North Pacific Fisheries Commission

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

North Pacific Fisheries Commission
Scientific Committee
2025-2029 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 4th 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 the 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 of 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.

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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 the priority areas are available in the attached (Annex 1).

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

At its 7th meeting, the Commission adopted a resolution on climate change and tasked the SC to identify relevant data availability and needs and integrate analyses of climate change relevant to NPFC fisheries into its work plan. The resolution also requires SC to include climate change as a standing agenda item of its meetings.

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 2nd 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, NPFC's 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
• Provide fisheries data to support Members' stock assessments of Japanese flying squid *Todarodes pacificus*, Japanese sardine *Sardinops melanostictus*, and blue mackerel *Scomber australasicus*.

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*, Blue 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 a management strategy evaluation (MSE) for Pacific saury in collaboration with NPFC's Commission, Small Working Group on Management Strategy Evaluation for Pacific Saury (SWG MSE PS), Technical and Compliance Committee (TCC), fishery managers, fishers, stakeholders, and observers.

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 during the last two decades. Four fishes are recognized as priority species: North Pacific armorhead (NPA) *Pentaceros wheeleri,* splendid alfonsino (SA) *Beryx splendens,* sablefish *Anonoploma fimbria,* and skilfish *Erilepsis zonifer*.

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 that 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 2025-05 and CMM 2025-06), 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 2025-05 and CMM 2025-06)
• 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 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 the 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

Annex 1

Five-Year Work Plan of the Scientific Committee and its subsidiary bodies

Small Scientific Committee on Pacific Saury

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. Continue exploring climate indices to explain impacts on Pacific saury stock productivity
10. Support any technical work on MSE under SWG MSE PS

ITEM	2025	2026	2027	2028	2029	Progress
Regular update of inputs						
Update & improvement of biomass survey index	Continue regular review of 1) survey plan 2) analytical work 3) any related issues including experiments to produce absolute biomass index and additional surveys by other Members to	Same as on the left	Same as on the left	Same as on the left	Same as on the left	Completed annually

ITEM	2025	2026	2027	2028	2029	Progress
	increase coverage					
Update & improvement of CPUE indices	Continue review of outcomes of regular update and analytical works	Continue review of outcomes of regular update and analytical works including spatio-temporal analysis	Same as on the left	Same as on the left	Same as on the left	Completed annually
Development of joint CPUE index	Continue review of outcomes of regular update and analytical works	Same as on the left	Same as on the left	Same as on the left	Same as on the left	Completed annually
Regular update of the existing SA						
Routine update BSSPM as a benchmark	Continue review of outcomes of regular BSSPM update [1)]	Same as on the left	Same as on the left	Same as on the left	Same as on the left	Completed annually
Improvement and further investigation of BSSPM	Review any outcomes of improvements, inter alia in light of possible incorporation of environmental information and reduction of retrospective pattern	Same as on the left	Same as on the left	Same as on the left	Same as on the left	Completed annually
Toward age/size-structured models (ASSMs)						
Data preparation/update	Explore age-specific abundance indices and recruitment indices. Conditional age at length information. Spatio-temporal variation of size composition.	TBD	TBD	TBD	TBD	Completed annually
Summarizing available information	Update regularly, specifically maturity	Continue	Continue	Continue	Continue	Collaboration between modelers and

ITEM	2025	2026	2027	2028	2029	Progress
on PS biology	ogive and growth function					biologists has been done well and it will continue for updates.
Development of models	Finalize development of a new stock assessment model	Finalize development of a new stock assessment model				SS3 model was reviewed. WG NSAM will continue to work on the development of the SS3 model.
Uncertainty in models (possible link with OM grid under MSE)	Refine the plausible range of values of key biological parameters. Refine assumptions about prior distributions and the ranges for model parameters.	Continue	Continue	Continue	Continue	On going with in the work on new stock assessment
Other key matters						
Climate impact assessment	Explore models for assessing climate impacts on distribution and productivity	Continue	Continue	Continue	Continue	Modelling has been conducted and the work to be continued
HCR	Evaluate the performance of the interim HCR in the presence of retrospective pattern	Continue				Start in 2025

[1)] Until any new stock assessment models other than the BSSPM are accomplished, the outcome will produce key inputs for the Harvest Control Rule (HCR).

