



Report of the 22nd Session of the IPHC Research Advisory Board (RAB022)

Seattle, Washington, USA, 29 November 2021

Commissioners

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IPHC 2021. Report of the 22nd Session of the IPHC
Research Advisory Board (RAB022). Seattle,
Washington, USA, 29 November 2021.
IPHC–2021–RAB022–R, 14 pp.



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ACRONYMS

DFO	Fisheries and Oceans Canada
FISS	Fishery-Independent Setline Survey
IPHC	International Pacific Halibut Commission
O32	Over 32 inches, Pacific halibut
RAB	Research Advisory Board
SRB	Scientific Review Board
U32	Under 32 inches, Pacific halibut

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** (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 22nd Session of the International Pacific Halibut Commission (IPHC) Research Advisory Board (RAB022) was held in Seattle, Washington, USA on 29 November 2021. A total of nine (9) members attended the Session from the two (2) Contracting Parties, as well as three (3) 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 RAB022, which are provided in [Appendix IV](#).

REQUESTS

IPHC Fishery-Independent Setline Survey (FISS)

RAB022-Req.01 ([para. 16](#)) The RAB **NOTED** with appreciation the enhanced communication and consultation undertaken immediately prior to and during the 2021 FISS by the IPHC Secretariat, and **REQUESTED** that this heightened level of communication continue moving forward.

Accounting for the effects of whale depredation

RAB022-Req.02 ([para. 31](#)) The RAB **REQUESTED** further review of the FISS whale depredation effectiveness criteria, which in some instances may be either too liberal or too conservative, and for orca depredation to include a quantitative visual assessment.

In addition, the RAB provided the following endorsements:

Rules of Procedure

([para. 4](#)) The RAB **NOTED** and **ENDORSED** the further improvements suggested to Appendix VII, I.1-2 of the IPHC Rules of Procedure (2021) as follows: [see [para. 4](#) for the full text]

Core research streams: Updates for key ongoing research activities

([para. 35](#)) The RAB **NOTED** paper [IPHC-2021-RAB022-08](#), which provided a description of the research projects proposed by IPHC Secretariat and contemplated within the 5-year Biological and Ecosystem Science Research Program (2017-21), and **ENDORSED** the general approach taken.

1. OPENING OF THE SESSION

1. The 22nd Session of the International Pacific Halibut Commission (IPHC) Research Advisory Board (RAB022) was held in Seattle, Washington, USA on 29 November 2021. A total of nine (9) members attended the Session from the two (2) Contracting Parties, as well as three (3) observers. Apologies were received from Alex Rodriguez. 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 **NOTED** the revisions to the IPHC Rules of Procedure adopted by the Commission at its 97th Session of the Annual Meeting (AM097): *IPHC Rules of Procedure (2021)*.
3. The RAB **RECALLED** its mandate as stated in the IPHC Rules of Procedure (2021) 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 ideas, b. review IPHC research proposals, and c. provide the IPHC Secretariat staff (who participate in Sessions of the RAB as Observers) with direct input and advice from industry during the development of research plans.*
 2. *The RAB may also make recommendations to the Scientific Review Board concerning research plans and priorities for its consideration.*”
4. The RAB **NOTED** and **ENDORSED** the further improvements suggested to Appendix VII, I.1-2 of the IPHC Rules of Procedure (2021) as follows:
 - “1. *The Research Advisory Board (RAB) is composed of members of the Pacific halibut community that shall: a. suggest research ~~ideas, topics to be considered for incorporation in the IPHC 5-year Research Plan;~~ b. ~~review IPHC research proposals, and c.~~ 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 Research Plan during the development of research plans.~~*
 2. *The RAB may also make recommendations to the Scientific Review Board concerning ~~options for new suggested research topics and current and planned research activities and their prioritization research plans and priorities~~ for its consideration.*”

2. ADOPTION OF THE AGENDA AND ARRANGEMENTS FOR THE SESSION

5. The RAB **ADOPTED** the Agenda as provided at [Appendix II](#). The documents provided to the RAB are listed in [Appendix III](#).

