing activity will not have SAIs on marine species or any VME are to be in accordance with the Science-based Standards and Criteria (Annex 2), which are consistent with the FAO International Guidelines for the Management of Deepsea Fisheries in the High Seas.
- E. Any determinations, by any flag State or pursuant to any subsequent arrangement for the management of the bottom fisheries in the areas covered by these measures, that fishing activity would not have SAIs on marine species or any VMEs, shall be made publicly available through agreed means.
- F. Prohibit its vessels from engaging in directed fishing on the following taxa: *Alcyonacea*, *Antipatharia*, *Gorgonacea*, and *Scleractinia* as well as any other indicator species for VMEs as may be identified from time to time by the SC and approved by the Commission.
- G. Further, considering accumulated information regarding fishing activities in the western part of the Convention Area, in areas where, in the course of fishing operations, cold water corals more than 50Kg are encountered in one gear retrieval, Members of the Commission shall require vessels flying their flag to cease bottom fishing activities in that location. In such cases, the vessel shall not resume fishing activities until it has relocated a sufficient distance, which shall be no less than 2 nautical miles, so that

additional encounters with VMEs are unlikely. 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, within one business day, who shall immediately notify the other Members of the Commission so that appropriate measures can be adopted in respect of the relevant site. It is agreed that the cold water corals include: *Alcyonacea*, *Antipatharia*, *Gorgonacea*, and *Scleractinia*.

- H. C-H seamount and Southeastern part of Koko seamount, specifically for the latter seamount, the area South of 34 degrees 57 minutes North, East of the 400m isobaths, East of 171 degrees 54 minutes East, North of 34 degrees 50 minutes North, are closed precautionary for potential VME conservation. Fishing in these areas requires exploratory fishery protocol (Annex 1).
- I. Ensure that the distance between the footrope of the gill net and sea floor is greater than 70 cm.
- J. Apply a bottom fisheries closure from November to December.
- K. Limit annual catch of North Pacific armorhead to 15,000 tons for Japan.
- L. Development of new fishing activity for the North Pacific armorhead and splendid alfonsino in the Convention Area by Members without documented historical catch for North Pacific armorhead and splendid alfonsino in the Convention Area shall be determined in accordance with relevant provisions, including but not limited to Article 3, paragraph (h) and Article 7, subparagraphs 1(g) and (h) of the Convention.
- M. In years when strong recruitment of North Pacific armorhead is not detected (Annex 6), the Commission encourages Japan to limit the annual catch of North Pacific armorhead by vessels flying its flag to 500 tons, and encourages Korea to limit the annual catch of North Pacific armorhead by vessels flying its flag to 200 tons. The Commission encourages that catch overages for any given year be subtracted from the applicable annual catch limit in the following year, and that catch underages during any given year not be added to the applicable annual catch limit during the following year.
- N. Notwithstanding subparagraph K, when a strong recruitment of North Pacific armorhead is detected through the monitoring surveys as specified in Annex 6, the Commission encourages that Japan limit the annual catch of North Pacific armorhead by vessels flying

its flag to 10,000 tons, and that Korea limit the annual catch of North Pacific armorhead by vessels flying its flag to 2,000 tons. The Commission encourages that catch overages for any given year be subtracted from the applicable annual catch limit in the following year, and that catch underages during any given year not be added to the applicable annual catch limit during the following year. During a year when high recruitment is detected, bottom fishing with trawl gear shall be prohibited in specific areas in the Emperor seamounts where half of the catch occurred in 2010 and 2012 (Annex 6). Determination of a strong recruitment year and of the specific areas where bottom fishing with trawl gear is prohibited shall be communicated to all Members and Cooperating Non-Contracting Parties following the procedure specified in Annex 6.

- O. Catch in the monitoring surveys shall not be included in the catch limits specified in paragraphs M and N but shall be reported to the Secretariat.
- P. Fishing activity for the North Pacific armorhead and splendid alfonsino in the Convention Area by Members with documented historical catch for North Pacific armorhead and splendid alfonsino in the Convention Area is not precluded.
- Q. Members shall require vessels flying their flags to use trawl nets with mesh size greater than or equal to 130mm of stretched mesh with 5kg tension in the codend when conducting fishing activities for North Pacific armorhead or splendid alfonsino.
- R. Task the Scientific Committee with reviewing the appropriate methods for establishing catch limits, and the adequacy and practicability of the adaptive management plan described in subparagraphs K, L, M, N, O, P, Q and Annex 6 from time to time and recommending revisions and actions, if necessary.
- S. Prohibit its bottom fishing vessels from contacting the sea floor with their trawl nets in the following two sites with VME indicator species. A Member of the Commission whose fishing vessels entered these areas shall report to the TCC as to how it ensured the compliance of the measure.

Sites with VME indicator species (areas surrounded by the straight lines linking the 4 geographical points below)

Northwestern part of Koko Seamount	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
Northern ridge of Colahan Seamount	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

## 5. Contingent Action

Members of the Commission shall submit to the SC their assessments of the impacts of fishing activity on marine species or any VMEs, including the proposed management measures to prevent such impact. Such submissions shall include all relevant data and information in support of any such assessment. Procedures for such reviews including procedures for the provision of advice and recommendations from the SC to the submitting Member are attached (Annex 3). Members will only authorize bottom fishing activity pursuant to para 4 (C).

## 6. Scientific Information

To facilitate the scientific work associated with the implementation of these measures, each Member of the Commission shall undertake:

### A. Reporting of information for purposes of defining the footprint

In implementing paragraphs 4A and 4B, the Members of the Commission shall provide for each year, the number of vessels by gear type, size of vessels (tons), number of fishing days or days on the fishing grounds, total catch by species, and areas fished (names of seamounts) to the Secretariat. The Secretariat shall circulate the information received to the other Members consistent with the approved Regulations for Management of Scientific Data and Information. To support assessments of the fisheries and refinement of conservation and management measures, Members of the Commission are to provide updated information on an annual basis.

### B. Collection of information

(i) Collection of scientific information from each bottom fishing vessel operating in the western part of the Convention Area.

(a) Catch and effort data

(b) Related information such as time, location, depth, temperature, etc.

(ii) As appropriate, the collection of information from research vessels operating in the western part of the Convention Area.

(a) Physical, chemical, biological, oceanographic, meteorological, etc.

(b) Ecosystem surveys.

(c) Seabed mapping (e.g. multibeam or other echosounder); seafloor images by drop camera, remotely operated underwater vehicle (ROV) and/or autonomous underwater vehicle (AUV).

(iii) Collection of observer data

Duly designated observers from the flag member shall collect information from bottom fishing vessels operating in the western part of the Convention Area. Observers shall collect data in accordance with Annex 5. Each Member of the Commission shall submit the reports to the Secretariat in accordance with Annex 4. The Secretariat shall compile this information on an annual basis and make it available to the Members of the Commission.

#### 7. Control of bottom fishing vessels

To strengthen its control over bottom fishing vessels flying its flag, each Member of the Commission shall ensure that all such vessels operating in the western part of the Convention Area be equipped with an operational vessel monitoring system.

#### 8. Observers

All vessels authorized to bottom fishing in the western part of the Convention Area shall carry an observer on board.

