

Report of the 26th Session of the IPHC Scientific Review Board (SRB026)

Meeting held in Seattle, WA, USA, 10-12 June 2025

Commissioners

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ACRONYMS

5YPIRM	5-Year Program of Integrated Research	IPHC	International Pacific Halibut
	and Monitoring		Commission
AI	Artificial Intelligence	MSAB	Management Strategy Advisory Board
AM	Annual Meeting	MSE	Management Strategy Evaluation
FISS	Fishery-Independent Setline Survey	SRB	Scientific Review Board
		U.S.A.	United States of America

DEFINITIONS

A set of working definitions are provided in the IPHC Glossary of Terms and abbreviations: https://www.iphc.int/the-commission/glossary-of-terms-and-abbreviations

HOW TO INTERPRET TERMINOLOGY CONTAINED IN THIS REPORT

This report has been written using the following terms and associated definitions so as to remove ambiguity surrounding how particular paragraphs should be interpreted.

- Level 1: RECOMMENDED; RECOMMENDATION; ADOPTED (formal); REQUESTED; ENDORSED; ACCEPTED (informal): A conclusion for an action to be undertaken, by a Contracting Party, a subsidiary (advisory) body of the Commission and/or the IPHC Secretariat.
- **Level 2:** AGREED: Any point of discussion from a meeting which the Commission considers to be an agreed course of action covered by its mandate, which has not already been dealt with under Level 1 above; a general point of agreement among delegations/participants of a meeting which does not need to be elevated in the Commission's reporting structure.
- Level 3: NOTED/NOTING; CONSIDERED; URGED; ACKNOWLEDGED: General terms to be used for consistency. Any point of discussion from a meeting which the Commission considers to be important enough to record in a meeting report for future reference. Any other term may be used to highlight to the reader of an IPHC report, the importance of the relevant paragraph. Other terms may be used but will be considered for explanatory/informational purposes only and shall have no higher rating within the reporting terminology hierarchy than Level 3.



TABLE OF CONTENTS

REPORT OF THE $26^{ ext{ iny TH}}$ Session of the IPHC Scientific Review Board (SRB026)	1
TABLE OF CONTENTS	4
EXECUTIVE SUMMARY	5
1. OPENING OF THE SESSION	7
2. ADOPTION OF THE AGENDA AND ARRANGEMENTS FOR THE SESSION	
3. IPHC PROCESS	7
3.1 SRB annual workflow	
3.2 Update on the actions arising from the 25 th Session of the SRB (SRB025)	
3.3 Outcomes of the 101 st Session of the IPHC Annual Meeting (AM101)	
3.4 Observer updates	8
4. INTERNATIONAL PACIFIC HALIBUT COMMISSION 5-YEAR PROGRAM OF INTEGRA	ATED RESEARCH AND
MONITORING (2022-26)	
4.1 Research	8
4.1.1 Biology and ecology	8
4.1.2 Pacific halibut stock assessment	
4.1.3 Management strategy evaluation	
4.2 Monitoring	
4.2.1 Fishery-dependent data	
4.2.2 Fishery-independent data	
4.2.2.1 2026 FISS design evaluation	
4.2.2.2 Updates to space-time modelling	
4.2.3 Age composition data (both fishery-dependent and fishery-independent)	10
5. MANAGEMENT SUPPORTING INFORMATION	11
6. OTHER BUSINESS	11
7. REVIEW OF THE DRAFT AND ADOPTION OF THE REPORT OF THE 26 TH SESSION OF REVIEW BOARD (SRB026)	
APPENDIX I LIST OF PARTICIPANTS FOR THE $26^{ ext{th}}$ Session of the IPHC Scientific	REVIEW BOARD (SRB026)12
APPENDIX II AGENDA FOR THE 26 th Session of the IPHC Scientific Review Boa	RD (SRB026)14
APPENDIX III LIST OF DOCUMENTS FOR THE 26 th Session of the IPHC Scientific	
APPENDIX IV CONSOLIDATED SET OF RECOMMENDATIONS AND REQUESTS OF THE 26	TH SESSION OF THE IPHC
SCIENTIFIC REVIEW BOARD (SRB026)	16