3. IPHC PROCESS

3.1 Update on the actions arising from the 21st Session of the RAB (RAB021)

6. The RAB **NOTED** paper [IPHC-2021-RAB022-03](#), which provided the RAB with an opportunity to consider the progress made during the inter-sessional period, in relation to the recommendations and requests of the 21st Session of the IPHC Research Advisory Board (RAB021).
7. The RAB **AGREED** to consider the actions arising from RAB021 and revise as necessary, and for these to be combined with any new actions arising from RAB022.

3.2 Outcomes of the 97th Session of the IPHC Annual Meeting (AM097)

8. The RAB **NOTED** paper [IPHC-2021-RAB022-04](#), which provided the outcomes of the 97th Session of the IPHC Annual Meeting (AM097) relevant to the mandate of the RAB.

4. SEASON OVERVIEW – 2021: RAB MEMBERS

9. The RAB **NOTED** the following key 2021 fishing updates provided by RAB members.
10. The RAB **NOTED** the increase in the number and size of Pacific halibut in the Oregon coast, particularly later in the fishing season.

11. The RAB **NOTED** the limitations imposed by weather on the Pacific halibut recreational fishery off the Oregon coast.
12. The RAB **NOTED** the low commercial catches in IPHC Regulatory Areas 4A and 4B and concerns regarding following the status quo in the light of the lack of FISS data in those areas.
13. The RAB **NOTED** the continued effect of rockfish restrictions on fishing behaviour in IPHC Regulatory Area 2B, which tends to concentrate effort as fishers try to avoid rockfish. The rockfish restrictions are also having an ongoing impact on FISS coverage.

5. IPHC FISHERY-INDEPENDENT SETLINE SURVEY (FISS)

5.1 2021 FISS season: Design and implementation

14. The RAB **NOTED** paper [IPHC-2021-RAB022-05](#), which provided an overview of the International Pacific Halibut Commission's (IPHC) Fishery-Independent Setline Survey (FISS) design and implementation in 2021.
15. The RAB **CONGRATULATED** the IPHC Secretariat, and in particular the FISS team led by Ms Ualesi, for undertaking such a successful and efficient FISS in 2021. It was acknowledged how difficult the operating environment became in 2021 due to the COVID-19 pandemic, and industry have appreciated the professional and efficient interactions with the IPHC Secretariat in 2021.
16. The RAB **NOTED** with appreciation the enhanced communication and consultation undertaken immediately prior to and during the 2021 FISS by the IPHC Secretariat, and **REQUESTED** that this heightened level of communication continue moving forward.
17. The RAB **NOTED** that at the request of the RAB, the IPHC Secretariat engaged with stakeholders who have performed FISS work in the western IPHC Regulatory Areas in 2021, with the intention of improving the design and feasibility of the FISS in that area, including the possibility of multi-year FISS contracts.
18. The RAB **NOTED** that the FISS stations not sampled in IPHC Regulatory Areas 4B and 4CDE in 2021, were primarily due to logistical, technological, and mechanical issues for the vessels assigned the areas, in addition to poor weather.
19. The RAB **NOTED** that the sale price for U32 Pacific halibut coastwide averaged ~82% of the O32 sale price. In IPHC Regulatory Area 2A, the difference was nearly 40% (U32 versus O32 sale price), yet IPHC Regulatory Area 2C experienced only a 4% difference in price received. Overall, U32 Pacific halibut composed 3.72% of the total Pacific halibut landings in the 2021 FISS.

5.2 2022-24 FISS design evaluation

20. The RAB **NOTED** paper [IPHC-2021-RAB022-06](#), which provided proposed designs for the IPHC's Fishery-Independent Setline Survey (FISS) for the 2022-24 period, and an evaluation of those designs, as reviewed and endorsed by the Scientific Review Board in June 2021 (SRB018).
21. The RAB **NOTED** that some inlets in IPHC Regulatory Area 2B have low density and may not need to be targeted for sampling on an annual basis.
22. The RAB **NOTED** that hypoxic events in IPHC Regulatory Area 2A are becoming more frequent and that more frequent FISS sampling of lower-density regions in that area may be needed to account for the effect of these events on catch rates.
23. The RAB **NOTED** that fishing sets of six skates rather than eight may be more cost effective, and that this is accounted for by the IPHC Secretariat when accounting for the goal of long-term revenue neutrality in the final FISS design.
24. The RAB **NOTED** that the fishery is excluded from some shallower regions with areas of high bycatch rates in IPHC Regulatory 2B, and so the FISS data is particularly important in those regions. The IPHC Secretariat continues to seek permission from DFO to undertake the FISS in such regions where they are closed to longline gear, and that RAB support of these efforts is encouraged by the IPHC Secretariat.

