INTERNATIONAL PACIFIC HALIBUT COMMISSION

11 March 2018

IPHC CIRCULAR 2018-004

Dear Commissioners,

SUBJECT: REPORT OF THE 19th SESSION OF THE INTERNATIONAL PACIFIC HALIBUT COMMISSION RESEARCH ADVISORY BOARD (RAB019)

In accordance with Rule 15 (Reports and Records) of the IPHC Rules of Procedure (2017), I am pleased to provide you with the final Report of the 19th Session of the IPHC Research Advisory Board (RAB019), which was adopted via correspondence on the 09 March 2018. Please distribute as you see fit.

The report will also be made available for download from the IPHC website on Monday, the 12 March 2018, at the following link: https://iphc.int/venues/details/19th-session-of-the-iphc-research-advisory-board-rab19

Yours sincerely

David T. Wilson, Ph.D.

Executive Director, IPHC

Attachments:

Attachment I: Report of the 19th Session of the IPHC Research Advisory Board (RAB019)

INTERNATIONAL PACIFIC HALIBUT COMMISSION

IPHC–2018–RAB019–R

Report of the 19th Session of the IPHC Research Advisory Board (RAB019)

Seattle, Washington, United States of America, 28 February 2018

DISTRIBUTION:
Participants in the Session
Members of the Commission
IPHC Staff

BIBLIOGRAPHIC ENTRY
IPHC 2018. Report of the 19th Session of the IPHC Research Advisory Board (RAB019). Seattle, Washington, U.S.A., 28 February 2018. *IPHC–2018–RAB019–R, 16 pp.*

INTERNATIONAL PACIFIC HALIBUT COMMISSION

Contact details:

International Pacific Halibut Commission
2320 W. Commodore Way, Suite 300
Seattle, WA, 98199-1287, U.S.A.
Phone: +1 206 634 1838
Fax: +1 206 632 2983
Email: admin@iphc.int
Website: http://iphc.int/

ACRONYMS

CPUE	Catch per Unit Effort
IPHC	International Pacific Halibut Commission
NOAA	National Oceanic and Atmospheric Administration (NOAA-Fisheries)
PAT	Pop-up Archival Transmitting (tag)
RAB	Research Advisory Board
WPUE	Weight per Unit Effort

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** (formal); **REQUESTED** (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

EXECUTIVE SUMMARY

The 19th Session of the Research Advisory Board (RAB019) of the International Pacific Halibut Commission (IPHC) was held in Seattle, Washington, U.S.A. on 28 February 2018. The meeting was opened by the Chairperson, Dr David Wilson (IPHC Executive Director), who was assisted by the Vice-Chairperson, Dr Josep Planas.

The following are a subset of the complete recommendations and requests for action from the RAB019 to the Commission, which are provided within Appendix IV.

RECOMMENDATIONS

Bycatch handling practices on all fleets catching Pacific halibut

RAB019–Rec.01 (para. 7) **NOTING** that the IPHC Secretariat is currently conducting a research project evaluating handling practices associated with physiological condition and survival of discarded Pacific halibut in the directed longline fishery that will produce, as deliverables, best practice handling guidelines for the reduction or control of discard mortality rates by late 2019, the RAB reiterated its previous **RECOMMENDATION** that the IPHC Secretariat develop '*Best practice handling guidelines*' for each of the primary gear types (fixed-hook, snap gear, auto-longline, pots and trawl) which catch Pacific halibut, both directed and non-directed.

IPHC Closed Area

RAB019–Rec.02 (para. 9) The RAB **AGREED** that the IPHC Closed Area (Pacific Halibut Fishery Regulations 2018, Sect. 11) is not currently meeting its intended objective of protecting juvenile Pacific halibut when it is open to non-directed fisheries, and **RECOMMENDED**, in coordination with the NPMFC, that the IPHC Secretariat examine alternative management regimes for the Closed Area, and for these to be presented at the 96th Annual Meeting in 2020.

