

# Report of the 25<sup>th</sup> Session of the IPHC Research Advisory Board (RAB025)

Seattle, Washington, USA, 19-20 November 2024

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#### **BIBLIOGRAPHIC ENTRY**

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#### **ACRONYMS**

AI	Artificial Intelligence
CNN	Convolutional Neural Network
FISS	Fishery-Independent Setline Survey
IPHC	International Pacific Halibut Commission
RAB	Research Advisory Board
SRB	Scientific Review Board

#### **DEFINITIONS**

A set of working definitions is 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.

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#### **EXECUTIVE SUMMARY**

The 25<sup>th</sup> Session of the International Pacific Halibut Commission (IPHC) Research Advisory Board (RAB025) was held in Seattle, Washington, USA on 19-20 November 2024. A total of twelve (12) members attended the Session from the two (2) Contracting Parties, as well as five (5) observers. The meeting was opened by the Chairperson Dr David Wilson, and the Vice-Chairperson Dr Josep Planas.

The following are a subset of the complete recommendations and requests for action from RAB025, which are provided in Appendix IV.

#### RECOMMENDATIONS

#### Reproductive assessment of the female Pacific halibut population

RAB025-Rec.01 (para. 17) The RAB **RECOMMENDED** adding maturity data from maturity samples collected in 2024 to establish a revised maturity schedule covering three consecutive years of data and determine its effects in stock assessment.

### Whale depredation mitigation strategies involving longline catch protection devices

RAB025-Rec.02 (para. 21) The RAB **NOTED** paper IPHC-2024-RAB025-06, that provided a description of an ongoing study designed to identify and test new tools to minimize marine mammal depredation of hook-captured Pacific halibut and **RECOMMENDED** that the IPHC continue efforts towards this goal.

#### IPHC Meeting Calendar (2025)

RAB025-Rec.03 (para. 35) The RAB AGREED that the placement of the RAB meeting in November, before the Pacific Marine Expo and prior to the Interim Meeting, over 1.5 days is optimal and **RECOMMENDED** to continue this meeting format moving forward.

#### REQUESTS

#### IPHC 5-year program of Integrated Research and Monitoring (2022-26)

RAB025-Req.01 (para. 10) **NOTING** the substantial potential of incorporating AI techniques to supplement the IPHC Secretariat's current aging protocol informing on the population age structure and serving as input to the Pacific halibut stock assessment, the RAB **REQUESTED** ongoing updates on the project as part of the IPHC 5-year Program of Integrated Research and Monitoring (2022-26).

#### 2025 FISS design evaluation

- RAB025-Req.02 (para. 27) The RAB **SUPPORTED** an annual FISS design with sufficient coverage across all Biological Regions and **REQUESTED** that the IPHC Secretariat continue its efforts to obtain supplementary funding for FISS activities that would support this goal, including through direct increases in Contracting Party contribution.
- RAB025-Req.03 (para. 29) The RAB **REQUESTED** that the IPHC Secretariat produce maps showing how long it has been since each FISS station was last sampled, and for these to be made available at RAB026, or earlier.
- RAB025-Req.04 (para. 30) The RAB **REQUESTED** that the IPHC Secretariat work with relevant Contracting Party agencies to determine the feasibility of combining FISS charters alongside a vessel's commercial quota.

#### Guidance on, and Discussion of, other Potential Applied Research Projects

RAB025-Req.05 (para. 32) The RAB **REQUESTED** that the IPHC Secretariat collect information on possible conditions that could lead to the observed increased prevalence of sand fleas affecting longline catches.

- RAB025-Req.06 (para. 33) The RAB **REQUESTED** that the IPHC Secretariat continue investigations on Pacific halibut juvenile stages, including the mapping of juvenile habitat throughout IPHC Convention Waters.
- RAB025-Req.07 (para. 34) The RAB **REQUESTED** that the IPHC Secretariat set up efforts to secure vessels to conduct field studies in 2025 to test catch protection devices in areas with known whale depredation.