Small Scientific Committee on Bottom Fish and Marine Ecosystems

Priority list:

1. NPA: Review monitoring survey
2. NPA: Conduct stock assessment and provide management advice
3. SA: Conduct 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: Assess the relative risk of SAI for VME as a step towards standardized approach to SAI

ITEM	SSC BFME06 (2025)	SSC BFME07 (2026)	SSC BFME08 (2027)	SSC BFME09 (2028)	SSC BFME10 (2029)	Progress
North Pacific Armorhead						
Assess and monitor status of stock	Update catch data for NPA	Update catch data for NPA	Update catch data for NPA	Update catch data for NPA	Update catch data for NPA	Completed annually
	Review results of NPA monitoring surveys	Review results of NPA monitoring surveys	Review results of NPA monitoring surveys	Review results of NPA monitoring surveys	Review results of NPA monitoring surveys	Completed annually
	Implement alternative methods for stock status	Implement alternative methods for stock status	Update status of stock	Update status of stock	Update status of stock	Exploring alternative methods for stock status
	Apply depletion method to assessing stock	Further develop and apply depletion				Currently underway

ITEM	SSC BFME06 (2025)	SSC BFME07 (2026)	SSC BFME08 (2027)	SSC BFME09 (2028)	SSC BFME10 (2029)	Progress
		method to estimate stock status				
	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	Identify and conduct additional research on NPA	Completed annually
	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	Completed annually
Conserve stock		Develop conservation objective(s)				Not completed
		Implement adaptive management				Not completed
	~~Update data and implement HCR~~	Develop HCR and implement	Update data and implement HCR	Update data and implement HCR		Not completed
Splendid alfonsino						
Assess and monitor status of stock	Update catch data and CPUE standardization for SA	Update catch data and CPUE standardization for SA	Update catch data and CPUE standardization for SA	Update catch data and CPUE standardization for SA	Update catch data and CPUE standardization for SA	Completed annually

ITEM	SSC BFME06 (2025)	SSC BFME07 (2026)	SSC BFME08 (2027)	SSC BFME09 (2028)	SSC BFME10 (2029)	Progress
	Update life history based approach and provide management advice if necessary	Update life history based approach and provide management advice if necessary	Update life history based approach and provide management advice if necessary	Update life history based approach and provide management advice if necessary		Completed life history based approach (to be presented at BFME05)
	Apply data-limited integrated approach	Complete data-limited integrated approach				On track for completion by BFME07
	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	Completed annually
Conserve stock	~~Develop conservation objective(s); Define and implement harvest control rule based on stock synthesis approach~~	Develop HCR and implement	Update data and implement HCR	Update data and implement HCR	Update data and implement HCR	Not completed
Sablefish						

ITEM	SSC BFME06 (2025)	SSC BFME07 (2026)	SSC BFME08 (2027)	SSC BFME09 (2028)	SSC BFME10 (2029)	Progress
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	Update catch data and CPUE index Provide an update on USA-Canada stock assessment models for Sablefish and joint research on Sablefish	Update catch data and CPUE index Provide an update on USA-Canada stock assessment models for Sablefish and joint research on Sablefish	Update catch data and CPUE index Provide an update on USA-Canada stock assessment models for Sablefish and joint research on Sablefish	Update catch data and CPUE index Provide an update on USA-Canada stock assessment models for Sablefish and joint research on Sablefish	Completed annually Completed annually
	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	Completed annually
Conserve stock	[Design HCR specific to NPFC Sablefish (joint intersessional work with Canada and USA assessment authors]	[Design HCR specific to NPFC Sablefish (joint intersessional work with Canada and USA assessment authors]	Update data and implement HCR	Update data and implement HCR		Not completed
Other research		~~Update trade-off analysis for Sablefish~~	-	-		~~Not updated (no new data available)~~

ITEM	SSC BFME06 (2025)	SSC BFME07 (2026)	SSC BFME08 (2027)	SSC BFME09 (2028)	SSC BFME10 (2029)	Progress
		~~fishing and VME protection (as new data is available)~~				
Vulnerable marine ecosystems						
Defining and Identifying VMEs		Consolidate other potential data sources and clarify gaps and deficiencies in VME data				Completed mapping (SWG VME report)
	Review and update quantitative definition of VMEs as needed	Review and update quantitative definition of VMEs as needed	Review and update quantitative definition of VMEs as needed	Review and update quantitative definition of VMEs as needed	Review and update quantitative definition of VMEs as needed	Completed annually
	Update identification of new VME and areas likely to be VMEs as new data becomes available	Update identification of new VME and areas likely to be VMEs as new data becomes available	Update identification of new VME and areas likely to be VMEs as new data becomes available	Update identification of new VME and areas likely to be VMEs as new data becomes available	Update identification of new VME and areas likely to be VMEs as new data becomes available	Completed annually
	Review updated taxonomy for corals and VME indicator taxa as needed	Review updated taxonomy for corals and VME indicator taxa as needed	Review updated taxonomy for corals and VME indicator taxa as needed	Review updated taxonomy for corals and VME indicator taxa as needed	Review updated taxonomy for corals and VME indicator taxa as needed	Completed annually

