8th Meeting of the Joint SC-TCC-COM Small Working Group on Management Strategy Evaluation for Pacific Saury (SWG MSE PS)
REPORT

8–9 October 2026

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North Pacific Fisheries Commission
8th Meeting of the Joint SC-TCC-COM Small Working Group on Management Strategy Evaluation for Pacific Saury (SWG MSE PS)

8–9 October 2026
Webex

REPORT

Agenda Item 1. Introductory items

1.1 Opening of the Meeting

1. The 8th meeting of the joint SC-TCC-COM Small Working Group on Management Strategy Evaluation for Pacific Saury (SWG MSE PS) was held online via Webex on 8–9 October 2026. The meeting was attended by Members from Canada, China, Japan, the Republic of Korea, the Russian Federation, Chinese Taipei, and the United States of America. The Ocean Foundation attended as an observer. Dr. Quang Huynh participated as an invited expert. The meeting was chaired by Mr. Derek Mahoney (Canada) and Dr. Toshihide Kitakado (Japan), the co-Chairs of the SWG MSE PS.

2. Dr. Kitakado (hereafter "co-Chair") opened the meeting. He and Mr. Mahoney welcomed the participants.

3. Mr. Alex Meyer was selected as rapporteur.

1.2 Adoption of agenda

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

1.3 Meeting logistics

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

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

2.1 SWG MSE PS07

6. The co-Chair presented the outcomes and recommendations from the SWG MSE PS07 meeting (NPFC-2026-SWG MSE PS08-IP03).

2.2 COM10

7. The Science Manager presented the relevant outcomes from the 10th Commission meeting. He highlighted the Commission's endorsement of the extended work schedule for the completion of the management strategy evaluation (MSE) and the adoption of Conservation and Management Measure (CMM) 2026-08 for Pacific Saury, including revision of the preamble, revision of the catch management provisions, and minor editorial changes.

Agenda Item 3. Discussion toward development of management procedures (MPs) as a mid-term goal

3.1 Operating models

3.1.1 Progress in age-structured modelling

8. The Small Working Group on New Stock Assessment Models for Pacific Saury (SWG NSAM) Lead, Dr. Libin Dai, presented a summary of the progress made by the SWG NSAM to date (NPFC-2026-SWG MSE PS08-IP01). The SWG NSAM has developed an age-structured model with the following main advances and hypotheses: a seasonal time step; time-varying growth; seasonal maturity; age-dependent natural mortality; asymptotic selectivity; identification of an ensemble of models to account for uncertainty in steepness, natural mortality, and CPUE input data (the joint index vs. individual by Member). The SWG NSAM Lead noted several model areas that still require improvement, such as prediction skill, model fit to recent survey length-composition data, incorporating environmental drivers, and estimating maximum sustainable yield (MSY) and its related reference points. There is also no spatial consideration in the current model, but this was identified to be lower priority for advancing the assessment and unlikely to be included in this round of MSE. The SWG NSAM will continue development work, exploring, in particular, model weighting and the ensemble approach, and alternative reference points.

9. The invited expert presented an update on the development of the SS3 model for Pacific saury (NPFC-2026-SWG MSE PS08-IP02). At SWG NSAM 2026-02, SWG NSAM reviewed model specifications, explored sensitivity analyses and various model diagnostics to explore behavior of the model, and updated specifications and diagnostics. A model update will be provided at the 17th meeting of the Small Scientific Committee on Pacific Saury (SSC PS17) and revisions will be presented at SSC PS18. The grid of models developed by SWG NSAM (varying in steepness, natural mortality, and CPUE input data) can serve as the first set of operating models for the MSE to evaluate the robustness of management procedures (MPs) against alternative states of nature. Best practices with the MSE approach require agreement on one set of data to calculate catch advice, whereas the model grid currently uses two sets of indices (individual by Member and joint CPUE index). The invited expert does not currently recommend use of the SS3 model as an internal estimation model in the MP because simulation testing of MPs using the full SS3 model may not be feasible in MSE and MSE evaluates fixed algorithms to calculate catch advice. However, if the assessment configuration

changes over time, then the MP will require reevaluation. Simpler procedures may be preferable for robustness to assumptions and communicating with a broad audience.