#### 1. OPENING OF THE SESSION

- 1. The 25<sup>th</sup> Session of the International Pacific Halibut Commission (IPHC) Research Advisory Board (RAB025) was held in Seattle, Washington, USA on 19-20 November 2024. A total of twelve (12) members attended the Session from the two (2) Contracting Parties, as well as five (5) observers. Apologies were received from Tiara Boyes (Canada). The list of participants is provided at Appendix I. The meeting was opened by the Chairperson, Dr David Wilson, and Vice-Chairperson, Dr Josep Planas.
- 2. The RAB **RECALLED** its mandate as stated in the IPHC Rules of Procedure (2024) as follows: Appendix VII, I.1-2:
  - "1. The Research Advisory Board (RAB) is composed of members of the Pacific halibut community that shall:
    - a. Suggest research topics to be considered for incorporation in the IPHC integrated research and monitoring activities, as well as to comment upon operational and implementation considerations of those research and monitoring activities;
    - b. provide the IPHC Secretariat staff (who participate in Sessions of the RAB as Observers) with direct input and advice from industry on current and planned research activities contemplated for inclusion in the IPHC 5-Year program of integrated research and monitoring.
  - 2. The RAB may also make recommendations to the Scientific Review Board concerning options for new suggest research topics, and current and planned research activities, and their prioritization for its consideration."

#### 2. ADOPTION OF THE AGENDA AND ARRANGEMENTS FOR THE SESSION

3. The RAB **ADOPTED** the Agenda as provided at <u>Appendix II</u>. The documents provided to the RAB are listed in Appendix III.

#### 3. IPHC PROCESS

#### 3.1 Update on the actions arising from the 24th Session of the RAB (RAB024)

- 4. The RAB **NOTED** paper <u>IPHC-2024-RAB025-03</u>, that provided an opportunity to consider the progress made during the inter-sessional period, in relation to the recommendations and requests of the 24<sup>th</sup> Session of the IPHC Research Advisory Board (RAB024).
- 5. The RAB **AGREED** to consider the actions arising from RAB024 and revise as necessary, and for these to be combined with any new actions arising from RAB025.

#### 3.2 Outcomes of the 100<sup>th</sup> Session of the IPHC Annual Meeting (AM100)

6. The RAB **NOTED** paper <u>IPHC-2024-RAB025-04</u>, that provided the outcomes of the 100<sup>th</sup> Session of the IPHC Annual Meeting (AM100) relevant to the mandate of the RAB.

### 4. SEASON OVERVIEW - 2024: RAB MEMBERS

- 7. The RAB **NOTED** the following key 2024 fishery updates provided by RAB members:
  - a) A general difficulty in finding fish in locations previously known to represent good fishing grounds was noted, possibly reflecting changes in Pacific halibut movement and population composition;
  - b) Whale depredation remains an issue in some areas, with IPHC Regulatory Area 4A, 4CDE edge and 3A again being highlighted by some RAB members;
  - c) Dogfish were a substantially increased problem in 2024, with high catches reported in IPHC Regulatory Areas 2B, 2C, and 3A;
  - d) Sand fleas were reported as a substantial problem in 2024 in most northern areas. Some RAB members reported attempting to reduce the problem by 'floating' their gear off the bottom with limited success;
  - e) There was a suggestion for the Secretariat to consider polling/surveying the fleet at several points during the years in an attempt to identify challenges as they arise, for potential investigation;

- f) The lack of information on whether environmental changes/differences from previous years resulted in the increased sand fleas was discussed;
- g) Habitat impacts due to non-halibut fisheries on Pacific halibut catch rates and recruitment represent a source of continued concern;
- h) Fish prices are low and there were difficulties in finding buyers at times in 2024;
- i) Several reports on spotty fishing during 2024 and continued concerns regarding localized depletion in IPHC Regulatory Area 4D;
- j) There were supportive comments on the continued collection of water profiler data, and encouragement that this information continue to be disseminated via the IPHC website: <a href="https://www.iphc.int/data/water-column-profiler-data/">https://www.iphc.int/data/water-column-profiler-data/</a> in 2025, noting the gap in data collection for 2024;
- k) Commercial catch rates were much lower than expected in all IPHC Regulatory Areas in 2024;
- 1) Catches in the charter sector remained high in IPHC Regulatory Area 2C and decreased in 3A, but required substantial searching to obtain those rates;
- m) Small fish (24-32 inches) were being seen in numbers in IPHC Regulatory Areas 2A, 2B, 2C, 3B, and 3A;
- n) There was interest in understanding the effects of habitat disturbance due to fishing effects including bottom contact from "mid-water trawl" and bottom trawl gear in all areas;
- o) Concerns were expressed regarding localized depletion of Pacific halibut around St. Matthews Island from extensive fishing.