ITEM	SSC BFME06 (2025)	SSC BFME07 (2026)	SSC BFME08 (2027)	SSC BFME09 (2028)	SSC BFME10 (2029)	Progress
Identifying and defining SAI's	Determine data requirements and spatial/temporal resolution for SAI assessment and continue developing risk assessment for SAI	Assess risk of SAI for bottom fisheries	Conduct integrated SAI assessment	Conduct integrated SAI assessment	Conduct integrated SAI assessment	Work in progress
	Develop standardized and measurable metrics to assess cumulative impacts of fisheries on VME	Assess other threats to VME, such as climate change and lost fishing gear				
Quantifying interactions between fisheries and VMEs	Update spatially explicit fishing effort data	Update spatially explicit fishing effort data	Update spatially explicit fishing effort data	Update spatially explicit fishing effort data	Update spatially explicit fishing effort data	Completed annually
	Develop or research alternative methods to apply to Japan and Korea’s indicator taxa bycatch to further refine encounter thresholds that are					Completed - To be presented at BFME06

ITEM	SSC BFME06 (2025)	SSC BFME07 (2026)	SSC BFME08 (2027)	SSC BFME09 (2028)	SSC BFME10 (2029)	Progress
	taxon and gear specific					
	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	Completed annually
Conserving VMEs	Refine framework for future monitoring of recovering VMEs	Periodic review of VME management	Periodic review of VME management	Periodic review of VME management	Periodic review of VME management	Not completed
Other ecosystem components						
Assess the impact of fisheries on other ecosystem components		Work towards assessment of fishing impacts on other (non-target) ecosystem components				Completed - To be presented at BFME05
Climate Change						Progress

ITEM	SSC BFME06 (2025)	SSC BFME07 (2026)	SSC BFME08 (2027)	SSC BFME09 (2028)	SSC BFME10 (2029)	Progress
Preparing for climate change effect on bottom fish	Literature review for SA, NPA (SWG NPA&SA) or Sablefish (Canada)	Literature review for SA, NPA (SWG NPA&SA) or Sablefish (Canada)				NA

Small Scientific Committee on Neon Flying Squid

Priority list:

1. Conduct research to appropriately separate two cohorts using spatial and age/size characteristics
2. Continue CPUE standardization work
3. Conduct research and literature reviews to better understand the biological characteristic (e.g., growth rate, natural mortality), life history (e.g., cohorts associated with spawning timing and location, feeding and spawning migration) of the species and population structure (e.g. genetic analysis)
4. Conduct a stock assessment based on surplus production model
5. Further investigate improvements to the surplus production model
6. Explore and develop alternative approaches, such as the management strategy evaluation framework and data-limited management procedures, to provide effective management advice
7. Conduct research and literature reviews to better understand the factors driving abundance fluctuations (including climate change) in this short-lived species
8. Review other successful (or unsuccessful) stock assessment and management practices for squid or other short-lived species globally to inform SSC NFS work
9. Develop other models e.g., age/size-structured model
10. Develop databases to support age/size-structured models

ITEM	2025	2026	2027	2028	2029	Progress
Regular update of inputs						
Update & improvement of CPUE indices	Continue review of outcomes of regular update and analytical works	Submit standardized CPUE by each member	Update	Update	Update	Updated CPUE indices of Japanese survey and Chinese squid jigging fishery
Joint CPUE standardization		Conduct joint CPUE standardization	Update	Update	Update	No progress
Regular update of the surplus						