**EXPLORATORY FISHERY PROTOCOL IN THE NORTH PACIFIC OCEAN**

1. From 1 January 2009, all bottom fishing activities in new fishing areas and areas where fishing is prohibited in a precautionary manner or with bottom gear not previously used in the existing fishing areas, are to be considered as “exploratory fisheries” and to be conducted in accordance with this protocol.
2. Precautionary conservation and management measures, including catch and effort controls, are essential during the exploratory phase of deep sea fisheries. Implementation of a precautionary approach to sustainable exploitation of deep sea fisheries shall include the following measures:
  - (i) precautionary effort limits, particularly where reliable assessments of sustainable exploitation rates of target and main by-catch species are not available;
  - (ii) precautionary measures, including precautionary spatial catch limits where appropriate, to prevent serial depletion of low-productivity stocks;
  - (iii) regular review of appropriate indices of stock status and revision downwards of the limits listed above when significant declines are detected;
  - (iv) measures to prevent significant adverse impacts on vulnerable marine ecosystems; and
  - (v) comprehensive monitoring of all fishing effort, capture of all species and interactions with VMEs.
3. When a member of the Commission would like to conduct exploratory fisheries, it is to follow the following procedure:
  - (i) Prior to the commencement of fishing, the member of the Commission is to circulate the information and assessment in Appendix 1.1 to the members of the Scientific Committee (SC) for review and to all members of the Commission for information, together with the impact assessment. Such information is to be provided to the other members at least 30 days in advance of the meeting at which the information shall be reviewed.
  - (ii) The assessment in (i) above is to be conducted in accordance with the procedure set forth in “Science-based Standards and Criteria for Identification of VMEs and Assessment of Significant Adverse Impacts on VMEs and Marine Species (Annex 2)”, with the understanding that particular care shall be taken in the evaluation of risks of the significant adverse impact on vulnerable marine ecosystems (VMEs), in line with the precautionary approach.
  - (iii) The SC is to review the information and the assessment submitted in (i) above in accordance with “SC Assessment Review Procedures for Bottom Fishing Activities (Annex 3).”

- (iv) The exploratory fisheries are to be permitted only where the assessment concludes that they would not have significant adverse impacts (SAIs) on marine species or any VMEs and on the basis of comments and recommendations of SC. Any determinations, by any Member of the Commission or the SC, that the exploratory fishing activities would not have SAIs on marine species or any VMEs, shall be made publicly available through the NPFC website.
4. The member of the Commission is to ensure that all vessels flying its flag conducting exploratory fisheries are equipped with a satellite monitoring device and have an observer on board at all times.
  5. Within 3 months of the end of the exploratory fishing activities or within 12 months of the commencement of fishing, whichever occurs first, the member of the Commission is to provide a report of the results of such activities to the members of the SC and all members of the Commission. If the SC meets prior to the end of this 12-month period, the member of the Commission is to provide an interim report 30 days in advance of the SC meeting. The information to be included in the report is specified in Appendix 1.2.
  6. The SC is to review the report in 5 above and decide whether the exploratory fishing activities had SAIs on marine species or any VME. The SC then is to send its recommendations to the Commission on whether the exploratory fisheries can continue and whether additional management measures shall be required if they are to continue. The Commission is to strive to adopt conservation and management measures to prevent SAIs on marine species or any VMEs. If the Commission is not able to reach consensus on any such measures, each fishing member of the Commission is to adopt measures to avoid any SAIs on VMEs.
  7. Members of the Commission shall only authorize continuation of exploratory fishing activity, or commencement of commercial fishing activity, under this protocol on the basis of comments and recommendations of the SC.

## **Appendix 1.1**

### **Information to be provided before exploratory fisheries start**

1. A harvesting plan
  - Name of vessel
  - Flag member of vessel
  - Description of area to be fished (location and depth)
  - Fishing dates

- Anticipated effort
- Target species
- Bottom fishing gear-type used
- Area and effort restrictions to ensure that fisheries occur on a gradual basis in a limited geographical area.

2. A mitigation plan

- Measures to prevent SAIs to VMEs that may be encountered during the fishery

3. A catch monitoring plan

- Recording/reporting of all species brought onboard to the lowest possible taxonomic level
- 100% satellite monitoring
- 100% observer coverage

4. A data collection plan

- Data is to be collected in accordance with “Type and Format of Scientific Observer Data to be Collected” (Annex 5)

**Appendix 1.2**

**Information to be included in the report**

- Name of vessel
- Flag member of vessel
- Description of area fished (location and depth)
- Fishing dates
- Total effort
- Bottom fishing gear-type used
- List of VME encountered (the amount of VME indicator species for each encounter specifying the location: longitude and latitude)
- Mitigation measures taken in response to the encounter of VME
- List of all organisms brought onboard
- List of VMEs indicator species brought onboard by location: longitude and latitude

## **SCIENCE-BASED STANDARDS AND CRITERIA FOR IDENTIFICATION OF VMES AND ASSESSMENT OF SIGNIFICANT ADVERSE IMPACTS ON VMES AND MARINE SPECIES**

### 1. Introduction

Members of the Commission have hereby established science-based standards and criteria to guide their implementation of United Nations General Assembly (UNGA) Resolution 61/105 and the measures adopted by the Members in respect of bottom fishing activities in the North Pacific Ocean (NPO). In this regard, these science-based standards and criteria are to be applied to identify vulnerable marine ecosystems (VMEs) and assess significant adverse impacts (SAIs) of bottom fishing activities on such VMEs or marine species and to promote the long-term sustainability of deep sea fisheries in the Convention Area. The science-based standards and criteria are consistent with the FAO International Guidelines for the Management of Deep-Sea Fisheries in the High Seas, taking into account the work of other RFMOs implementing management of deep-sea bottom fisheries in accordance with UNGA Resolution 61/105. The standards and criteria are to be modified from time to time as more data are collected through research activities and monitoring of fishing operations.

### 2. Purpose

- (1) The purpose of the standards and criteria is to provide guidelines for each member of the Commission in identifying VMEs and assessing SAIs of individual bottom fishing activities<sup>1</sup> on VMEs or marine species in the Convention Area. Each member of the Commission, using the best information available, is to decide which species or areas are to be categorized as VMEs, identify areas where VMEs are known or likely to occur, and assess whether individual bottom fishing activities would have SAIs on such VMEs or marine species. The results of these tasks are to be submitted to and reviewed by the Scientific Committee with a view to reaching a common understanding among the members of the Commission.
- (2) For the purpose of applying the standards and criteria, the bottom fisheries are defined as follows:

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<sup>1</sup> "individual bottom fishing activities" means fishing activities by each fishing gear. For example, if ten fishing vessels operate bottom trawl fishing in a certain area, the impacts of the fishing activities of these vessels on the ecosystem are to be assessed as a whole rather than on a vessel-by-vessel basis. It should be noted that if the total number or capacity of the vessels using the same fishing gear has increased, the impacts of the fishing activities are to be assessed again.

- (a) The fisheries are conducted in the Convention Area;
- (b) The total catch (everything brought up by the fishing gear) includes species that can only sustain low exploitation rates; and
- (c) The fishing gear is likely to contact the seafloor during the normal course of fishing operations.