10. The SWG MSE PS discussed the issue of time-varying growth and considered it as another potential axis of uncertainty for the operating models (OMs).

11. The SWG MSE PS commends the SWG NSAM Lead and Invited Expert for the good progress made in the age-structured modeling work. The SWG MSE PS noted that it is not necessary to complete a "perfect" model before starting the MSE work, and that further stock assessment model development and the MSE work can proceed in parallel. The goal for the modeling work should be to find a good balance between the model complexity and biological plausibility. The SWG MSE PS noted that there remain a number of critical issues in the SS3 model that need to be addressed. One is the model's prediction skill. However, the SWG NSAM Lead noted that prediction skill is more important for an assessment model, whereas an OM should primarily be able to adequately represent the key biological and fishery dynamics of the stock and generate plausible future trajectories. The co-Chair, on the other hand, noted that OMs should also have predictive skill to some extent, as they are used to evaluate the future behavior of population dynamics and catch performance. The key issues that need to be addressed are to determine the model weighting for the ensemble approach and to propose potential alternative reference points if MSY cannot be estimated. Additional aspects, such as changing environmental drivers and spatial structure, can be addressed in the longer term.

3.1.2 Climate issues

12. The SWG MSE PS noted that it accounted for the impact of climate issues when developing the interim harvest control rule (HCR) by including a robustness case, using negative process errors, for low productivity associated with unfavorable climate in the projections. The SWG MSE PS also noted that a literature review could be conducted to identify potential ways to assess climate impacts on Pacific saury and to explicitly incorporate climate impacts in the OM. The SWG MSE PS encouraged Members to present relevant papers for discussion at the SSC PS.

3.1.3 Range of operating models

13. The SWG MSE PS noted that the ongoing age-structured modeling work may extend or narrow down the range of OMs. The SWG MSE PS noted that the range of OMs could be similar to the range for the assessment model, with additional elements accounting for additional uncertainties and robustness cases, including potentially climate issues and effort creep that impacts the relationship between CPUE and abundance. The SWG MSE PS also noted that the potential adoption of alternative reference points may need to be considered

when developing the OMs with alternative productivity assumptions in the projection. The SWG MSE PS encouraged Members to be ready to hold further discussions on the range of OMs at the SSC PS.

3.1.4 Other relevant matters

14. No other matters were raised.

3.2 Management procedures

3.2.1 Model-based and data-based management procedures

15. The co-Chair provided an overview of the MSE process, including examples of MPs adopted by other regional fisheries management organizations (RFMOs).

16. The co-Chair suggested that if the stock assessment results from the new age-structured model and the existing BSSPM are similar for key reference points, the BSSPM could be used as the internal estimation model in the MP, instead of the age-structured model. However, if there are major differences, the co-Chair suggested that it may be necessary to consider using a simplified age-structured model within the MP (for example Stock Synthesis Lite) or an empirical (data-based) MP that does not require an internal estimation model.

17. The co-Chair suggested that the SWG MSE PS discuss appropriate types of candidate MPs following further progress in the age-structured modeling work. The SWG MSE PS agreed that both model-based and empirical-based MPs are potential options. The SWG MSE PS encouraged Members to present concepts of candidate MPs for discussion at the SWG MSE PS.

18. The United States raised concern about being able to meet the agreed timeline, including finalizing management objectives by the February meeting, without a more robust discussion of the management objectives. The SWG MSE PS noted that management objectives are not finalized and those used in association with the interim harvest control rule, as outlined below will be used for the purposes of the MSE development, unless Members submit alternatives for consideration prior to the February 2027 meeting that are then endorsed by the SWG MSE PS.