# 5. International Pacific Halibut Commission 5-year program of Integrated Research and Monitoring (2022-26)

- 8. The RAB **NOTED** paper <u>IPHC-2024-RAB025-05</u>, that provided the RAB with the IPHC 5-year Program of Integrated Research and Monitoring (2022-26).
- 9. The RAB **NOTED** the latest update provided on the investigation of the use of artificial intelligence (AI) for determining the age of Pacific halibut from images of collected otoliths. The IPHC Secretariat is in the process of creating a database comprising images with expert-provided labels for aging use. This database will be utilized to train and test a Convolutional Neural Network (CNN), a type of AI model renowned for its efficacy in image classification tasks.
- 10. **NOTING** the substantial potential of incorporating AI techniques to supplement the IPHC Secretariat's current aging protocol informing on the population age structure and serving as input to the Pacific halibut stock assessment, the RAB **REQUESTED** ongoing updates on the project as part of the IPHC 5-year Program of Integrated Research and Monitoring (2022-26).

#### 5.1 Research

#### 5.1.1 Description of IPHC Biological and Ecosystem Sciences Research (Core research streams)

- 11. The RAB **NOTED** paper <u>IPHC-2024-RAB025-06</u>, that provided a description of the biological and ecosystem science research projects conducted and planned by the IPHC Secretariat and contemplated within the Five-year Program of Integrated Research and Monitoring (2022-26).
- 12. The RAB **NOTED** that the main objectives of the Biological and Ecosystem Science Research at the IPHC are to:
  - a) identify and assess critical knowledge gaps in the biology of the Pacific halibut;
  - b) understand the influence of environmental conditions; and
  - c) apply the resulting knowledge to reduce uncertainty in current stock assessment models.

#### Refining the genetic population structure of Pacific halibut throughout Convention Waters

- 13. The RAB **NOTED** paper <u>IPHC-2024-RAB025-06</u>, that provided a description of the studies conducted by IPHC Secretariat on population genomics. Initial conclusions were presented indicating a lack of genetic structure among the spawning groups examined and, in particular, the lack of genetic differentiation between spawning groups sampled to the East and to the West of Amchitka Pass in the Western Aleutian Islands.
- 14. The RAB **NOTED** that the existence of a single genetic stock within IPHC Convention Waters is consistent with a high degree of gene flow due the highly migratory nature of Pacific halibut, as highlighted by the observed changes in distribution of Pacific halibut in fishing grounds during the 2024 fishing period.

#### Reproductive assessment of the female Pacific halibut population

- 15. The RAB **NOTED** paper <u>IPHC-2024-RAB025-06</u>, that provided a description of the studies designed to update maturity schedules and estimate fecundity in female Pacific halibut.
- 16. The RAB **NOTED** the update in maturity schedules that resulted from the histological assessment of maturity from samples collected in 2022 and 2023.
- 17. The RAB **RECOMMENDED** adding maturity data from maturity samples collected in 2024 to establish a revised maturity schedule covering three consecutive years of data and determine its effects in stock assessment.
- 18. The RAB **NOTED** the collection of ovarian samples for fecundity in 2023 and 2024 during the FISS as well as in a pilot study conducted in the Fall of 2024 to collect samples particularly from large females to conduct fecundity estimations during 2025 over a broad range of female sizes.