### 3. Definition of VMEs

- (1) Although Paragraph 83 of UNGA Resolution 61/105 refers to seamounts, hydrothermal vents and cold-water corals as examples of VMEs, there is no definitive list of specific species or areas that are to be regarded as VMEs.
- (2) Vulnerability is related to the likelihood that a population, community or habitat will experience substantial alteration by fishing activities and how much time will be required for its recovery from such alteration. The most vulnerable ecosystems are those that are both easily disturbed and are very slow to recover or may never recover. The vulnerabilities of populations, communities and habitats are to be assessed relative to specific threats. Some features, particularly ones that are physically fragile or inherently rare may be vulnerable to most forms of disturbance, but the vulnerability of some populations, communities and habitats may vary greatly depending on the type of fishing gear used or the kind of disturbance experienced. The risks to a marine ecosystem are determined by its vulnerability, the probability of a threat occurring and the mitigation means applied to the threat. Accordingly, the FAO Guidelines only provide examples of potential vulnerable species groups, communities and habitats as well as features that potentially support them (Annex 2.1).
- (3) A marine ecosystem is to be classified as vulnerable based on its characteristics. The following list of characteristics is used as criteria in the identification of VMEs.
  - (a) Uniqueness or rarity - an area or ecosystem that is unique or that contains rare species whose loss could not be compensated for by other similar areas. These include:
    - (i) Habitats that contain endemic species;
    - (ii) Habitats of rare, threatened or endangered species that occur in discrete areas;
    - (iii) Nurseries or discrete feeding, breeding, or spawning areas.
  - (b) Functional significance of the habitat – discrete areas or habitats that are necessary for the survival, function, spawning/reproduction or recovery of fish stocks, particular life-history stages (e.g. nursery grounds or rearing areas), or of rare, threatened or endangered marine species.
  - (c) Fragility – an ecosystem that is highly susceptible to degradation by anthropogenic activities
  - (d) Life-history traits of component species that make recovery difficult – ecosystems

that are characterized by populations or assemblages of species with one or more of the following characteristics:

- (i) Slow growth rates
  - (ii) Late age of maturity
  - (iii) Low or unpredictable recruitment
  - (iv) Long-lived
- (e) Structural complexity – an ecosystem that is characterized by complex physical structures created by significant concentrations of biotic and abiotic features. In these ecosystems, ecological processes are usually highly dependent on these structured systems. Further, such ecosystems often have high diversity, which is dependent on the structuring organisms.
- (4) Management response may vary, depending on the size of the ecological unit in the Convention Area. Therefore, the spatial extent of the ecological unit is to be decided first. That is, whether the ecological unit is the entire Area, or the current fishing ground, namely, the Emperor Seamount and Northern Hawaiian Ridge area (hereinafter called “the ES-NHR area”), or a group of the seamounts within the ESNHR area, or each seamount in the ES-NHR area, is to be decided using the above criteria.

#### 4. Identification of potential VMEs

##### (1) Fished seamounts

##### (a) Identification of fished seamounts

It is reported that four types of fishing gear are currently used by the members of the Commission in the ES-NHR area, namely, bottom trawl, bottom gillnet, bottom longline and pot. A fifth type of fishing gear (coral drag) was used in the ES-NHR area from the mid-1960s to the late 1980s and is possibly still used by non-members of the Commission. These types of fishing gear are usually used on the top or slope of seamounts, which could be considered VMEs. It is therefore necessary to identify the footprint of the bottom fisheries (fished seamounts) based on the available fishing record. The following seamounts have been identified as fished seamounts: Suiko, Showa, Youmei, Nintoku, Jingu, Ojin, Northern Koko, Koko, Kinmei, Yuryaku, Kammu, Colahan, and CH. Since the use of most of these gears in the ES-NHR area dates back to the late 1960s and 1970s, it is important to establish, to the extent practicable, a time series of where and when these gears have been used in order to assess potential long-term effects on any existing VMEs.

Fishing effort may not be evenly distributed on each seamount since fish aggregation may occur only at certain points of the seamount and some parts of the seamount may be physically unsuitable for certain fishing gears. Thus, it is important to know

actual fished areas within the same seamount so as to know the gravity of the impact of fishing activities on the entire seamount.

Due consideration is to be given to the protection of commercial confidentiality when identifying actual fishing grounds.

(b) Assessment on whether a specific seamount that has been fished is a VME

After identifying the fished seamounts or fished areas of seamounts, it is necessary to assess whether each fished seamount is a VME or contains VMEs in accordance with the criteria in 3 above, individually or in combination using the best available scientific and technical information as well as Annex 2.1. A variety of data would be required to conduct such assessment, including pictures of seamounts taken by an ROV camera or drop camera, biological samples collected through research activities and observer programs, and detailed bathymetry map. Where site-specific information is lacking, other information that is relevant to inferring the likely presence of VMEs is to be used.

(2) New fishing areas

Any place other than the fished seamounts above is to be regarded as a new fishing area. If a member of the Commission is considering fishing in a new fishing area, such a fishing area is to be subject to, in addition to these standards and criteria, an exploratory fishery protocol (Annex 1).

## 5. Assessment of SAIs on VMEs or marine species

(1) Significant adverse impacts are those that compromise ecosystem integrity (i.e., ecosystem structure or function) in a manner that: (i) impairs the ability of affected populations to replace themselves; (ii) degrades the long-term natural productivity of habitats; or (iii) causes, on more than a temporary basis, significant loss of species richness, habitat or community types. Impacts are to be evaluated individually, in combination and cumulatively.

(2) When determining the scale and significance of an impact, the following six factors are to be considered:

- (a) The intensity or severity of the impact at the specific site being affected;
- (b) The spatial extent of the impact relative to the availability of the habitat type affected;
- (c) The sensitivity/vulnerability of the ecosystem to the impact;
- (d) The ability of an ecosystem to recover from harm, and the rate of such recovery;
- (e) The extent to which ecosystem functions may be altered by the impact; and
- (f) The timing and duration of the impact relative to the period in which a species needs the habitat during one or more life-history stages.

(3) Temporary impacts are those that are limited in duration and that allow the particular ecosystem to recover over an acceptable timeframe. Such timeframes are to be decided on

a case-by-case basis and be on the order of 5-20 years, taking into account the specific features of the populations and ecosystems.

(4) In determining whether an impact is temporary, both the duration and the frequency with which an impact is repeated is to be considered. If the interval between the expected disturbances of a habitat is shorter than the recovery time, the impact is to be considered more than temporary.