EXECUTIVE SUMMARY

The 26th Session of the International Pacific Halibut Commission (IPHC) Scientific Review Board (SRB026) was held in Seattle, WA, USA from 10 to 12 June 2025. The Chairperson, Dr Sean Cox (Canada), and the Executive Director, Dr David Wilson, opened the meeting.

The following are a subset of the complete recommendations/requests for action from the SRB026, which are provided in full at Appendix IV.

RECOMMENDATIONS

Research: Biology and ecology

- SRB026–Rec.01 (para. 16) The SRB **RECOMMENDED** that questions about stock structure should be deprioritized in future research plans, as this question has now been answered quite robustly.
- SRB026–Rec.02 (para. 18) The SRB **RECOMMENDED** that the 2025 stock assessment incorporate the new maturity ogives, however, the incorporation of new fecundity information should be delayed until the next full stock assessment when more robust data and analysis of fecundity at age/weight information are available.
- SRB026–Rec.03 (para. 19) The SRB **RECOMMENDED** that the Secretariat incorporate potential environmental causes (e.g. effects of temperature) of changing maturity ogives or other changing biological parameters in the next 5YPIRM.

Pacific halibut stock assessment

- SRB026–Rec.06 (para. 23) The SRB **RECOMMENDED** an analysis of historical performance of the decision table metrics, i.e. a retrospective analysis of stock assessment outputs used in management advice.
- SRB026–Rec.07 (para. 24) The SRB **RECOMMENDED** that recruitment projections in the stock assessment and Management Strategy Evaluation (MSE) incorporate a random-walk starting from the most recent reliable recruitment estimate to constrain expected short-term recruitment around recent estimates rather than immediately reverting to the stock-recruitment relationship.
- SRB026–Rec.08 (para. 25) The SRB **RECOMMENDED** deprioritizing incorporation of depredation in the assessment based on sensitivity analysis presented at SRB026. Instead, a research approach and activities should be presented in the next 5YPIRM.

Management strategy evaluation

- SRB026–Rec.10 (para. 30) NOTING that "Overfished" implies that fishing was the cause of a current biomass state while the term "Depleted" is agnostic about the cause of low biomass, the SRB RECOMMENDED that the Secretariat consider defining "Overfished" relative to a dynamic reference point that incorporates productivity change while "Depleted" should refer to an absolute biomass reference point.
- SRB026–Rec.11 (para. 31) The SRB **RECOMMENDED** that the Secretariat/Commission adopt an absolute biomass limit defining "Depleted" to avoid low biomass levels where stock dynamics are poorly understood such that recovery projections would be unreliable.
- SRB026–Rec.12 (para. 33) The SRB **RECOMMENDED** that the Secretariat evaluate via simulation the ability to detect overfishing (based on the proposed definition) under scenarios of reduced assessment performance when defining "Overfishing" based on probabilities of stock status.



SRB026–Rec.13 (para. 34) The SRB **RECOMMENDED** that the Secretariat consider and justify alternative timelines to the three-year rebuilding period specified in the proposed definition of "overfishing" since a three-year period is probably unrealistic for rebuilding timelines

REQUESTS

Outcomes of the 101st Session of the IPHC Annual Meeting (AM101)

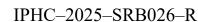
SRB026–Req.01 (para. 8) **RECALLING** that at the 100th Session of the IPHC, the Commission adopted a Statement on Climate Change, that is available on the IPHC website: <u>IPHC-2024-PP-05</u>, the SRB **AGREED** to consider and advise on the potential implications of climate change for the conservation and management of Pacific halibut, and any related impacts on the Contracting Parties. The SRB **REQUESTED** the addition of an agenda item on this topic for SRB028.