ITEM	2025	2026	2027	2028	2029	Progress
production model						
Update and review of surplus production model and other stock assessment models	Conduct preliminary stock assessment	Conduct preliminary stock assessment using standardized CPUE from each member	Same as on the left	Same as on the left	Same as on the left	Some Members (China and Japan) conducted preliminary stock assessment using JABBA and SPiCT
Improvement and further investigation of surplus production model	Review any outcomes of improvements, inter alia in light of possible incorporation of environmental information	Same as on the left	Same as on the left	Same as on the left	Same as on the left	No progress
Toward age/size-structured models						
Data inventory (CPUE and size/age in space and time)			Conditional age at length information. Spatio-temporal variation of size composition.	TBD	TBD	Information on size composition was shared by some Members
Summarizing available information on neon flying squid biology			Update regularly, specifically maturity ogive and growth function	Continue	Continue	Updated information on spawning ground and age composition
Development of models			Develop models to be evaluated	TBD	TBD	No progress
Toward other approaches to provide management advises						
MSE or data-limited			Develop framework	TBD	TBD	Libin Dai (China)

ITEM	2025	2026	2027	2028	2029	Progress
management procedures			to provide management advice (MSE or data-limited management procedures)			conducted MSE as part of SC capacity building and reported its outcome
Review other successful (or unsuccessful) stock assessment and management practices for squid or other short-lived species globally to inform SSC NFS work	Review by the invited expert	TBD	TBD	TBD	TBD	Invited expert reviewed stock assessment methods and management measures for squid and other short-lived species

Technical Working Group on Chub Mackerel Stock Assessment

Priority list:

1. Data preparation and review of biological information
2. Conduct stock assessment of chub mackerel
3. Set biological reference points
4. Provide scientific advice on the management of chub mackerel stock to the Commission
5. Explore the influence of climate changes on chub mackerel stock
6. Regularly update and refine inputs

ITEM	2025	2026	2027	2028	2029	Progress
Regular update of inputs						
Research survey indices	Update	Update	Update	Update		Research survey indices have been finalized and used for stock assessment.
CPUE indices	Update	Update	Update	Update		CPUE standardization has been finalized and used for stock assessment.
Catch data/catch composition	Update	Update	Update	Update		Catch data and catch composition have been finalized and used for stock assessment.
Biological parameters (maturity, M, weight)	Review biological parameters	Review biological parameters	Review biological parameters	Review biological parameters		Assumptions on biological parameters have been finalized and used for stock assessment.
Quarterly fishery data (CAA, WAA,	Update	Update	Update	Update		Quarterly fishery data has been submitted.

ITEM	2025	2026	2027	2028	2029	Progress
Maturity-at-age)						
Stock assessment						
Benchmark stock assessment	Update SA	Update SA	Update SA	Update SA		Benchmark stock assessment has been conducted.
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	Review and improve, if needed, the SA model		Done and ongoing.
New stock assessment models	Explore new stock assessment models, if available	Explore new stock assessment models, if available	Explore new stock assessment models, if available	Explore new stock assessment models, if available		
Reference points, HCR, future projections and MSE						
Set biological reference points (limit and target)	Review and calculate reference points	Review and calculate reference points	Review and calculate reference points	Review and calculate reference points		Commonly used reference points are reviewed, and calculation with the results of SA has been completed
Develop future projections		Candidates of HCR are tested in future projections	Selection of HCR	Improvement		Results of future projection have been provided.

Scientific Committee – other priority species and marine ecosystems

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	2025	2026	2027	2028	2029	Progress
Priority Species						
Summaries of priority species	Update summary sheets as needed	Update summary sheets as needed	Update summary sheets as needed	Update summary sheets as needed	Update summary sheets as needed	Summary sheets are complete for all priority species
Assessment of Blue (Spotted) Mackerel and associated bycatch	Update data on Blue Mackerel and provide relevant data for stock assessment Compile data on the catch composition of Chub Mackerel and	Update data on Blue Mackerel and provide relevant data for stock assessment	Update data on Blue Mackerel and provide relevant data for stock assessment	Update data on Blue Mackerel and provide relevant data for stock assessment	Update data on Blue Mackerel and provide relevant data for stock assessment	Data on Blue Mackerel have been collated and provided for stock assessment Data on catch composition are compiled and were