(5) Each member of the Commission is to conduct assessments to establish if bottom fishing activities are likely to produce SAIs in a given seamount or other VMEs. Such an impact assessment is to address, *inter alia*:

- (a) Type of fishing conducted or contemplated, including vessel and gear types, fishing areas, target and potential bycatch species, fishing effort levels and duration of fishing;
- (b) Best available scientific and technical information on the current state of fishery resources, and baseline information on the ecosystems, habitats and communities in the fishing area, against which future changes are to be compared;
- (c) Identification, description and mapping of VMEs known or likely to occur in the fishing area;
- (d) The data and methods used to identify, describe and assess the impacts of the activity, identification of gaps in knowledge, and an evaluation of uncertainties in the information presented in the assessment;
- (e) Identification, description and evaluation of the occurrence, scale and duration of likely impacts, including cumulative impacts of activities covered by the assessment on VMEs and low-productivity fishery resources in the fishing area;
- (f) Risk assessment of likely impacts by the fishing operations to determine which impacts are likely to be SAIs, particularly impacts on VMEs and low-productivity fishery resources (Risk assessments are to take into account, as appropriate, differing conditions prevailing in areas where fisheries are well established and in areas where fisheries have not taken place or only occur occasionally);
- (g) The proposed mitigation and management measures to be used to prevent SAIs on VMEs and ensure long-term conservation and sustainable utilization of low-productivity fishery resources, and the measures to be used to monitor effects of the fishing operations.

(6) Impact assessments are to consider, as appropriate, the information referred to in these Standards and Criteria, as well as relevant information from similar or related fisheries, species and ecosystems.

(7) Where an assessment concludes that the area does not contain VMEs or that significant adverse impacts on VMEs or marine species are not likely, such assessments are to be repeated when there have been significant changes to the fishery or other activities in the area, or when

natural processes are thought to have undergone significant changes.

**6. Proposed conservation and management measures to prevent SAIs**

As a result of the assessment in 5 above, if it is considered that individual fishing activities are causing or likely to cause SAIs on VMEs or marine species, the member of the Commission is to adopt appropriate conservation and management measures to prevent such SAIs. The member of the Commission is to clearly indicate how such impacts are expected to be prevented or mitigated by the measures.

**7. Precautionary approach**

If after assessing all available scientific and technical information, the presence of VMEs or the likelihood that individual bottom fishing activities would cause SAIs on VMEs or marine species cannot be adequately determined, members of the Commission are only to authorize individual bottom fishing activities to proceed in accordance with:

- (a) Precautionary, conservation and management measures to prevent SAIs;
- (b) Measures to address unexpected encounters with VMEs in the course of fishing operations;
- (c) Measures, including ongoing scientific research, monitoring and data collection, to reduce the uncertainty; and
- (d) Measures to ensure long-term sustainability of deep sea fisheries.

**8. Template for assessment report**

Annex 2.2 is a template for individual member of the Commission to formulate reports on identification of VMEs and impact assessment.

**Annex 2.1**

**Examples of potential vulnerable species groups, communities and habitats as well as features that potentially support them**

The following examples of species groups, communities, habitats and features often display characteristics consistent with possible VMEs. Merely detecting the presence of an element itself is not sufficient to identify a VME. That identification is to be made on a case-by-case basis through application of relevant provisions of the Standards and Criteria, particularly Sections 3, 4 and 5.

Examples of species groups, communities and habitat forming species that are documented or considered sensitive and potentially vulnerable to deep-sea fisheries in the high-seas, and which may contribute to forming VMEs:	
a.	certain cold-water corals, e.g., reef builders and coral forest including: stony corals (scleractinia), alcyonaceans and gorgonians (octocorallia), black corals (antipatharia), and hydrocorals (stylasteridae),
b.	Some types of sponge dominated communities,
c.	communities composed of dense emergent fauna where large sessile protozoans (xenophyphores) and invertebrates (e.g., hydroids and bryozoans) form an important structural component of habitat, and
d.	seep and vent communities comprised of invertebrate and microbial species found nowhere else (i.e., endemic).

Examples of topographical, hydrophysical or geological features, including fragile geological structures, that potentially support the species groups or communities referred to above:

- a. submerged edges and slopes (e.g., corals and sponges)
- b. summits and flanks of seamounts, guyots, banks, knolls, and hills (e.g., corals, sponges and xenophyphores)
- c. canyons and trenches (e.g., burrowed clay outcrops, corals),
- d. hydrothermal vents (e.g., microbial communities and endemic invertebrates), and
- e. cold seeps (e.g., mud volcanoes, microbes, hard substrates for sessile invertebrates).

## Annex 2.2

### Template for reports on identification of VMEs and assessment of impacts caused by individual fishing activities on VMEs or marine species

1. Name of the member of the Commission
2. Name of the fishery (e.g., bottom trawl, bottom gillnet, bottom longline, pot)
3. Status of the fishery (existing fishery or exploratory fishery)
4. Target species
5. Bycatch species
6. Recent level of fishing effort (every year at least since 2002)
  - (1) Number of fishing vessels
  - (2) Tonnage of each fishing vessel

- (3) Number of fishing days or days on the fishing ground
  - (4) Fishing effort (total operating hours for trawl, # of hooks per day for long-line, # of pots per day for pot, total length of net per day for gillnet)
  - (5) Total catch by species
  - (6) Names of seamounts fished or to be fished
7. Fishing period
  8. Analysis of status of fishery resources
    - (1) Data and methods used for analysis
    - (2) Results of analysis
    - (3) Identification of uncertainties in data and methods, and measures to overcome such uncertainties
  9. Analysis of status of bycatch species resources
    - (1) Data and methods used for analysis
    - (2) Results of analysis
    - (3) Identification of uncertainties in data and methods, and measures to overcome such uncertainties
  10. Analysis of existence of VMEs in the fishing ground
    - (1) Data and methods used for analysis
    - (2) Results of analysis
    - (3) Identification of uncertainties in data and methods, and measures to overcome such uncertainties
  11. Impact assessment of fishing activities on VMEs or marine species including cumulative impacts, and identification of SAIs on VMEs or marine species, as detailed in Section 5 above, Assessment of SAIs on VMEs or marine species
  12. Other points to be addressed
  13. Conclusion (whether to continue or start fishing with what measures, or stop fishing).

**SCIENTIFIC COMMITTEE ASSESSMENT REVIEW PROCEDURES FOR BOTTOM  
FISHING ACTIVITIES**

1. The Scientific Committee (SC) is to review identifications of vulnerable marine ecosystems (VMEs) and assessments of significant adverse impact on VMEs, including proposed management measures intended to prevent such impacts submitted by individual Members.
2. Members of the Commission shall submit their identifications and assessments to members of the SC at least 21 days prior to the SC meeting at which the review is to take place. Such submissions shall include all relevant data and information in support of such determinations.
3. The SC will review the data and information in each assessment in accordance with the Science-based Standards and Criteria for Identification of VMEs and Assessment of Significant Adverse Impacts on VMEs and Marine Species (Annex 2), previous decisions of the Commission, and the FAO Technical Guidelines for the Management of Deep Sea Fisheries in the High Seas, paying special attention to the assessment process and criteria specified in paragraphs 47-49 of the Guidelines.
4. In conducting the review above, the SC will give particular attention to whether the deep-sea bottom fishing activity would have a significant adverse impact on VMEs and marine species and, if so, whether the proposed management measures would prevent such impacts.
5. Based on the above review, the SC will provide advice and recommendations to the submitting Members on the extent to which the assessments and related determinations are consistent with the procedures and criteria established in the documents identified above; and whether additional management measures will be required to prevent SAIs on VMEs.
6. Such recommendations will be reflected in the report of the SC meeting at which the assessments are considered.