Fishery-independent data: Updates to space-time modelling

SRB026–Req.02 (para. 39) The SRB **NOTED** the development of a spatial model of maturity and **REQUESTED** that the Secretariat present updates on the space-time model of maturity at age at SRB027.

Age composition data (both fishery-dependent and fishery-independent)

SRB026–Req.03 (para. 43) The SRB **REQUESTED** an evaluation of the spatial generalization of a model trained on otoliths in one area to predict ages from otoliths collected in another area.





1. OPENING OF THE SESSION

- 1. The 26th Session of the International Pacific Halibut Commission (IPHC) Scientific Review Board (SRB026) was held in Seattle, WA, USA, from 10 to 12 June 2025, and was open to online observer participation. The list of participants is provided at <u>Appendix I.</u> The Chairperson, Dr Sean Cox (Canada), and the Executive Director, Dr David Wilson, opened the meeting.
- 2. The SRB **RECALLED** its mandate, as detailed in Appendix VIII, Sect. I, para. 1-3 of the <u>IPHC Rules of Procedure (2024)</u>:
 - 1. The Scientific Review Board (SRB) shall provide an independent scientific peer review of Commission science/research proposals, programs, and products, including but not limited to:
 - a. Data collection;
 - b. Historical data sets;
 - c. Stock assessment;
 - d. Management Strategy Evaluation;
 - e. Migration;
 - f. Reproduction;
 - g. Growth;
 - h. Discard survival;
 - i. Genetics and Genomics.
 - 2. Undertake periodic reviews of science/research strategy, progress, and overall performance.
 - 3. Review the recommendations arising from the MSAB and the RAB.

2. ADOPTION OF THE AGENDA AND ARRANGEMENTS FOR THE SESSION

3. The SRB **ADOPTED** the Agenda as provided at <u>Appendix II</u>. The documents provided to the SRB are listed in <u>Appendix III</u>. Participants were reminded that in accordance with the <u>IPHC Rules of Procedure (2024)</u>, all documents and presentations for the meeting were published on the IPHC website 30 days and 10 days prior to the Session, respectively: https://www.iphc.int/meetings/26th-session-of-the-iphc-scientific-review-board-srb026/

3. IPHC PROCESS

3.1 SRB annual workflow

4. **NOTING** that the core purpose of the SRB026 is to review progress on the IPHC's research and monitoring activities, and to provide guidance for the delivery of products to the SRB027 in September 2025, the SRB **RECALLED** that formal recommendations to the Commission would not necessarily be developed at the present meeting, but rather, these would be developed and finalised at SRB027.

3.2 Update on the actions arising from the 25th Session of the SRB (SRB025)

- 5. The SRB **NOTED** paper <u>IPHC-2025-SRB026-03</u> that provided the SRB with an opportunity to consider the progress made during the intersessional period on the recommendations/requests arising from the SRB025.
- 6. The SRB **AGREED** to consider and revise the actions as necessary, and to combine them with any new actions arising from SRB026 into a consolidated list for future reporting.



3.3 Outcomes of the 101st Session of the IPHC Annual Meeting (AM101)

- 7. The SRB **NOTED** paper <u>IPHC-2025-SRB026-04</u> that detailed the outcomes of the 101st Session of the IPHC Annual Meeting (AM101), relevant to the mandate of the SRB, and **AGREED** to consider how best to provide the Commission with the information it has requested, throughout the course of the current SRB meeting.
- 8. **RECALLING** that at the 100th Session of the IPHC, the Commission adopted a Statement on Climate Change, that is available on the IPHC website: <u>IPHC-2024-PP-05</u>, the SRB **AGREED** to consider and advise on the potential implications of climate change for the conservation and management of Pacific halibut, and any related impacts on the Contracting Parties. The SRB **REQUESTED** the addition of an agenda item on this topic for SRB028.