ITEM	2025	2026	2027	2028	2029	Progress
	Blue Mackerel and provide information to TWG CMSA and SWG BM Observe Japan's stock assessment of Blue Mackerel Provide management advice to the Commission as needed.	Observe Japan's stock assessment of Blue Mackerel Provide management advice to the Commission as needed. Develop data collection templates	Observe Japan's stock assessment of Blue Mackerel Provide management advice to the Commission as needed.	Observe Japan's stock assessment of Blue Mackerel Provide management advice to the Commission as needed. Collate data on associated bycatch species	Observe Japan's stock assessment of Blue Mackerel Provide management advice to the Commission as needed. Assess impacts of fishery on dependent or associated species	provided to TWG CMSA and SWG BM The SC observed Japan's stock assessment of Blue Mackerel Stock assessment results were communicated to the Commission Data templates were developed by SWG Data
Assessment of Japanese Sardine and associated bycatch	Update data on Japanese Sardine Observe Japan's stock assessment of Japanese sardine					Data on Japanese Sardine have been collated The SC observed Japan's stock

ITEM	2025	2026	2027	2028	2029	Progress
	Provide management advice to the Commission as needed.					assessment of Japanese Sardine Stock assessment results were communicated to the Commission
Assessment of Japanese Flying Squid and associated bycatch	Update data on Japanese Flying Squid Observe Japan's stock assessment of Japanese Flying Squid Provide management advice to the Commission as needed.	Update data on Japanese Flying Squid Observe Japan's stock assessment of Japanese Flying Squid Provide management advice to the Commission as needed. Develop data collection templates	Update data on Japanese Flying Squid Observe Japan's stock assessment of Japanese Flying Squid Provide management advice to the Commission as needed. Collate data on associated bycatch species	Update data on Japanese Flying Squid Observe Japan's stock assessment of Japanese Flying Squid Provide management advice to the Commission as needed. Collate data on associated bycatch species	Update data on Japanese Flying Squid Observe Japan's stock assessment of Japanese Flying Squid Provide management advice to the Commission as needed. Assess impacts of fishery on dependent or associated species	Data on Japanese Flying Squid have been collated The SC observed Japan's domestic stock assessment of Japanese Flying Squid Stock assessment results were communicated to the Commission Data templates were developed by SWG Data

ITEM	2025	2026	2027	2028	2029	Progress
Management Strategy Evaluation (MSE)						
Pacific Saury	Support NPFC's SWG MSE PS in achieving its goals	Support NPFC's SWG MSE PS in achieving its goals	Support NPFC's SWG MSE PS in achieving its goals	Support NPFC's SWG MSE PS in achieving its goals	Support NPFC's SWG MSE PS in achieving its goals	The SSC PS worked on developing a stock assessment model that will serve as an operating model for the MSE.
Ecosystem approach to fisheries management						
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	Canada reported a positive relationship between the density of NPFC's VME indicator taxa – which was updated with pennatulaceans - and the species richness of benthic taxa.
Impacts of fishing on ecosystem components	Evaluate impacts of fishing on fisheries resources and their	Evaluate impacts of fishing on fisheries resources and their	Evaluate impacts of fishing on fisheries resources and their	Evaluate impacts of fishing on fisheries resources and their	Evaluate impacts of fishing on fisheries resources and their	SSC BFME endorsed a synchronized approach for

ITEM	2025	2026	2027	2028	2029	Progress
	ecosystem components, including bycatch species and discards	ecosystem components, including bycatch species and discards	ecosystem components, including bycatch species and discards	ecosystem components, including bycatch species and discards	ecosystem components, including bycatch species and discards	assessing and managing the risk of SAI; Japan and Canada presented their draft assessments of the relative risk of SAI on VMEs and potential VMEs.
Climate change	Consider possible key vulnerabilities and management implications of changing oceanographic conditions resulting from climate change on NPFC fisheries resources and species belonging to the same ecosystem or dependent upon or associated with target stocks.	Consider possible key vulnerabilities and management implications of changing oceanographic conditions resulting from climate change on NPFC fisheries resources and species belonging to the same ecosystem or dependent upon or associated with target stocks.	Consider possible key vulnerabilities and management implications of changing oceanographic conditions resulting from climate change on NPFC fisheries resources and species belonging to the same ecosystem or dependent upon or associated with target stocks.	Consider possible key vulnerabilities and management implications of changing oceanographic conditions resulting from climate change on NPFC fisheries resources and species belonging to the same ecosystem or dependent upon or associated with target stocks.	Consider possible key vulnerabilities and management implications of changing oceanographic conditions resulting from climate change on NPFC fisheries resources and species belonging to the same ecosystem or dependent upon or associated with target stocks.	SC discussed implications of climate change for managing priority species. Canada led the analysis of relationships between environmental conditions and Japanese Sardine