#### Discard mortality rates and post-release survival in the guided recreational Pacific halibut fishery

- 19. The RAB **NOTED** paper <u>IPHC-2024-RAB025-06</u>, that provided a description of an ongoing study designed to improve our knowledge on discard mortality rates in the Pacific halibut charter recreational fishery.
- 20. The RAB **NOTED** the results on the reduced mortality rate of Pacific halibut released in excellent viability.

#### Whale depredation mitigation strategies involving longline catch protection devices

21. The RAB **NOTED** paper <u>IPHC-2024-RAB025-06</u>, that provided a description of an ongoing study designed to identify and test new tools to minimize marine mammal depredation of hook-captured Pacific halibut and **RECOMMENDED** that the IPHC continue efforts towards this goal.

#### 5.2 Monitoring

#### 5.2.1 Fishery-dependent data

22. The RAB **NOTED** the update on the implementation of electronic logbooks in Alaska, USA. The IPHC Secretariat intends on keeping the fleet informed of ways to improve data collection efficiency while ensuring data confidentiality.

#### 5.2.2 Fishery-independent data

#### 5.2.2.1 2024 FISS season: Design and implementation

- 23. The RAB **NOTED** paper <u>IPHC-2024-RAB025-07</u>, that provided an overview of the IPHC Fishery-Independent Setline Survey (FISS) design and implementation in 2024.
- 24. The RAB **RECALLED** that the FISS tender specifications allow for both fixed and snap gear vessels to participate coastwide, noting that data from snap gear vessels continue to be adjusted in order to compare to fixed gear data.

#### 5.2.2.2 2025 FISS design evaluation

- 25. The RAB **NOTED** paper <u>IPHC-2024-RAB025-08</u>, that provided proposed designs for the IPHC's Fishery-Independent Setline Survey (FISS) for the 2025-27 period, and an evaluation of those designs.
- 26. The RAB **NOTED** the experimental trial using pink salmon as bait on 50% of 2024 FISS stations and chum salmon on the other 50%, provided mixed results in the areas it was undertaken, both in terms of catch rates and budget savings. As a result, the IPHC Secretariat would not be moving forward with using pink salmon as an alternative to chum salmon.
- 27. The RAB **SUPPORTED** an annual FISS design with sufficient coverage across all Biological Regions and **REQUESTED** that the IPHC Secretariat continue its efforts to obtain supplementary funding for FISS activities that would support this goal, including through direct increases in Contracting Party contribution.
- 28. The RAB **NOTED** that the oceanographic sampling program using water profilers was going to be continued in 2025, with the goal of providing a source of data on environmental conditions experienced by Pacific halibut.
- 29. The RAB **REQUESTED** that the IPHC Secretariat produce maps showing how long it has been since each FISS station was last sampled, and for these to be made available at RAB026, or earlier.
- 30. The RAB **REQUESTED** that the IPHC Secretariat work with relevant Contracting Party agencies to determine the feasibility of combining FISS charters alongside a vessel's commercial quota.
- 31. The RAB **DISCUSSED** the following concerns raised throughout the meeting:
  - a) recent sparse designs and the lack of comprehensive information as of 2024;
  - b) what the impact of reduced footprint designs means for the stock assessment the longer the reduced designs persist;
  - c) the need to move back to a broad coastwide design involving a randomized station count, either as a rotational block or fully randomised design;
  - d) the possible application of funds resulting from fines paid to OLE due to exceeded bycatch caps in abundance-based management (ABM) for scientific research purposes.

#### 6. GUIDANCE ON, AND DISCUSSION OF, OTHER POTENTIAL APPLIED RESEARCH PROJECTS

- 32. The RAB **REQUESTED** that the IPHC Secretariat collect information on possible conditions that could lead to the observed increased prevalence of sand fleas affecting longline catches.
- 33. The RAB **REQUESTED** that the IPHC Secretariat continue investigations on Pacific halibut juvenile stages, including the mapping of juvenile habitat throughout IPHC Convention Waters.
- 34. The RAB **REQUESTED** that the IPHC Secretariat set up efforts to secure vessels to conduct field studies in 2025 to test catch protection devices in areas with known whale depredation.