3.4 Observer updates

- 9. The SRB **NOTED** the following questions from the Canadian science advisor: Nil
- 10. The SRB **NOTED** the following updates (paraphrased) from the USA science advisor:
 - a) Has the Secretariat investigated relationships between changing maturity and size at age and how this impacts the assessment?
 - b) What are the implications of using fishery-dependent data to inform abundance trends in unsampled FISS areas?

4. International Pacific Halibut Commission 5-year program of integrated research and monitoring (2022-26)

- 11. The SRB **NOTED** paper <u>IPHC-2025-SRB026-05</u>, that provided the SRB with the IPHC 5-year Program of Integrated Research and Monitoring (2022-26), including a research tracking tool.
- 12. The SRB **RECALLED** that an overarching goal of the IPHC 5-year Program of Integrated Research and Monitoring (5YPIRM) (2022-26) is to promote integration and synergies among the various research and monitoring activities of the IPHC Secretariat in order to improve knowledge of key inputs into the Pacific halibut stock assessment, and Management Strategy Evaluation (MSE) processes, thereby providing the best possible advice for management decision making processes.
- 13. The SRB **NOTED** that the 5YPIRM is currently being revised to reflect changing priorities in light of major progress on biological research and ongoing monitoring challenges with the intention of presenting a draft of the next 5YPIRM (2026-31) to the Commission at IM101 in December 2025. In doing so, the Secretariat will provide a draft to the SRB for its consideration at SRB027 (September 2025).

4.1 Research

4.1.1 Biology and ecology

- 14. The SRB **NOTED** paper <u>IPHC-2025-SRB026-06</u> that provided a description of progress towards research activities described in the IPHC's 5-Year Program of Integrated Research and Monitoring (2022-2026).
- 15. The SRB **NOTED** the updated analyses of stock structure which reinforced previous conclusions that Pacific halibut in Convention waters are a single well-mixed stock.
- 16. The SRB **RECOMMENDED** that questions about stock structure should be deprioritized in future research plans, as this question has now been answered quite robustly.
- 17. The SRB **NOTED** the updated analyses of maturity patterns in space and time and planned analyses of fecundity.



- 18. The SRB **RECOMMENDED** that the 2025 stock assessment incorporate the new maturity ogives, however, the incorporation of new fecundity information should be delayed until the next full stock assessment when more robust data and analysis of fecundity at age/weight information are available.
- 19. The SRB **RECOMMENDED** that the Secretariat incorporate potential environmental causes (e.g. effects of temperature) of changing maturity ogives or other changing biological parameters in the next 5YPIRM.

4.1.2 Pacific halibut stock assessment

- 20. The SRB **NOTED** paper <u>IPHC-2025-SRB026-07</u>, that provided a response to recommendations and requests made during SRB025 (<u>IPHC-2024-SRB025-R</u>) and to provide an update on the 2025 stock assessment development.
- 21. The SRB **NOTED** the bridging, data updates, and sensitivity analyses on the stock assessment and **RECOMMENDED** adopting those changes and moving forward with the final models presented at SRB026.
- 22. The SRB **RECOMMENDED** conducting a sensitivity analysis of all ensemble models to the use of a Normal (rather than Lognormal) prior distribution on natural mortality. The Normal distribution is the least informative option when an informative prior is needed.
- 23. The SRB **RECOMMENDED** an analysis of historical performance of the decision table metrics, i.e. a retrospective analysis of stock assessment outputs used in management advice.
- 24. The SRB **RECOMMENDED** that recruitment projections in the stock assessment and Management Strategy Evaluation (MSE) incorporate a random-walk starting from the most recent reliable recruitment estimate to constrain expected short-term recruitment around recent estimates rather than immediately reverting to the stock-recruitment relationship.
- 25. The SRB **RECOMMENDED** deprioritizing incorporation of depredation in the assessment based on sensitivity analysis presented at SRB026. Instead, a research approach and activities should be presented in the next 5YPIRM.
- 26. The SRB **RECOMMENDED** that a candidate state space assessment model (e.g. WHAM) be developed for Pacific halibut and presented by SRB032, tentatively scheduled for June 2028. Progress toward this modelling framework may also be presented at interim SRB meetings.