ITEM	2025	2026	2027	2028	2029	Progress
	Make recommendations to help adapt to climate change and promote resilience in NPFC fisheries	Make recommendations to help adapt to climate change and promote resilience in NPFC fisheries	Make recommendations to help adapt to climate change and promote resilience in NPFC fisheries	Make recommendations to help adapt to climate change and promote resilience in NPFC fisheries	Make recommendations to help adapt to climate change and promote resilience in NPFC fisheries	The SC does not have specific recommendation for the Commission at this time.
Collaboration with other Organizations						
PICES	Review implementation of NPFC-PICES Framework for Collaboration Review ICES-PICES WGSPF activities (PICES WG53) Identify other opportunities for collaboration with PICES.	Review implementation of NPFC-PICES Framework for Collaboration Review ICES-PICES WGSPF activities (PICES WG53) Identify other opportunities for collaboration with PICES.	Review implementation of NPFC-PICES Framework for Collaboration Review ICES-PICES WGSPF activities (PICES WG53) Identify other opportunities for collaboration with PICES	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	SC reviewed implementation of NPFC-PICES Framework for Collaboration SC reviewed PICES WG53 activities
FAO	Review NPFC's involvement with the ABNJ Deep-sea	Review NPFC's involvement with the ABNJ Deep-sea	Review NPFC's involvement with the ABNJ Deep-sea	Review NPFC's involvement with the ABNJ Deep-sea	Review NPFC's involvement with the ABNJ Deep-sea	SC reviewed its collaboration with the ABNJ Deep-sea

ITEM	2025	2026	2027	2028	2029	Progress
	fisheries project Review NPFC's partnership with the Fisheries and Resources Monitoring System of FAO (FIRMS)	fisheries project Review NPFC's partnership with the Fisheries and Resources Monitoring System of FAO (FIRMS)	fisheries project Review NPFC's partnership with the Fisheries and Resources Monitoring System of FAO (FIRMS)	fisheries project Review NPFC's partnership with the Fisheries and Resources Monitoring System of FAO (FIRMS)	fisheries project Review NPFC's partnership with the Fisheries and Resources Monitoring System of FAO (FIRMS)	fisheries project SC reviewed its partnership with the Fisheries and Resources Monitoring System of FAO (FIRMS)
NPAFC	Undertake scientific activities to achieve relevant deliverables of the NPFC/NPAFC work plan	Undertake scientific activities to achieve relevant deliverables of the NPFC/NPAFC work plan	Undertake scientific activities to achieve relevant deliverables of the NPFC/NPAFC work plan	Undertake scientific activities to achieve relevant deliverables of the NPFC/NPAFC work plan	Undertake scientific activities to achieve relevant deliverables of the NPFC/NPAFC work plan	SC reviewed NPFC/NPAFC activities
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	
Research and Work Plans						
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	Review SC's Terms of Reference, as needed	SC reviewed and revised its TOR
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	SC updated its rolling 5-year research plan

ITEM	2025	2026	2027	2028	2029	Progress
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	SC updated its 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	SC reviewed its completed and ongoing projects, and recommended new projects and sources of funding
Data Management						
	Review data inventories and the status of data gaps Review data standards in relation to stock assessment of priority species Discuss need for additional sources of data for scientific	Review data inventories and the status of data gaps Review data standards in relation to stock assessment of priority species Discuss need for additional sources of data for scientific	Review data inventories and the status of data gaps Review data standards in relation to stock assessment of priority species Discuss need for additional sources of data for scientific	Review data inventories and the status of data gaps Review data standards in relation to stock assessment of priority species Discuss need for additional sources of data for scientific	Review data inventories and the status of data gaps Review data standards in relation to stock assessment of priority species Discuss need for additional sources of data for scientific	SC discussed data needs, data gaps, and strategies to fill gaps SC discussed data standards in relation to stock assessment of priority species, including the establishment of a centralized data call. SC discussed the need for additional sources of data for

ITEM	2025	2026	2027	2028	2029	Progress
	analyses and associated data management policy	analyses and associated data management policy	analyses and associated data management policy	analyses and associated data management policy	analyses and associated data management policy	scientific analyses and associated data management policy
Recommendations						
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	SC made recommendations for the Commission, TCC, and FAC
Media Communication						
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	SC drafted and endorsed a press release about SC activities during its SC10 meeting