## **FORMAT OF NATIONAL REPORT SECTIONS ON DEVELOPMENT AND IMPLEMENTATION OF SCIENTIFIC OBSERVER PROGRAMMES**

### **Report Components**

Annual Observer Programme implementation reports should form a component of annual National Reports submitted by members to the Scientific Committee. These reports should provide a brief overview of observer programmes conducted in the NPFC Convention Area. Observer programme reports should include the following sections:

#### **A. Observer Training**

An overview of observer training conducted, including:

- Overview of training programme provided to scientific observers.
- Number of observers trained.

#### **B. Scientific Observer Programme Design and Coverage**

Details of the design of the observer programme, including:

- Which fleets, fleet components or fishery components were covered by the programme.
- How vessels were selected to carry observers within the above fleets or components.
- How was observer coverage stratified: by fleets, fisheries components, vessel types, vessel sizes, vessel ages, fishing areas and seasons.

Details of observer coverage of the above fleets, including:

- Components, areas, seasons and proportion of total catches of target species, specifying units used to determine coverage.
- Total number of observer employment days, and number of actual days deployed on observation work.

#### **C. Observer Data Collected**

List of observer data collected against the agreed range of data set out in Annex 5, including:

- Effort Data: Amount of effort observed (vessel days, net panels, hooks, etc), by area and season and % observed out of total by area and seasons
- Catch Data: Amount of catch observed of target and by-catch species, by area and season, and % observed out of total estimated catch by species, area and seasons
- Length Frequency Data: Number of fish measured per species, by area and season.
- Biological Data: Type and quantity of other biological data or samples (otoliths, sex, maturity, etc.) collected per species.

- The size of length-frequency and biological sub-samples relative to unobserved quantities.

#### **D. Detection of Fishing in Association with Vulnerable Marine Ecosystems**

- Information about VME encounters (species and quantity in accordance with Annex 5, H, 2).

#### **E. Tag Return Monitoring**

- Number of tags returns observed, by fish size class and area.

#### **F. Problems Experienced**

- Summary of problems encountered by observers and observer managers that could affect the NPFC Observer Programme Standards and/or each member's national observer programme developed under the NPFC standards.

**NPFC BOTTOM FISHERIES OBSERVER PROGRAMME STANDARDS: SCIENTIFIC  
COMPONENT**

**TYPE AND FORMAT OF SCIENTIFIC OBSERVER DATA TO BE COLLECTED**

**A. Vessel & Observer Data to be collected for Each Trip**

1. Vessel and observer details are to be recorded only once for each observed trip.
2. The following observer data are to be collected for each observed trip:
  - (a) NPFC vessel ID.
  - (b) Observer's name.
  - (c) Observer's organisation.
  - (d) Date observer embarked (UTC date).
  - (e) Port of embarkation.
  - (f) Date observer disembarked (UTC date).
  - (g) Port of disembarkation.

**B. Catch & Effort Data to be collected for Trawl Fishing Activity**

1. Data are to be collected on an un-aggregated (tow by tow) basis for all observed trawls.
2. The following data are to be collected for each observed trawl tow:
  - (a) Tow start date (UTC).
  - (b) Tow start time (UTC).
  - (c) Tow end date (UTC).
  - (d) Tow end time (UTC).
  - (e) Tow start position (Lat/Lon, 1 minute resolution).
  - (f) Tow end position (Lat/Lon, 1 minute resolution).
  - (g) Type of trawl, bottom or mid-water.
  - (h) Type of trawl, single, double or triple.
  - (i) Height of net opening (m).
  - (j) Width of net opening (m).
  - (k) Mesh size of the cod-end net (stretched mesh, mm) and mesh type (diamond, square, etc).
  - (l) Gear depth (of footrope) at start of fishing (m).
  - (m) Bottom (seabed) depth at start of fishing (m).
  - (n) Gear depth (of footrope) at end of fishing (m).
  - (o) Bottom (seabed) depth at end of fishing (m).

- (p) Status of the trawl operation (no damage, lightly damaged\*, heavily damaged\*, other (specify)).  
\*Degree may be evaluated by time for repairing ( $\leq 1$ hr or  $> 1$ hr).
- (q) Duration of estimated period of seabed contact (minute)
- (r) Intended target species.
- (s) Catch of all species retained on board, split by species, in weight (to the nearest kg).
- (t) Estimate of the amount (weight or volume) of all living marine resources discarded, split by species.
- (u) Record of the numbers by species of all marine mammals, seabirds or reptiles caught.

### **C. Catch & Effort Data to be collected for Bottom Gillnet Fishing Activity**

1. Data are to be collected on an un-aggregated (set by set) basis for all observed bottom gillnet sets.
2. The following data are to be collected for each observed bottom gillnet set:
  - (a) Set start date (UTC).
  - (b) Set start time (UTC).
  - (c) Set end date (UTC).
  - (d) Set end time (UTC).
  - (e) Set start position (Lat/Lon, 1 minute resolution).
  - (f) Set end position (Lat/Lon, 1 minute resolution).
  - (g) Net panel (“tan”) length (m).
  - (h) Net panel (“tan”) height (m).
  - (i) Net mesh size (stretched mesh, mm) and mesh type (diamond, square, etc)
  - (j) Bottom depth at start of setting (m).
  - (k) Bottom depth at end of setting (m).
  - (l) Number of net panels for the set.
  - (m) Number of net panels retrieved.
  - (n) Number of net panels actually observed during the haul.
  - (o) Actually observed catch of all species retained on board, split by species, in weight (to the nearest kg).
  - (p) An estimation of the amount (numbers or weight) of marine resources discarded, split by species, during the actual observation.
  - (q) Record of the actually observed numbers by species of all marine mammals, seabirds or reptiles caught.
  - (r) Intended target species.
  - (s) Catch of all species retained on board, split by species, in weight (to the nearest kg).

- (t) Estimate of the amount (weight or volume) of all marine resources discarded\* and dropped off, split by species. \* Including those retained for scientific samples.
- (u) Record of the numbers by species of all marine mammals, seabirds or reptiles caught (including those discarded and dropped-off).

#### **D. Catch & Effort Data to be collected for Bottom Long Line Fishing Activity**

1. Data are to be collected on an un-aggregated (set by set) basis for all observed longline sets.
2. The following fields of data are to be collected for each set:
  - (a) Set start date (UTC).
  - (b) Set start time (UTC).
  - (c) Set end date (UTC).
  - (d) Set end time (UTC).
  - (e) Set start position (Lat/Lon, 1 minute resolution).
  - (f) Set end position (Lat/Lon, 1 minute resolution).
  - (g) Total length of longline set (m).
  - (h) Number of hooks or traps for the set.
  - (i) Bottom (seabed) depth at start of set.
  - (j) Bottom (seabed) depth at end of set.
  - (k) Number of hooks or traps actually observed during the haul.
  - (l) Intended target species.
  - (m) Actually observed catch of all species retained on board, split by species, in weight (to the nearest kg).
  - (n) An estimation of the amount (numbers or weight) of marine resources discarded\* or dropped-off, split by species, during the actual observation. \* Including those retained for scientific samples.
  - (o) Record of the actually observed numbers by species of all marine mammals, seabirds or reptiles caught (including those discarded and dropped-off).