#### 7. OTHER BUSINESS

#### 7.1 IPHC Meeting Calendar (2025)

35. The RAB **AGREED** that the placement of the RAB meeting in November, before the Pacific Marine Expo and prior to the Interim Meeting, over 1.5 days is optimal and **RECOMMENDED** to continue this meeting format moving forward.

# 8. REVIEW OF THE DRAFT AND ADOPTION OF THE REPORT OF THE 25<sup>th</sup> Session of the IPHC Research Advisory Board (RAB025)

36. The Report of the 25<sup>th</sup> Session of the Research Advisory Board (RAB025) (<u>IPHC-2024-RAB025-R</u>) was **ADOPTED** on 20 November 2024, including the consolidated set of recommendations and requests arising from RAB025 provided at Appendix IV.

# APPENDIX I LIST OF PARTICIPANTS

## **RAB Officers**

Chairperson	Vice-Chairperson
Dr David T. Wilson	Dr Josep Planas
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<u> </u>		

#### APPENDIX II

# AGENDA FOR THE 25<sup>th</sup> Session of the IPHC Research Advisory Board (RAB025)

Date: 19-20 November 2024 Location: Seattle, Washington, USA Venue: IPHC HQ office

**Time**: 19<sup>th</sup>: 09:00-16:00; 20<sup>th</sup>: 09:00-12:00

Chairperson: Dr David T. Wilson (Executive Director)

Vice-Chairperson: Dr Josep V. Planas (Biological & Ecosystem Sciences Branch Manager)

- 1. **OPENING OF THE SESSION** (Chairperson)
- 2. ADOPTION OF THE AGENDA AND ARRANGEMENTS FOR THE SESSION (Chairperson)
- 3. **IPHC PROCESS** (Chairperson)
  - **3.1** Update on the actions arising from the 24<sup>th</sup> Session of the RAB (RAB024)
  - 3.2 Outcomes of the 100<sup>th</sup> Session of the IPHC Annual Meeting (AM100)
- 4. SEASON OVERVIEW 2024: RAB MEMBERS
- 5. INTERNATIONAL PACIFIC HALIBUT COMMISSION 5-YEAR PROGRAM OF INTEGRATED RESEARCH AND MONITORING (2022-26)
  - 5.1 RESEARCH
    - 5.1.1 Biology and ecology
      - Description of IPHC Biological and Ecosystem Sciences Research (Core research streams)
  - 5.2 MONITORING
    - 5.2.1 Fishery-dependent data
    - 5.2.2 Fishery-independent data
      - 2024 FISS season: Design and implementation (T. Jack)
      - IPHC Fishery-Independent Setline Survey (FISS)
        - o 2025 FISS design evaluation (R. Webster)
- 6. GUIDANCE ON, AND DISCUSSION OF, OTHER POTENTIAL APPLIED RESEARCH PROJECTS (Chairperson & Vice-Chairperson)
- 7. OTHER BUSINESS
- 8. REVIEW OF THE DRAFT AND ADOPTION OF THE REPORT OF THE 25th SESSION OF THE IPHC RESEARCH ADVISORY BOARD (RAB025) (Chairperson)