Chalky Pacific halibut

RAB019–Rec.03 (para. 13) The RAB reiterated its previous **RECOMMENDATION** that the IPHC Secretariat undertake research to answer the following, with the intention of developing of simple field test for chalky flesh:

a. What causes chalky flesh in Pacific halibut and to what degree? Are there particular environmental signatures (temperature, dissolved oxygen, etc.) that characterize areas with incidence of chalky flesh?

b. Why does the occurrence of chalky flesh in Pacific halibut appear to be reappearing after a period of limited occurrence in Regulatory Areas 3A and 3B in 2016, and again in 3A during the 2017 fishing period?

c. Are there differences in the occurrence of chalky flesh in males and female, as well as fish of different sizes?

Benthic habitat mapping

RAB019–Rec.04 (para. 18) The RAB **RECOMMENDED** that the IPHC include a requirement on all IPHC fishery-independent setline survey contracts, that vessels collect bathymetric composition data and provide them to the IPHC Secretariat.

Calibration of snap versus fixed gear

RAB019–Rec.05 (para. 38) The RAB **RECOMMENDED** that after the current fishery-independent setline survey expansion project has been completed in 2019, a calibration experiment be conducted to evaluate the relative catchability of snap vs fixed gear types, and the potential for including snap gear in the annual setline survey design.

1. OPENING OF THE SESSION

1. The 19th Session of the Research Advisory Board (RAB019) of the International Pacific Halibut Commission (IPHC) was held in Seattle, Washington, U.S.A. on 28 February 2018. A total of ten (10) members attended the Session from the two (2) Contracting Parties, as well as seventeen (17) IPHC staff as observers or officers. Four (4) RAB Members were absent (no apologies received). The list of participants is provided at Appendix I. The meeting was opened by the Chairperson, Dr David Wilson (IPHC Executive Director), who was assisted by the Vice-Chairperson, Dr Josep Planas.

2. ADOPTION OF THE AGENDA AND ARRANGEMENTS FOR THE SESSION

2. 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 IPHC Rules of Procedure (2017)

3. The RAB **RECALLED** its mandate as stated in the IPHC Rules of Procedure (2017) as follows:

   Appendix VII, I.1 *"The Research Advisory Board (RAB) is composed of members of the Pacific halibut community that shall suggest research ideas, review IPHC research, and 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. The RAB may also make recommendations to the Scientific Review Board concerning research plans and priorities. The Executive Director shall facilitate the RAB's meetings, as well as communication with the Commission and the other IPHC advisory bodies on the RAB's behalf."*

4. The RAB **NOTED** that in accordance with Rule 19 of the IPHC Rules of Procedure (2017), the IPHC Secretariat will undertake a detailed review of the Rules of Procedure for the consistency and appropriateness throughout the course of 2018, for consideration by the Commission at the 95th Annual Meeting in January 2019. Several key areas have been identified as needing revision or inclusion as follows:

   a. Code of Conduct: To be developed and added to cover all Board members.

   b. Chairperson and Vice-Chairperson roles and responsibilities: To expand upon Rule 10 – Functions of the Chairperson and Vice-Chairperson, to include the responsibilities associated with being an Officer of the Commission.

   c. Subsidiary Bodies: Amendment of the various appendices specific to each as necessary.

3.2 Update on the actions arising from the 18th Session of the RAB (RAB018)

5. The RAB **NOTED** paper IPHC-2018-RAB019-03 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 18th Session of the IPHC Research Advisory Board (RAB018).

6. The RAB **AGREED** to consider and revise as necessary, the actions, and for these to be combined with any new actions arising from the RAB019.

3.2.1 Bycatch handling practices on all fleets catching Pacific halibut

7. **NOTING** that the IPHC Secretariat is currently conducting a research project evaluating handling practices associated with physiological condition and survival of discarded Pacific halibut in the directed longline fishery that will produce, as deliverables, best practice handling guidelines for the reduction or control of discard mortality rates by late 2019, the RAB reiterated its previous **RECOMMENDATION** that the IPHC Secretariat develop '*Best practice handling guidelines*' for each of the primary gear types (fixed-hook, snap gear, auto-longline, pots and trawl) which catch Pacific halibut, both directed and non-directed.

3.2.2 IPHC Closed Area

8. The RAB **AGREED** that retaining the IPHC Closed Area in its current form, whereby the directed fishery is prohibited from fishing within the area, and with the intent of protecting juvenile Pacific halibut from extraction by the longline fleet, will continue to be ineffectual if other fisheries which are known to catch and have a high mortality of juveniles, such as bottom trawl, continue to be permitted access.