19. The draft management objectives used in the development of the interim HCR (CMM 2026-08) are as follows:

(a) Recovery of the stock (primary objective):

i. The stock status is recovered above B_{tar} within 5 years with 50% probability.

ii. The stock status is maintained above the B_{tar} level in each of years 6-10 with 50% probability.

(b) Avoiding unsustainable state of the stock (secondary objective):

i. The annual probability in each of years 6-10 that the stock drops below B_{lim} should not exceed 10%.

ii. The annual probability in each of years 6-10 that fishing mortality is above F_{lim} should not exceed 10%.

(c) Achieving high and stable catch (tertiary objective):

i. Average catch over years 6-10 is as high as possible.

ii. Catch in each of years 6-10 is as stable as possible.

20. As included in the interim HCR, the biological reference points within the draft management objective are as follows (SWG MSE PS05):

$B_{tar} = B_{MSY}$: Set target biomass equal to the biomass that produces maximum sustainable yield, providing a biologically based target for stock productivity.

$F_{tar} = F_{MSY}$: Set the target fishing mortality rate equal to the fishing mortality rate corresponding to maximum sustainable yield.

Limit reference points (B_{lim} and F_{lim}): Consistent with the baseline definitions in CMM 2026-08, set $B_{lim} = 0.35 \times B_{MSY}$ and $F_{lim} = 1.35 \times F_{MSY}$. These values define safety boundaries intended to reduce the risks of recruitment failure, severe depletion, and excessive fishing mortality.

21. The United States expressed its view that the current probabilities for the recovery of the stock are insufficiently conservative and indicated its intention to submit a paper with alternative management objectives for discussion at SWG MSE PS09. The United States encouraged any other Members that wish to propose alternative management objectives to do so in writing so as to facilitate substantive discussions at SWG MSE PS09.

22. Canada recalled that at SC10 and SWG MSE PS07, some Members had expressed concern about the economic viability of the Pacific saury fishery if the catch limit was less than 200,000 MT. Canada encouraged these Members to consider proposing alternative management objectives that reflect their socio-economic concerns and submit them to SWG MSE PS09.

3.2.2 Additional elements in light of short-lived species for seasonal fisheries

23. There was no discussion on this point.

3.3 Performance indicators

24. The SWG MSE PS noted that the decision on the management objectives may affect the specification of performance indicators (PIs). The SWG MSE PS agreed to finalize the management objectives at SWG MSE PS09 and, if necessary, to update the PIs for final MSE computations.

3.4 Definition of exceptional circumstances and meta-rules

25. The co-Chair explained that Exceptional Circumstances (EC) are a safety mechanism for MPs. ECs are intended to identify situations that fall outside the conditions considered in the MSE or that may undermine the performance of the adopted MP. However, not every unusual event constitutes an EC. The key question is whether the event could affect the performance or reliability of the MP. However, identification of an EC does not automatically imply that the MP should be abandoned or the TAC changed. Possible responses would depend on pre-agreed meta-rules.

26. The SWG MSE PS agreed to develop ECs in conjunction with the development of candidate MPs.

Agenda Item 4. Other matters

27. The SWG MSE PS agreed that when conducting the MSE simulation work, all elements of the MSE should be detailed in a trial specification document, and that once the MSE simulation work is completed, the input files and model code should be thoroughly shared among Members.

Agenda Item 5. Timeline and future process

5.1 Timeline

5.2 Future process with assistance of SSC PS

5.3 Workplan till SSC PS17&18 and SWG MSE PS10 meetings

28. The SWG MSE PS reviewed the timeline, with future tasks, for 2026–2028, which is identical to the schedule adopted by COM10, but with specified dates for some meetings (Annex D).

Agenda Item 6. Recommendations to the Commission

29. The SWG MSE PS recommends the hiring of an invited expert to support future meetings of the SWG MSE PS and the technical work to develop a full MSE for 2027.