25. The RAB **NOTED** that the current rationalized FISS design is responsive to shifts in Pacific halibut distribution due to climate change.
26. **NOTING** the 2022 FISS design endorsed by the SRB018, and the planned modifications to target long-term revenue neutrality, the RAB **AGREED** that optimized design 1, with full sampling in IPHC Regulatory Area 4CDE, appeared to be the most appropriate.

5.3 Modelling of IPHC length-weight data

27. The RAB **NOTED** paper [IPHC-2021-RAB022-07.1](#), which provide methods for revised length-net weight relationships from the FISS and commercial sampling data.

5.4 Review of the IPHC hook competition standardisation

28. The RAB **NOTED** paper [IPHC-2021-RAB022-07.2](#) that presents an overview of the IPHC standardization for hook competition on FISS sets.

5.5 Accounting for the effects of whale depredation

29. The RAB **NOTED** paper [IPHC-2021-RAB022-07.3](#) that presented estimates of the effects of whale interactions on FISS catch rates through the space-time modelling.
30. The RAB **NOTED** that the FISS criteria for ineffectiveness due to sperm whale sightings within 3 nm and orca depredation is based on the presence of Pacific halibut lips, other obvious damage (no quantitative distance), and/or interpretation by vessel crew.
31. The RAB **REQUESTED** further review of the FISS whale depredation effectiveness criteria, which in some instances may be either too liberal or too conservative, and for orca depredation to include a quantitative visual assessment.

6. DESCRIPTION OF IPHC RESEARCH ACTIVITIES

6.1 Key updates: IPHC 5-year Biological and Ecosystem Sciences Research Plan (2017-21)

6.1.1 Whale depredation

32. The RAB **NOTED** paper [IPHC-2021-RAB022-12](#), which described studies designed to study whale depredation mitigation strategies through catch protection in longline fisheries.
33. The RAB **NOTED** the proposed research activities on whale depredation that are centered on an IPHC project targeted at investigating strategies for catch protection for longline gear.

6.1.2 Alterations of flesh characteristics: chalky Pacific halibut

34. The RAB **NOTED** the update on the survey of processors conducted by the IPHC Secretariat on the incidence of the chalky Pacific halibut.

6.2 Core research streams: Updates for key ongoing research activities

35. The RAB **NOTED** paper [IPHC-2021-RAB022-08](#), which provided a description of the research projects proposed by IPHC Secretariat and contemplated within the 5-year Biological and Ecosystem Science Research Program (2017-21), and **ENDORSED** the general approach taken.

6.2.1 Migration: Larval and juvenile connectivity of Pacific halibut

36. The RAB **NOTED** paper [IPHC-2021-RAB022-09](#), which described studies designed to improve our knowledge distribution and migration of Pacific halibut in the northeast Pacific Ocean and eastern Bering Sea.

6.2.2 Reproduction: Reproductive assessment of the Pacific halibut population

37. The RAB **NOTED** paper [IPHC-2021-RAB022-10](#), which outlined the research project describing studies designed to improve our knowledge on reproductive development in female and male Pacific halibut.

6.2.3 *Growth: Factors affecting somatic growth in Pacific halibut*

38. The RAB **NOTED** the update on the research looking at factors affecting somatic growth in Pacific halibut.

6.2.4 *Discard mortality rates: Discard mortality rates and post-release survival in the longline and guided recreational Pacific halibut fisheries*

39. The RAB **NOTED** paper [IPHC-2021-RAB022-11](#), which described an ongoing study designed to improve our knowledge on discard mortality rates in the Pacific halibut charter recreational fishery.