4.1.3 Management strategy evaluation

- 27. The SRB **NOTED** paper <u>IPHC-2025-SRB026-08</u> that provided an update on Management Strategy Evaluation (MSE) progress including the harvest strategy policy.
- 28. **NOTING** the revised definitions of exceptional circumstances and the MSE timeline, the SRB **AGREED** that these represent appropriate balance between rapid response to exceptional circumstance and reducing the potential for "false alarms."
- 29. The SRB **NOTED** and appreciated the review of how "Overfished," "Depleted," and "Overfishing" are defined in other fishery management jurisdictions. In particular, the SRB **NOTED** that New Zealand uses the term "Depleted" to acknowledge that fishing is not the only factor influencing stock dynamics.
- 30. **NOTING** that "Overfished" implies that fishing was the cause of a current biomass state while the term "Depleted" is agnostic about the cause of low biomass, the SRB **RECOMMENDED** that the Secretariat consider defining "Overfished" relative to a dynamic reference point that incorporates productivity change while "Depleted" should refer to an absolute biomass reference point.



- 31. The SRB **RECOMMENDED** that the Secretariat/Commission adopt an absolute biomass limit defining "Depleted" to avoid low biomass levels where stock dynamics are poorly understood such that recovery projections would be unreliable.
- 32. The SRB **NOTED** that the Pacific halibut stock is currently at low biomass levels that may lead to a "Depleted" designation once a definition is adopted.
- 33. The SRB **RECOMMENDED** that the Secretariat evaluate via simulation the ability to detect overfishing (based on the proposed definition) under scenarios of reduced assessment performance when defining "Overfishing" based on probabilities of stock status.
- 34. The SRB **RECOMMENDED** that the Secretariat consider and justify alternative timelines to the three-year rebuilding period specified in the proposed definition of "overfishing" since a three-year period is probably unrealistic for rebuilding timelines
- 35. The SRB **NOTED** and appreciated the progress made in developing the harvest strategy policy and a concise set of objectives.
 - 4.2 Monitoring
 - 4.2.1 Fishery-dependent data

36. Nil.

4.2.2 Fishery-independent data

4.2.2.1 2026 FISS design evaluation

- 37. The SRB **NOTED** paper <u>IPHC-2025-SRB026-09</u> that proposed designs for the IPHC's Fishery-Independent Setline Survey (FISS) for the 2026-28 period.
- 38. The SRB **NOTED** the full FISS sampling grid of 1,890 stations from which an optimal subset of stations can be selected when devising annual FISS designs. In the Bering Sea, the full FISS design does not provide complete spatial coverage, and FISS data are augmented with calibrated data from domestic (NOAA-Fisheries and Alaska Department of Fish and Game (ADFG)) trawl surveys.

4.2.2.2 Updates to space-time modelling

39. The SRB **NOTED** the development of a spatial model of maturity and **REQUESTED** that the Secretariat present updates on the space-time model of maturity at age at SRB027.

4.2.3 Age composition data (both fishery-dependent and fishery-independent)

- 40. The SRB **NOTED** paper <u>IPHC-2025-SRB026-10</u> that provided the SRB with information available on the use of artificial intelligence (AI) for determining the age of fish from images of collected otoliths and provides an update on the exploratory work of implementing an AI-based age determination model for Pacific halibut.
- 41. The SRB **RECOMMENDED** testing whether the addition of covariates including region and sex improves the AI age estimation accuracy.
- 42. The SRB **NOTED** that the reduced spatial coverage of the FISS under some proposed designs would lead to reduced availability of otoliths from across the Convention Area.
- 43. The SRB **REQUESTED** an evaluation of the spatial generalization of a model trained on otoliths in one area to predict ages from otoliths collected in another area.