9. The RAB **AGREED** that the IPHC Closed Area (Pacific Halibut Fishery Regulations 2018, Sect. 11) is not currently meeting its intended objective of protecting juvenile Pacific halibut when it is open to non-directed fisheries, and **RECOMMENDED**, in coordination with the NPMFC, that the IPHC Secretariat examine alternative management regimes for the Closed Area, and for these to be presented at the 96th Annual Meeting in 2020.

3.2.3 *Chalky Pacific halibut*

10. The RAB **NOTED** that from September to October in both 2016 and 2017, industry encountered a concerning number of fish with 'chalky flesh' in the fishery. Historically, high occurrence of chalky flesh was identified in Regulatory Areas 3A and 3B of the fishery, however the occurrence there had dissipated. No link with 'mushy flesh' has been found to date.

11. The RAB **RECALLED** that the previously used pH (potential of hydrogen) testing of fish flesh, as an indication of chalky flesh, was no longer used for Pacific halibut due to the fact that the pH level described (<6.3) was not considered accurate enough, given that many fish have pH 6.3 and are not subject to chalky flesh.

12. The RAB **NOTED** that work on the study of chalky Pacific halibut involving the IPHC Secretariat was last performed in 2006 and documented in IPHC Technical Report No. 50 "*Investigating the roles of temperature and exercise in the development of chalkiness in Pacific halibut*". Conclusions of the study were indecisive, with "*failure of the experimental design to produce chalkiness in most experimental halibut*" cited as a challenge in the report.

13. The RAB reiterated its previous **RECOMMENDATION** that the IPHC Secretariat undertake research to answer the following, with the intention of developing of simple field test for chalky flesh:

    a. What causes chalky flesh in Pacific halibut and to what degree? Are there particular environmental signatures (temperature, dissolved oxygen, etc.) that characterize areas with incidence of chalky flesh?

    b. Why does the occurrence of chalky flesh in Pacific halibut appear to be reappearing after a period of limited occurrence in Regulatory Areas 3A and 3B in 2016, and again in 3A during the 2017 fishing period?

    c. Are there differences in the occurrence of chalky flesh in males and female, as well as fish of different sizes?

3.3 Outcomes of the 94th Session of the IPHC Annual Meeting (AM094)

14. The RAB **NOTED** paper IPHC-2018-RAB019-04 which provided the outcomes of the 94th Session of the IPHC Annual Meeting (AM094) relevant to the mandate of the RAB.

3.3.1 Evaluation of the IPHC's 32" minimum size limit

15. The RAB **NOTED** Commission's decision relating to the evaluation of the IPHC's 32" minimum size limit as follows:

> AM094–Rec.04 (para. 89) *The Commission NOTED report IPHC-2018-AM094-14, which indicated that the performance of the management procedure is dominated by management decisions other than the size limit, (e.g. removal of the size limit is likely to result in minimal changes in yield) and RECOMMENDED that the size limit remain unchanged.*

4. SEASON OVERVIEW

16. The RAB **NOTED** the following key 2017 fishing updates provided by RAB members, including technological advances made in-season.

4.1 Benthic habitat mapping

17. The RAB **NOTED** an impromptu presentation on how the Alaskan Longline Fishermen's Association (ALFA) has implemented a program to compile, map, and share bathymetric data collected by its members, for the purposes of making fishing operations more efficient, in terms of species targeting and avoidance.

18. The RAB **RECOMMENDED** that the IPHC include a requirement on all IPHC fishery-independent setline survey contracts, that vessels collect bathymetric composition data and provide them to the IPHC Secretariat.

4.2 Automatic Identification System (AIS) transmitters

19. The RAB **NOTED** the increasing use of AIS transmitters by the fleet to mark fishing buoys, and that the practice improved fishing efficiency, particularly for deep sets.

4.3 eLog implementation by the Canadian fleet

20. The RAB **NOTED** that the requirement for eLogs for Canadian harvesters had being implemented throughout the 2017 fishing period. The IPHC Secretariat, DFO and AMR coordinated extensively throughout 2017 to ensure the eLog (FLOAT) program in Canada, captured all of the IPHC minimum requirements. The transmission of the log(s) during vessel captain interviews by IPHC Secretariat staff in ports is an efficient and smooth process, which was transmitted from an Android™ device through a Bluetooth™ connection and eventually relayed to the IPHC Seattle office following field staff initial verification.