# APPENDIX III LIST OF DOCUMENTS FOR THE ${\bf 25}^{\text{th}}$ Session of the IPHC Research Advisory Board (RAB025)

Document	Title	Availability
IPHC-2024-RAB025-01	Agenda & Schedule for the 25 <sup>th</sup> Session of the IPHC Research Advisory Board (RAB025)	✓ 28 Jun 2024 ✓ 15 Nov 2024
IPHC-2024-RAB025-02	List of Documents for the 25 <sup>th</sup> Session of the IPHC Research Advisory Board (RAB025)	✓ 28 Jun 2024 ✓ 17 Oct 2024 ✓ 15 Nov 2024
IPHC-2024-RAB025-03	Update on the actions arising from the 24 <sup>th</sup> Session of the RAB (RAB024) (D. Wilson & J. Planas)	✓ 10 Oct 2024
IPHC-2024-RAB025-04	Outcomes of the 100 <sup>th</sup> Session of the IPHC Annual Meeting (AM100) (D. Wilson)	✓ 09 Oct 2024
IPHC-2024-RAB025-05	International Pacific Halibut Commission 5-Year program of integrated research and monitoring (2022-26): Updates (D. Wilson, J. Planas, I. Stewart, A. Hicks, B. Hutniczak, & R. Webster)	✓ 09 Oct 2024
IPHC-2024-RAB025-06	Report on current and future biological and ecosystem science research activities (J. Planas, C. Dykstra, A. Jasonowicz, C. Jones)	✓ 15 Oct 2024
IPHC-2024-RAB025-07	IPHC Fishery-independent setline survey (FISS) design and implementation in 2024 (K. Ualesi, R. Rillera, T. Jack, & K. Coll)	✓ 15 Oct 2024
IPHC-2024-RAB025-08	2025-27 FISS Design evaluation (R. Webster, I. Stewart, K. Ualesi, T. Jack, & D. Wilson)	✓ 17 Oct 2024

#### APPENDIX IV

# CONSOLIDATED SET OF RECOMMENDATIONS OF THE 25<sup>TH</sup> SESSION OF THE IPHC RESEARCH ADVISORY BOARD (RAB025)

#### **RECOMMENDATIONS**

#### Reproductive assessment of the female Pacific halibut population

RAB025-Rec.01 (para. 17) The RAB **RECOMMENDED** adding maturity data from maturity samples collected in 2024 to establish a revised maturity schedule covering three consecutive years of data and determine its effects in stock assessment.

#### Whale depredation mitigation strategies involving longline catch protection devices

RAB025-Rec.02 (para. 21) The RAB **NOTED** paper IPHC-2024-RAB025-06, that provided a description of an ongoing study designed to identify and test new tools to minimize marine mammal depredation of hook-captured Pacific halibut and **RECOMMENDED** that the IPHC continue efforts towards this goal.

#### IPHC Meeting Calendar (2025)

RAB025-Rec.03 (para. 35) The RAB AGREED that the placement of the RAB meeting in November, before the Pacific Marine Expo and prior to the Interim Meeting, over 1.5 days is optimal and **RECOMMENDED** to continue this meeting format moving forward.

#### **REQUESTS**

#### IPHC 5-year program of Integrated Research and Monitoring (2022-26)

RAB025-Req.01 (para. 10) **NOTING** the substantial potential of incorporating AI techniques to supplement the IPHC Secretariat's current aging protocol informing on the population age structure and serving as input to the Pacific halibut stock assessment, the RAB **REQUESTED** ongoing updates on the project as part of the IPHC 5-year Program of Integrated Research and Monitoring (2022-26).

#### 2025 FISS design evaluation

- RAB025-Req.02 (para. 27) The RAB **SUPPORTED** an annual FISS design with sufficient coverage across all Biological Regions and **REQUESTED** that the IPHC Secretariat continue its efforts to obtain supplementary funding for FISS activities that would support this goal, including through direct increases in Contracting Party contribution.
- RAB025-Req.03 (para. 29) The RAB **REQUESTED** that the IPHC Secretariat produce maps showing how long it has been since each FISS station was last sampled, and for these to be made available at RAB026, or earlier.
- RAB025-Req.04 (para. 30) The RAB **REQUESTED** that the IPHC Secretariat work with relevant Contracting Party agencies to determine the feasibility of combining FISS charters alongside a vessel's commercial quota.

#### Guidance on, and Discussion of, other Potential Applied Research Projects

- RAB025-Req.05 (para. 32) The RAB **REQUESTED** that the IPHC Secretariat collect information on possible conditions that could lead to the observed increased prevalence of sand fleas affecting longline catches.
- RAB025-Req.06 (para. 33) The RAB **REQUESTED** that the IPHC Secretariat continue investigations on Pacific halibut juvenile stages, including the mapping of juvenile habitat throughout IPHC Convention Waters.
- RAB025-Req.07 (para. 34) The RAB **REQUESTED** that the IPHC Secretariat set up efforts to secure vessels to conduct field studies in 2025 to test catch protection devices in areas with known whale depredation.