- 44. **NOTING** that aging plays a major role in the stock assessment and that multiple methods are being investigated, the SRB **RECOMMENDED** that the next 5YPIRM present a strategic analysis of the future of aging. This should include the following elements:
 - a) A description of how these approaches may be used, integrated, and tested in the assessment;
 - b) A plan for cost-benefit analysis of alternative approaches including hybrid approaches that use multiple methods;
 - c) Implications of potential future reduced spatial coverage in the FISS on achieving age sampling goals.

5. Management Supporting Information

45. Nil

6. OTHER BUSINESS

- 46. The SRB **RECALLED** that the SRB027 was tentatively scheduled to be held from 23-25 September 2025 however, due to schedule conflicts, the SRB **AGREED** to move the meeting to 16-18 September 2025.
- 47. The SRB **AGREED** that the SRB028 should be tentatively scheduled for 19-21 May 2026, pending final logistical challenges being resolved.
 - 7. REVIEW OF THE DRAFT AND ADOPTION OF THE REPORT OF THE 26th Session of the IPHC SCIENTIFIC REVIEW BOARD (SRB026)
- 48. The Report of the 26th Session of the IPHC Scientific Review Board (<u>IPHC-2025-SRB026-R</u>) was **ADOPTED** on 12 June 2025, including the consolidated set of recommendations and/or requests arising from SRB026, provided at Appendix IV.

APPENDIX I LIST OF PARTICIPANTS FOR THE 26TH SESSION OF THE IPHC SCIENTIFIC REVIEW BOARD (SRB026)

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APPENDIX II AGENDA FOR THE 26TH SESSION OF THE IPHC SCIENTIFIC REVIEW BOARD (SRB026)

Date: 10-12 June 2025 **Location**: Seattle, WA, USA

Venue: IPHC HQ (for SRB only) & Adobe Connect Time: 09:00-17:00 (10-11th), 09:00-12:00 (12th) PDT Chairperson: Dr Sean Cox (Simon Fraser University)

Vice-Chairperson: Nil

- 1. OPENING OF THE SESSION
- 2. ADOPTION OF THE AGENDA AND ARRANGEMENTS FOR THE SESSION
- 3. IPHC PROCESS
 - 3.1. SRB annual workflow (D. Wilson)
 - 3.2. Update on the actions arising from the 25th Session of the SRB (SRB025) (D. Wilson)
 - 3.3. Outcomes of the 101st Session of the IPHC Annual Meeting (AM101) (D. Wilson)
 - 3.4. Observer updates (e.g. Science Advisors)
- 4. INTERNATIONAL PACIFIC HALIBUT COMMISSION 5-YEAR PROGRAM OF INTEGRATED RESEARCH AND MONITORING (2026-31)
 - 4.1. RESEARCH
 - 4.1.1. Biology and ecology
 - 4.1.2. Pacific halibut stock assessment
 - 4.1.3. Management strategy evaluation
 - 4.2. MONITORING
 - 4.2.1. Fishery-dependent data
 - 4.2.2. Fishery-independent data
 - IPHC Fishery-Independent Setline Survey (FISS)
 - o 2026 FISS design evaluation (R. Webster)
 - o Updates to space-time modelling (R. Webster)
 - 4.2.3. Age composition data (both fishery-dependent and fishery-independent)
 - Ageing methods update
- 5. MANAGEMENT SUPPORTING INFORMATION
- 6. OTHER BUSINESS
- 7. REVIEW OF THE DRAFT AND ADOPTION OF THE REPORT OF THE 26th SESSION OF THE IPHC SCIENTIFIC REVIEW BOARD (SRB026)