6.2.5 *Genetics and Genomics: Application of genetics and genomics to improve our knowledge on population structure and distribution*

40. The RAB **NOTED** paper [IPHC-2021-RAB022-13](#), which described studies conducted by the IPHC Secretariat on population genetics.

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

41. The RAB **NOTED** that the IPHC Secretariat is collecting genetic sex ratio information from the commercial fishery since 2017 and that the IPHC FISS has historically been collecting direct sex ratio information since its inception.
42. The RAB **NOTED** that the IPHC Secretariat is incorporating future studies on spatial assessment of maturity schedules, fecundity at size and identification of potential spawning areas south of Haida Gwaii in the next 5-yr program of integrated research and monitoring (2022-2026).
43. The RAB **NOTED** that criteria currently used to describe ineffective stations due to whale depredation could be refined.
44. The RAB **NOTED** the increase of dogfish and other shark species as bycatch.
45. The RAB **NOTED** the importance of studies addressing potential northern changes in Pacific halibut distribution through the use of genetic approaches and the potential contribution from portions of the stock outside of convention waters.
46. The RAB **NOTED** the potential effects of climate change on FISS design and on Pacific halibut distribution and the need to address the potential issue of climate change in IPHC Secretariat research activities.

8. OTHER BUSINESS

8.1 *IPHC Meeting Calendar (2022-24)*

47. The RAB **AGREED** that the placement of the RAB meeting in November, immediately prior to the Interim Meeting, works better than early February each year.

9. REVIEW OF THE DRAFT AND ADOPTION OF THE REPORT OF THE 22ND SESSION OF THE IPHC RESEARCH ADVISORY BOARD (RAB022)

48. The Report of the 22nd Session of the Research Advisory Board (IPHC-2021-RAB022-R) was **ADOPTED** on 29 November 2021, including the consolidated set of recommendations and requests arising from RAB022 provided at [Appendix IV](#).

APPENDIX I
LIST OF PARTICIPANTS

RAB Officers

Chairperson	Vice-Chairperson
Dr David T. Wilson Executive Director, International Pacific Halibut Commission Email: david.wilson@iphc.int	Dr Josep Planas Branch Head: Biological and Ecosystem Sciences Branch, International Pacific Halibut Commission Email: josep.planas@iphc.int

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IPHC Secretariat

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APPENDIX II**AGENDA FOR THE 22ND SESSION OF THE IPHC RESEARCH ADVISORY BOARD (RAB022)****Date:** 29 November 2021**Location:** Seattle, Washington, USA**Venue:** Grand Hyatt Seattle**Time:** 09:00-17:00**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 21st Session of the RAB (RAB021)
 - 3.2 Outcomes of the 97th Session of the IPHC Annual Meeting (AM097)
- 4. SEASON OVERVIEW - 2021: RAB MEMBERS**
- 5. IPHC FISHERY-INDEPENDENT SETLINE SURVEY (FISS)**
 - 5.1 2021 FISS season: Design and implementation (K. Ualesi & D. Wilson)
 - 5.2 2022-24 FISS design evaluation (R. Webster)
 - 5.3 Modelling of IPHC length-weight data (R. Webster)
 - 5.4 Review of IPHC hook competition standardization (R. Webster)
 - 5.5 Accounting for the effects of whale depredation on the FISS (R. Webster)
- 6. DESCRIPTION OF IPHC RESEARCH ACTIVITIES** (J. Planas & Project leaders)
 - 6.1 Key updates: IPHC 5-year Biological and Ecosystem Sciences Research Plan (2017-21) (J. Planas)
 - 6.1.1 Whale depredation (C. Dykstra)
 - 6.1.2 Alterations of flesh characteristics: chalky Pacific halibut (L. Sadorus)
 - 6.2 Core research streams: Updates for key ongoing research activities (Project leaders)
 - 6.2.1 Migration: Larval and juvenile connectivity of Pacific halibut (L. Sadorus, T. Loher)
 - 6.2.2 Reproduction: Reproductive assessment of the Pacific halibut population (J. Planas)
 - 6.2.3 Growth: Factors affecting somatic growth in Pacific halibut (J. Planas)
 - 6.2.4 Discard mortality rates: Discard mortality rates and post-release survival in the longline and guided recreational Pacific halibut fisheries (C. Dykstra)
 - 6.2.5 Genetic and Genomics: Application of genetics and genomics to improve our knowledge on population structure and distribution (A. Jasonowicz)
- 7. GUIDANCE ON, AND DISCUSSION OF, OTHER POTENTIAL APPLIED RESEARCH PROJECTS** (Chairperson & Vice-Chairperson)
- 8. OTHER BUSINESS**
 - 8.1 IPHC Meeting calendar (2022-24) (Chairperson)
- 9. REVIEW OF THE DRAFT AND ADOPTION OF THE REPORT OF THE 22ND SESSION OF THE IPHC RESEARCH ADVISORY BOARD (RAB022)** (Chairperson)