#### **E. Length-Frequency Data to Be Collected**

1. Representative and randomly distributed length-frequency data (to the nearest mm, with record of the type of length measurement taken) are to be collected for representative samples of the target species and other main by-catch species. Total weight of length-frequency samples should be recorded, and observers may be required to also determine sex of measured fish to generate length-frequency data stratified by sex. The length-frequency data may be used as potential indicators of ecosystem changes (for example, see: Gislason, H. et al. (2000. ICES J Mar Sci 57: 468-475), Yamane et al. (2005. ICES J Mar Sci, 62: 374-379), and Shin, Y-J. et al. (2005. ICES J Mar Sci, 62: 384-396)).

2. The numbers of fish to be measured for each species and distribution of samples across area and month strata should be determined, to ensure that samples are properly representative of species distributions and size ranges.

#### **F. Biological sampling to be conducted (optional for gillnet and long line fisheries)**

1. The following biological data are to be collected for representative samples of the main target species and, time permitting, for other main by-catch species contributing to the catch:
  - (a) Species
  - (b) Length (to the nearest mm), with record of the type of length measurement used.
  - (c) Length and depth in case of North Pacific armorhead.
  - (d) Sex (male, female, indeterminate, not examined)
  - (e) Maturity stage (immature, mature, ripe, ripe-running, spent)
2. Representative stratified samples of otoliths are to be collected from the main target species and, time permitting, from other main by-catch species regularly occurring in catches. All otoliths to be collected are to be labelled with the information listed in 1 above, as well as the date, vessel name, observer name and catch position.
3. Where specific trophic relationship projects are being conducted, observers may be requested to also collect stomach samples from certain species. Any such samples collected are also to be labelled with the information listed in 1 above, as well as the date, vessel name, observer name and catch position.
4. Observers may also be required to collect tissue samples as part of specific genetic research programmes implemented by the SC.
5. Observers are to be briefed and provided with written length-frequency and biological sampling protocols and priorities for the above sampling specific to each observer trip.

#### **G. Data to be collected on Incidental Captures of Protected Species**

1. Flag members operating observer programs are to develop, in cooperation with the SC, lists and identification guides of protected species or species of concern (seabirds, marine mammals or marine reptiles) to be monitored by observers.
2. The following data are to be collected for all protected species caught in fishing operations:
  - (a) Species (identified as far as possible, or accompanied by photographs if identification is difficult).
  - (b) Count of the number caught per tow or set.
  - (c) Life status (vigorous, alive, lethargic, dead) upon release.
  - (d) Whole specimens (where possible) for onshore identification. Where this is not possible, observers may be required to collect sub-samples of identifying parts, as specified in biological sampling protocols.

## **H. Detection of Fishing in Association with Vulnerable Marine Ecosystems**

1. The SC is to develop a guideline, species list and identification guide for benthic species (e.g. sponges, sea fans, corals) whose presence in a catch will indicate that fishing occurred in association with a vulnerable marine ecosystem (VME). All observers on vessels are to be provided with copies of this guideline, species list and ID guide.
2. For each observed fishing operation, the following data are to be collected for all species caught, which appear on the list of vulnerable benthic species:
  - (a) Species (identified as far as possible or accompanied by a photograph where identification is difficult).
  - (b) An estimate of the quantity (weight (kg) or volume (m<sup>3</sup>)) of each listed benthic species caught in the fishing operation.
  - (c) An overall estimate of the total quantity (weight (kg) or volume (m<sup>3</sup>)) of all invertebrate benthic species caught in the fishing operation.
  - (d) Where possible, and particularly for new or scarce benthic species which do not appear in ID guides, whole samples should be collected and suitable preserved for identification on shore.

## **I. Data to be collected for all Tag Recoveries**

1. The following data are to be collected for all recovered fish, seabird, mammal or reptile tags:
  - (a) Observer name.
  - (b) Vessel name.
  - (c) Vessel call sign.
  - (d) Vessel flag.
  - (e) Collect, label (with all details below) and store the actual tags for later return to the tagging agency.
  - (f) Species from which tag recovered.
  - (g) Tag colour and type (spaghetti, archival).
  - (h) Tag numbers (The tag number is to be provided for all tags when multiple tags were attached to one fish. If only one tag was recorded, a statement is required that specifies whether or not the other tag was missing)
  - (i) Date and time of capture (UTC).
  - (j) Location of capture (Lat/Lon, to the nearest 1 minute)
  - (k) Animal length / size (to the nearest cm) with description of what measurement was taken (such as total length, fork length, etc).
  - (l) Sex (F=female, M=male, I=indeterminate, D=not examined)
  - (m) Whether the tags were found during a period of fishing that was being observed (Y/N)

(n) Reward information (e.g. name and address where to send reward)

(It is recognised that some of the data recorded here duplicates data that already exists in the previous categories of information. This is necessary because tag recovery information may be sent separately to other observer data.)

## **J. Hierarchies for Observer Data Collection**

1. Trip-specific or programme-specific observer task priorities may be developed in response to specific research programme requirements, in which case such priorities should be followed by observers.
2. In the absence of trip- or programme-specific priorities, the following generalised priorities should be followed by observers:
  - (a) Fishing Operation Information
    - All vessel and tow / set / effort information.
  - (b) Monitoring of Catches
    - Record time, proportion of catch (e.g. proportion of trawl landing) or effort (e.g. number of hooks), and total numbers of each species caught.
    - Record numbers or proportions of each species retained or discarded.
  - (c) Biological Sampling
    - Length-frequency data for target species.
    - Length-frequency data for main by-catch species.
    - Identification and counts of protected species.
    - Basic biological data (sex, maturity) for target species.
    - Check for presence of tags.
    - Otoliths (and stomach samples, if being collected) for target species.
    - Basic biological data for by-catch species.
    - Biological samples of by-catch species (if being collected)
    - Photos
3. The monitoring of catches and biological sampling procedures should be prioritised among species groups as follows:

<b>Species</b>	<b>Priority (1 highest)</b>
Primary target species (such as North Pacific armorhead and splendid alfonsino)	1
Other species typically within top 10 in the fishery (such as mirror dory, and oreos)	2

Protected species	3
All other species	4

The allocation of observer effort among these activities will depend on the type of operation and setting. The size of sub-samples relative to unobserved quantities (e.g. number of hooks/panels examined for species composition relative to the number of hooks/panels retrieved) should be explicitly recorded under the guidance of member country observer programmes.

#### **K. Coding Specifications to be used for Recording Observer Data**

1. Unless otherwise specified for specific data types, observer data are to be collected in accordance with the same coding specifications as specified in this Annex.
2. Coordinated Universal Time (UTC) is to be used to describe times.
3. Degrees and minutes are to be used to describe locations.
4. The following coding schemes are to be used:
  - (a) Species are to be described using the FAO 3 letter species codes or, if species do not have a FAO code, using scientific names.
  - (b) Fishing methods are to be described using the International Standard Classification of Fishing Gear (ISSCFG - 29 July 1980) codes.
  - (c) Types of fishing vessel are to be described using the International Standard Classification of Fishery Vessels (ISSCFV) codes.
5. Metric units of measure are to be used, specifically:
  - (a) Kilograms are to be used to describe catch weight.
  - (b) Metres are to be used to describe height, width, depth, beam or length.
  - (c) Cubic metres are to be used to describe volume.
  - (d) Kilowatts are to be used to describe engine power.