APPENDIX III LIST OF DOCUMENTS FOR THE 26TH SESSION OF THE IPHC SCIENTIFIC REVIEW BOARD (SRB026)

Document	Title	Availability	
IPHC-2025-SRB026-01	Agenda & Schedule for the 26 th Session of the Scientific Review Board (SRB026)	✓ 12 Mar 2025 ✓ 10 Jun 2025	
IPHC-2025-SRB026-02	List of Documents for the 26 th Session of the Scientific Review Board (SRB026)	✓ 12 Mar 2025 ✓ 9 May 2025 ✓ 10 Jun 2025	
IPHC-2025-SRB026-03	Update on the actions arising from the 25 th Session of the SRB (SRB025) (IPHC Secretariat)	✓ 9 May 2025	
IPHC-2025-SRB026-04	Outcomes of the 101 st Session of the IPHC Annual Meeting (AM101) (D. Wilson)	✓ 9 May 2025	
IPHC-2025-SRB026-05	International Pacific Halibut Commission 5-Year program of integrated research and monitoring (2022-26) (D. Wilson, J. Planas, I. Stewart, A. Hicks, R. Webster, & B. Hutniczak)	✓ 9 May 2025	
IPHC-2025-SRB026-06	Report on current and future biological and ecosystem science research activities (J. Planas, C. Dykstra, A. Jasonowicz, & C. Jones)	✓ 7 May 2025	
IPHC-2025-SRB026-07	Development of the 2025 Pacific halibut (<i>Hippoglossus stenolepis</i>) stock assessment (I. Stewart & A. Hicks)	✓ 9 May 2025	
IPHC-2025-SRB026-08	IPHC Secretariat MSE Program of Work (2025) and an update on development of a Harvest Strategy Policy (A. Hicks & I. Stewart)	✓ 8 May 2025	
IPHC-2025-SRB026-09	2026-28 FISS design evaluation (R. Webster, I. Stewart, K. Ualesi, T. Jack, & D. Wilson)	✓ 9 May 2025	
IPHC-2025-SRB026-10	Using artificial intelligence (AI) for supplementing Pacific halibut age determination from collected otoliths (B. Hutniczak, J. Forsberg, K. Sawyer Van Vleck, & K. Magrane)	✓ 5 May 2025	
Information papers			
IPHC-2025-SRB026- INF01	Nil to date	Nil	

APPENDIX IV

CONSOLIDATED SET OF RECOMMENDATIONS AND REQUESTS OF THE 26TH SESSION OF THE IPHC SCIENTIFIC REVIEW BOARD (SRB026)

RECOMMENDATIONS

Research: Biology and ecology

- SRB026–Rec.01 (para. 16) The SRB **RECOMMENDED** that questions about stock structure should be deprioritized in future research plans, as this question has now been answered quite robustly.
- SRB026–Rec.02 (para. 18) The SRB **RECOMMENDED** that the 2025 stock assessment incorporate the new maturity ogives, however, the incorporation of new fecundity information should be delayed until the next full stock assessment when more robust data and analysis of fecundity at age/weight information are available.
- SRB026–Rec.03 (para. 19) The SRB **RECOMMENDED** that the Secretariat incorporate potential environmental causes (e.g. effects of temperature) of changing maturity ogives or other changing biological parameters in the next 5YPIRM.