APPENDIX III

LIST OF DOCUMENTS FOR THE 22ND SESSION OF THE IPHC RESEARCH ADVISORY BOARD (RAB022)

Document	Title	Availability
IPHC-2021-RAB022-01	Agenda & Schedule for the 22 nd Session of the IPHC Research Advisory Board (RAB022)	✓ 31 Aug 2021
IPHC-2021-RAB022-02	List of Documents for the 22 nd Session of the IPHC Research Advisory Board (RAB022)	✓ 21 Oct 2021 ✓ 28 Oct 2021
IPHC-2021-RAB022-03	Update on the actions arising from the 21 st Session of the RAB (RAB021) (D. Wilson & J. Planas)	✓ 22 Oct 2021
IPHC-2021-RAB022-04	Outcomes of the 97 th Session of the IPHC Annual Meeting (AM097) (IPHC Secretariat)	✓ 21 Oct 2021
IPHC-2021-RAB022-05	IPHC Fishery-independent setline survey (FISS) design and implementation in 2021: preliminary summary (K. Ualesi, D. Wilson, C. Jones & R. Rillera)	✓ 28 Oct 2021
IPHC-2021-RAB022-06	2022-24 FISS Design evaluation (R. Webster)	✓ 27 Oct 2021
IPHC-2021-RAB022-07	IPHC Fishery-Independent Setline Survey (FISS) and commercial data modelling (R. Webster)	✓ 27 Oct 2021
IPHC-2021-RAB022-08	Overview: IPHC 5-year biological and ecosystem sciences research program (2017-21) (J. Planas)	✓ 25 Oct 2021
IPHC-2021-RAB022-09	Migratory behavior and distribution of Pacific halibut (L. Sadorus & T. Loher)	✓ 25 Oct 2021
IPHC-2021-RAB022-10	Reproductive assessment of the Pacific halibut population (J. Planas)	✓ 25 Oct 2021
IPHC-2021-RAB022-11	Evaluating discard mortality rates and developing best management practices in the Pacific halibut charter recreational fisheries (C. Dykstra)	✓ 25 Oct 2021
IPHC-2021-RAB022-12	Gear-based approaches to catch protection as a means for minimizing whale depredation in longline fisheries (C. Dykstra)	✓ 25 Oct 2021
IPHC-2021-RAB022-13	Population genomics (A. Jasonowicz & J. Planas)	✓ 25 Oct 2021

APPENDIX IV
CONSOLIDATED SET OF RECOMMENDATIONS OF THE 22ND SESSION OF THE IPHC
RESEARCH ADVISORY BOARD (RAB022)

RECOMMENDATIONS

Nil

REQUESTS

IPHC Fishery-Independent Setline Survey (FISS)

RAB022-Req.01 ([para. 16](#)) The RAB **NOTED** with appreciation the enhanced communication and consultation undertaken immediately prior to and during the 2021 FISS by the IPHC Secretariat, and **REQUESTED** that this heightened level of communication continue moving forward.

Accounting for the effects of whale depredation

RAB022-Req.02 ([para. 31](#)) The RAB **REQUESTED** further review of the FISS whale depredation effectiveness criteria, which in some instances may be either too liberal or too conservative, and for orca depredation to include a quantitative visual assessment.