## Implementation of the Adaptive Management for North Pacific armorhead (in 2021)

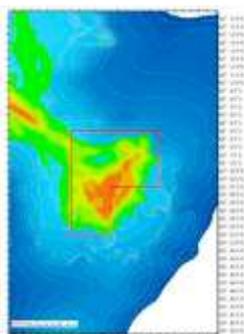
### 1. Monitoring survey for the detection of strong recruitment of North Pacific armorhead

#### (1) Location of monitoring surveys

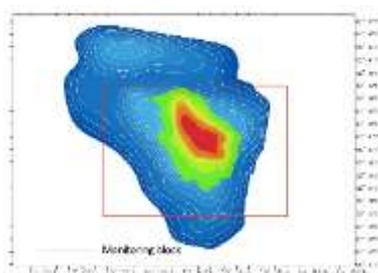
Monitoring surveys for the detection of strong recruitment of North Pacific armorhead will be conducted by trawl fishing vessels in the pre-determined four (4) monitoring blocks of Koko (South eastern), Yuryaku, Kammu (North western) and/or Colahan seamounts.

#### Monitoring blocks

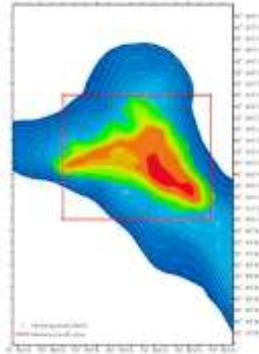
(1) Koko seamount ( $34^{\circ}51' - 35^{\circ}04'N$ ,  $171^{\circ}49' - 172^{\circ}00' E$ )



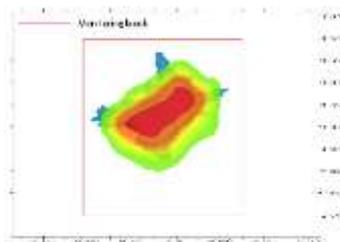
(2) Yuryaku seamount ( $32^{\circ}35' - 32^{\circ}45'N$ ,  $172^{\circ}10' - 172^{\circ}24'E$ )



(3) Kammu seamount ( $32^{\circ}10' - 32^{\circ}21'N$ ,  $172^{\circ}44' - 172^{\circ}57'E$ )



(4) Colahan seamount (30°57'–31°05'N, 175°50'–175°57'E)



## (2) Schedule for monitoring surveys

Monitoring surveys will be conducted from March 1<sup>st</sup> to June 30<sup>th</sup> each year, with at least a one-week interval between monitoring surveys. For each survey, a trawl fishing vessel will conduct a monitoring survey in one of the four monitoring blocks that is the nearest from the location of the trawl fishing vessel at the time of prior notification in (4) below.

The base schedule for monitoring surveys will be notified to the Executive Secretary by the end of February of each year. The base schedule may be revised during the year subject to prior notification to the Executive Secretary.

## (3) Data to be collected during monitoring surveys

For each monitoring survey, a trawl net will be towed for one hour. A scientific observer onboard the trawl fishing vessel will calculate nominal-CPUE (kg/hour) of North Pacific armorhead. The scientific observer will also calculate fat index\* (FI) of randomly sampled 100 individuals of North Pacific armorhead by measuring fork length (FL) and body height (BH) of each individual.

(\*fat index (FI) = body height (BH) / fork length (FL) )

## (4) Prior notifications and survey results

At least three (3) days before each survey, a prior notification with monitoring date/time, location and trawl fishing vessel name will be provided by the flag state of the trawl fishing vessel to the Executive Secretary.

No later than three (3) days after each survey, the survey result including date/time, location, catch, nominal-CPUE (kg/hour) and percentage of fish with fat index (FI)>0.3 will be provided by the flag state to the Executive Secretary.

The Executive Secretary will circulate these prior notifications and survey results to all Members of the Commission without delay.

## **2. Areas where bottom fishing with trawl gear is prohibited when high recruitment is detected**

### **(1) Criteria for a high recruitment**

It is considered that high recruitment has occurred if the following criteria are met in four (4) consecutive monitoring surveys.

- Nominal CPUE > 10t/h
- Individuals of fat index (FI)> 0.3 account for 80% or more

### **(2) Areas where bottom fishing with trawl gear is prohibited**

Bottom fishing with trawl gear shall be prohibited in the following two (2) seamount areas (\*) during the year when high recruitment is detected. In such a case, all monitoring surveys scheduled during the year will be cancelled.

- Northern part of Kammu seamount (north of 32°10.0' N)
- Yuryaku seamount

(\*) The catch of North Pacific armorhead in the above two seamounts accounts for a half of the total catch in the entire Emperor Seamounts area based on the catch records in 2010 and 2012.

### **(3) Notification by the Secretariat**

When the criteria for high recruitment are met as defined in 2(1) above, the Executive Secretary will notify all Members of the Commission of the fact with a defined date/time from which bottom fishing with trawl gear is prohibited in the areas as defined in 2(2) above until the end of the year.

**CMM 2021-11**  
*(Entered into force 10 July 2021)*

**CONSERVATION AND MANAGEMENT MEASURE FOR JAPANESE SARDINE,  
NEON FLYING SQUID AND JAPANESE FLYING SQUID**

*The North Pacific Fisheries Commission (NPFC),*

*Recalling* that six pelagic species – Pacific saury, chub mackerel, spotted mackerel, Japanese sardine, neon flying squid, and Japanese flying squid – are identified as priority species;

*Also recalling* that the NPFC has adopted the CCMs on two species - Pacific saury and chub mackerel;

*Noting* that specific measures for the remaining four species have yet to be introduced while those species have been subject to extensive fishing practices, whether they are target or bycatch species;

*Reaffirming* the General Principles provided in Article 3 of the Convention, in particular, Paragraph (h) stipulating that any expansion of fishing effort does not proceed without prior assessment of the impacts of those fishing activities on the long-term sustainability of fisheries resources;

*Adopts* the following conservation and management measure in accordance with Article 7 of the Convention:

1. Members of the Commission and Cooperating non-Contracting Parties (CNCs) with substantial harvest of any of Japanese sardine, neon flying squid and Japanese flying squid (hereinafter referred to as “the three Pelagic Species”) in the Convention Area shall refrain from expansion, in the Convention Area, of the number of fishing vessels entitled to fly their flags and authorized to fish for such species from the historical existing level until the stock assessment for such species by the SC has been completed.
2. Members of the Commission and CNCs without substantial harvest of the three Pelagic Species in the Convention Area are encouraged to refrain from expansion, in the Convention Area, of the number of fishing vessels entitled to fly their flags and authorized to fish for such species from the historical existing level until the stock assessment for such species by the SC has been completed.