30. The SWG MSE PS recommends that the Commission reaffirm the importance of including scientists, managers, and stakeholders at future meetings to facilitate communication and completion of this important work.

Agenda Item 7. Adoption of Meeting Report

31. The report was adopted by consensus.

Agenda Item 8. Close of the Meeting

32. Mr. Mahoney thanked the SWG MSE PS for its engagement, the Secretariat for hosting the meeting, the Rapporteur for his support, and his fellow co-Chair for his hard work and leadership. He looked forward to further progress and substantive discussions at SWG MSE PS09.

33. The meeting closed at 10:55 on 9 October 2026, Tokyo time.

LIST OF ANNEXES

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Annex B – List of Documents

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Annex D – Meeting schedule and tasks for developing a full MSE for Pacific saury

Annex A:

Agenda

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

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Agenda Item 3. Discussion toward development of management procedures (MPs) as a mid-term goal

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- 3.2 Management procedures
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Agenda Item 5. Timeline and future process

- 5.1 Timeline
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- 5.3 Workplan till SSC PS17&18 and SWG MSE PS10 meetings

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Agenda Item 7. Adoption of report

Agenda Item 8. Close of the meeting

Annex B:

List of documents

MEETING INFORMATION PAPERS

Number	Title
NPFC-2026-SWG MSE PS08-MIP01	Meeting Information
NPFC-2026-SWG MSE PS08-MIP02	Provisional Agenda
NPFC-2026-SWG MSE PS08-MIP03	Annotated Indicative Schedule

INFORMATION PAPERS

Number	Title
NPFC-2026-SWG MSE PS08-IP01	Meeting progress of the Small Working Group on New Stock Assessment Models (SWG NSAM)
NPFC-2026-SWG MSE PS08-IP02	Progress on the Pacific saury SS3 model in 2026
NPFC-2026-SWG MSE PS08-IP03	Overview of the outcomes of SWG MSE PS07
NPFC-2026-SWG MSE PS08-IP04	Meeting slides - Chair

Annex C:

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Annex D:

Meeting schedule and tasks for developing a full MSE for Pacific saury

Meeting	Date	Task	Format
COM10	Apr 14-17 **2026**	• Recommend 2026 catch level (CL) based on the adopted HCR • Review outcomes and recommendations from SWG MSE PS07 (including timeline for full MSE)	Hybrid
SWG NSAM	Jul 23-25	• Review progress of age-structured modelling (finalize specification) • Review issues arisen for the BSSPM	Hybrid
SWG MSE PS08	Oct 8-9	• Re-start discussion on objectives, conditioning of OMs (based on age-structured models with consideration of uncertainty of parameters and climate impacts) and possible types of MPs	Virtual
SSC PS17	Dec 15-17	• Prepare data for 2026 assessment (BSSPM, SS3) • Review results of conditioning of OMs	Virtual
SSC PS18	Jan 19-22 **2027**	• Review results of BSSPM and application of the adopted HCR • Review results of age-structured models (completed) • Review progress of MSE	Hybrid
SWG MSE PS09	Feb 22-24	• Finalize management objectives • Review conditioning of OMs • Develop a list of candidate MPs (model-based, empirical)	Virtual
COM11	Apr 12-15	• Review progress of MSE	Hybrid
SWG MSE PS10	Oct 14-16	• Finalize conditioning of OMs (based on age-structured models with consideration of uncertainty of parameters and climate impacts, base and robustness cases). Data guillotine • Finalize a list of candidate MPs (model-based, empirical) • Finalize performance indicators • Discuss definitions of exceptional circumstances	Hybrid
		• Run MSE and prepare results of performance of MPs (SSC will review in its meeting)	
SWG MSE PS11	Jan / Feb **2028**	• Finalize evaluation of performance of candidate MPs • Recommendations of a few MPs (including exceptional circumstances definitions) to COM12	Hybrid
COM12	April	• Adoption of CMM on MP?	Hybrid