Pacific halibut stock assessment

- SRB026–Rec.04 (para. 21) The SRB **NOTED** the bridging, data updates, and sensitivity analyses on the stock assessment and **RECOMMENDED** adopting those changes and moving forward with the final models presented at SRB026.
- SRB026–Rec.05 (para. 22) The SRB **RECOMMENDED** conducting a sensitivity analysis of all ensemble models to the use of a Normal (rather than Lognormal) prior distribution on natural mortality. The Normal distribution is the least informative option when an informative prior is needed.
- SRB026–Rec.06 (para. 23) The SRB **RECOMMENDED** an analysis of historical performance of the decision table metrics, i.e. a retrospective analysis of stock assessment outputs used in management advice.
- SRB026–Rec.07 (para. 24) The SRB **RECOMMENDED** that recruitment projections in the stock assessment and Management Strategy Evaluation (MSE) incorporate a random-walk starting from the most recent reliable recruitment estimate to constrain expected short-term recruitment around recent estimates rather than immediately reverting to the stock-recruitment relationship.
- SRB026–Rec.08 (para. 25) The SRB **RECOMMENDED** deprioritizing incorporation of depredation in the assessment based on sensitivity analysis presented at SRB026. Instead, a research approach and activities should be presented in the next 5YPIRM.
- SRB026–Rec.09 (para. 26) The SRB **RECOMMENDED** that a candidate state space assessment model (e.g. WHAM) be developed for Pacific halibut and presented by SRB032, tentatively scheduled for June 2028. Progress toward this modelling framework may also be presented at interim SRB meetings.

Management strategy evaluation

- SRB026–Rec.10 (para. 30) **NOTING** that "Overfished" implies that fishing was the cause of a current biomass state while the term "Depleted" is agnostic about the cause of low biomass, the SRB **RECOMMENDED** that the Secretariat consider defining "Overfished" relative to a dynamic reference point that incorporates productivity change while "Depleted" should refer to an absolute biomass reference point.
- SRB026–Rec.11 (para. 31) The SRB **RECOMMENDED** that the Secretariat/Commission adopt an absolute biomass limit defining "Depleted" to avoid low biomass levels where stock dynamics are poorly understood such that recovery projections would be unreliable.

- SRB026–Rec.12 (para. 33) The SRB **RECOMMENDED** that the Secretariat evaluate via simulation the ability to detect overfishing (based on the proposed definition) under scenarios of reduced assessment performance when defining "Overfishing" based on probabilities of stock status.
- SRB026–Rec.13 (para. 34) The SRB **RECOMMENDED** that the Secretariat consider and justify alternative timelines to the three-year rebuilding period specified in the proposed definition of "overfishing" since a three-year period is probably unrealistic for rebuilding timelines

Age composition data (both fishery-dependent and fishery-independent)

- SRB026–Rec.14 (para. 41) The SRB **RECOMMENDED** testing whether the addition of covariates including region and sex improves the AI age estimation accuracy.
- SRB026–Rec.15 (para. 44) **NOTING** that aging plays a major role in the stock assessment and that multiple methods are being investigated, the SRB **RECOMMENDED** that the next 5YPIRM present a strategic analysis of the future of aging. This should include the following elements:
 - a) A description of how these approaches may be used, integrated, and tested in the assessment;
 - b) A plan for cost-benefit analysis of alternative approaches including hybrid approaches that use multiple methods;
 - c) Implications of potential future reduced spatial coverage in the FISS on achieving age sampling goals.

REQUESTS

Outcomes of the 101st Session of the IPHC Annual Meeting (AM101)

SRB026–Req.01 (para. 8) **RECALLING** that at the 100th Session of the IPHC, the Commission adopted a Statement on Climate Change, that is available on the IPHC website: <u>IPHC-2024-PP-05</u>, the SRB **AGREED** to consider and advise on the potential implications of climate change for the conservation and management of Pacific halibut, and any related impacts on the Contracting Parties. The SRB **REQUESTED** the addition of an agenda item on this topic for SRB028.

Fishery-independent data: Updates to space-time modelling

SRB026–Req.02 (para. 39) The SRB **NOTED** the development of a spatial model of maturity and **REQUESTED** that the Secretariat present updates on the space-time model of maturity at age at SRB027.

Age composition data (both fishery-dependent and fishery-independent)

SRB026–Req.03 (para. 43) The SRB **REQUESTED** an evaluation of the spatial generalization of a model trained on otoliths in one area to predict ages from otoliths collected in another area.