3. Members of the Commission participating in fishing for the three Pelagic Species in areas under their jurisdiction adjacent to the Convention Area are requested to take compatible measures in paragraph 1. Such Members<sup>1</sup> may divert part of their catch limit for areas under their jurisdiction to their own catch of the species in the Convention Area by vessels entitled to fly their flags and authorized to fish for the species, provided that: (i) the Member has established a catch limit for the species in its jurisdiction; (ii) the Member has notified the Commission of the catch limit; and (iii) the total catch of the species in the Convention Area and the areas under their jurisdiction adjacent to the Convention Area will not exceed the Member's total catch limit for its jurisdiction respectively.
4. Development of new fishing activity for the three Pelagic Species in the Convention Area by Members of the Commission without documented historical catch for such species in the Convention Area shall be determined in accordance with relevant provisions, as appropriate, including but not limited to Article 3, paragraph (h) and Article 7, subparagraphs 1(g) and (h) of the Convention.
5. Members of the Commission and CNCs shall ensure that fishing vessels flying their flag operating in the Convention Area authorized to fish the three Pelagic Species are to be equipped with an operational vessel monitoring system that is activated at all times.
6. Members of the Commission and CNCs shall provide their data on the three Pelagic Species in accordance with the data requirements adopted by the Commission in the Annual Report by the end of February, every year. The Commission shall review such information at the annual meeting of every year.
7. Members of the Commission and CNCs shall cooperate to take necessary measures including sharing information, in order to accurately understand the situation and eliminate IUU fishing for the three Pelagic Species.
8. After a stock assessment for any of the three Pelagic Species has been completed, the provisions in Paragraph 1 shall be reviewed by the Commission and those provisions shall not be a precedent to hinder those Members who are not harvesting substantial amounts of the three Pelagic Species assessed in the Convention Area to develop their own fisheries in the Convention Area noting the Commission shall regularly review the harvests of such species in the Convention Area by all Members.
9. This management measure shall expire and be replaced by the measure to be adopted by the Commission based on the advice and recommendations from the Scientific Committee.

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<sup>1</sup> Paragraph 3 applies to Russia and Japan.

## CONSERVATION AND MANAGEMENT MEASURE FOR PACIFIC SAURY

*The North Pacific Fisheries Commission (NPFC),*

*Reaffirming* the General Principles, Article 3 of the Convention, in particular, paragraph (b) stipulating that measures are adopted, based on the best scientific information available, to ensure that fisheries resources are maintained at or restored to levels capable of producing maximum sustainable yield, and paragraph (f) stipulating that preventing or eliminating overfishing and excess fishing capacity and ensuring that levels of fishing effort or harvest levels are based on the best scientific information available and do not exceed those commensurate with the sustainable use of the fisheries resources;

*Recognizing* that the special meeting of the Scientific Committee (SC) in January, 2021 provided consensus stock assessment results, including Maximum Sustainable Yield (MSY) and relevant reference quantities, and recommended that “the Commission: (h) Consider further management measures for avoiding an increasing trend in the exploitation rate of Pacific saury to sustain biomass”;

*Adopts* the following conservation and management measure in accordance with Article 7 of the Convention:

### [EFFORT MANAGEMENT]

1. Members of the Commission, not described under Paragraph 2, and that are currently fishing for Pacific saury shall refrain from expansion, in the Convention Area, of the number of fishing vessels entitled to fly their flags and authorized to fish for Pacific saury from the historical existing level.
2. Members fishing for Pacific saury in areas of their jurisdiction that are adjacent to the Convention Area shall refrain from rapid expansion, in the Convention Area, of the number of fishing vessels entitled to fly their flags and authorized to fish for Pacific saury from the historical existing level.<sup>1</sup>

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<sup>1</sup> Paragraph 2 applies to Russia and Japan

3. Members of the Commission participating in Pacific saury fisheries in areas under national jurisdiction adjacent to the Convention Area are, in accordance with relevant provisions of Article 3 of the Convention, requested to take compatible measures in paragraph 2.

[CATCH MANAGEMENT]

4. For 2021 and 2022, Members of the Commission agree, having regard to the advice of the Scientific Committee, that the annual catches of Pacific saury in the entire area (the Convention Area and the areas under their jurisdiction adjacent to the Convention Area) should not exceed 333,750 metric tons.

5. In 2021 and 2022, the annual total allowable catch (TAC) of Pacific saury in the Convention Area shall be limited to 198,000 metric tons.

6. As a provisional measure until the Commission decides allocation of the TAC, each Member of the Commission shall reduce the annual total catch of Pacific saury by the fishing vessels entitled to fly its flag in 2021 and 2022 by 40% from its reported catch in 2018 so that the total catch in the Convention Area will not exceed 198,000 metric tons.

7. To comply with the provisional measures above, Members of the Commission shall report to the Executive Secretary, in the electronic format, weekly catches of Pacific saury in the Convention Area by fishing vessels flying their flags by Wednesday of the next week. The Executive Secretary shall make available the compiled catch of Pacific saury in the Convention Area on the Commission's website without delay.

8. In the event that a Member reaches 70% of its catch limit set out in paragraph 6, the Executive Secretary shall inform that Member of that fact, with a copy to all other Members. That Member shall close the fishery for its flagged vessels when the total catch of its flagged vessels is equivalent to 100% of its catch limit. Such Member shall notify promptly the Executive Secretary of the date of the closure, except as described in paragraph 9.

9. Members fishing for Pacific saury in areas of their jurisdiction<sup>2</sup> that are adjacent to the Convention Area may divert part of their catch limit for areas under their jurisdiction to their own catch of Pacific saury in the Convention Area by vessels entitled to fly their flags and authorized to fish for Pacific saury.

10. At the 8th Commission annual meeting or earlier, the Commission shall review and revise, as

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<sup>2</sup> Paragraph 9 applies to Russia and Japan

appropriate, this CMM based on the advice and recommendations from the SC.

[OTHER MEASURES]

11. Development of new fishing activity for the Pacific saury fishery in the Convention Area by Members without documented historical catch for Pacific saury in the Convention Area shall be determined in accordance with relevant provisions, as appropriate, including but not limited to Article 3, paragraph (h) and Article 7, subparagraphs 1(g) and (h) of the Convention.

12. Members of the Commission shall ensure that fishing vessels flying its flag operating in the Convention Area to fish Pacific saury be equipped with an operational vessel monitoring system that is activated at all times.

13. In order to prevent discards and contribute to the proper stock assessment, Members of the Commission shall take necessary measures to ensure that fishing vessels flying their flags in the Convention Area retain all the catch of Pacific saury on board.

14. In order to protect juvenile fish, Members of the Commission are encouraged to take measures for fishing vessels flying their flags to refrain from fishing for Pacific saury in the areas east of 170°E from June to July. The SC and its subsidiary Small Scientific Committee on Pacific Saury will submit to the Commission relevant scientific information on geographical distribution of juvenile fish in the Convention Area, and its migration patterns.

15. The Commission shall establish a joint SC-TCC-COM Small Working Group in 2021 toward the establishment of harvest control rules for Pacific saury as an interim measure as soon as possible, preferably at the 8<sup>th</sup> Commission annual meeting. The Working Group shall also consider establishment of a management procedure to be formulated through an MSE process. The Secretariat shall recruit an external expert to support the development process.

16. This CMM shall in no case be a basis for any future CMM for Pacific saury.

17. Consideration should be given to development aspirations of small island developing States in accordance with international law in revising this CMM.

18. This CMM shall enter into force on May 1<sup>st</sup>, 2021, replacing CMM 2019-08 and will be reviewed on a regular basis.