21. The RAB **NOTED** that eLogs are also being used in some U.S.A. fisheries (NOAA-Fisheries eLog and IPHC RDE). Some frustration was being experienced by Canadian fishers, in which updates to logs, maintaining multiple logs (hard copy, personal, and eLog), and concerns with the durability of the device and the data that it stores, were causing some difficulties. Similar frustrations were expressed by U.S.A. fishers, regarding the usability and the need for maintaining different records (NOAA-Fisheries eLog, hard copy, state hard copy, personal log, and details for the observer).

5. DESCRIPTION OF IPHC RESEARCH ACTIVITIES

5.1 Brief overview of IPHC 5-year Biological Research Program

22. The RAB **NOTED** paper IPHC-2018-RAB019-05 which outlined the research projects proposed to, and endorsed by the Commission to undertake the IPHC's 5-year Biological and Ecosystem Sciences Research Program (2018-22).

23. The RAB **NOTED** that some of the proposed research elements are paired with the IPHC fishery-independent setline survey (FISS) each year, and encouraged the continued and mutually beneficial interaction between the 5-year Biological Research Program and the FISS.

24. The RAB **ENDORSED** the general approach to research detailed in paper IPHC-2018-RAB019-05 and encouraged the IPHC Secretariat to further engage with industry to determine if more hands-on research could be undertaken in collaboration with the fleet.

5.2 Ongoing research activities

5.2.1 IPHC fishery-independent setline survey expansion and densification (R. Webster)

25. The RAB **NOTED** paper IPHC-2018-RAB019-06 which provided an overview of the IPHC fishery-independent setline survey (FISS, or setline survey) expansion undertaken in 2017, in Regulatory Areas 4B and 2A.

26. The RAB **NOTED** that:

    a. there is evidence that fishing is poor following seismic events, and that the IPHC Secretariat may consider exploring the relationship between setline survey catches and seismic events.

b. (through a series of questions) there was desire for clarification of the design, purpose and future of setline survey expansions. The IPHC Secretariat explained that the setline survey expansion station locations are identified by extrapolating the current 10 nmi grid into unsurveyed habitat within the 10-400 fm range, and provided background on the motivation and design of the ad-hoc densified setline survey grid off the WA coast. Following the completion of the current expansion program (end of 2019), an evaluation of the setline survey (including expansion stations) will be undertaken in order to determine an optimal setline survey design moving forward.

c. a number of setline survey stations regularly have zero catch rates, and questioned the need for repeatedly surveying such stations. The frequency with which such areas should be surveyed will be part of the evaluation that follows the completion of the setline survey expansion in 2019.

5.2.2 Reproductive assessment of the Pacific halibut population

27. The RAB **NOTED** paper IPHC-2018-RAB019-07 which outlined the research project describing studies designed to improve our knowledge on reproductive development in female and male Pacific halibut.

5.2.3 Sex-marking at sea and genetic validation of sex identification

28. The RAB **NOTED** paper IPHC-2018-RAB19-08 which outlined current progress of the at-sea sex marking project and the development of genetic assays for sex identification.

29. The RAB **NOTED** the concerns from fishery participants regarding the absence of sampling of all marked offloads of Pacific halibut due to the random nature of the sampling efforts, given the effort required and the positive experience from the fleet regarding their participation in efforts to identify the sex ratio of the commercial catch.

30. The RAB **NOTED** that the IPHC Secretariat may continue its sex-marking at-sea project in 2019 once the results from all the genetic samples from the 2017 sampling effort are processed and the results analysed and interpreted.

5.2.4 Factors affecting somatic growth in juvenile Pacific halibut

31. The RAB **NOTED** paper IPHC-2018-RAB019-09 which outlined the studies on growth in juvenile Pacific halibut by the IPHC Secretariat.

5.2.5 Discard mortality rates and post-release survival in the directed Pacific halibut fishery

32. The RAB **NOTED** paper IPHC-2018-RAB019-10 which outlined the research project describing studies designed to improve our estimates of discard mortality rates in the directed Pacific halibut longline fishery.

33. The RAB **NOTED** that the IPHC Secretariat is working with the longline fleet to determine if there are improved ways to assess condition/injury classification relative to release methods, thereby providing improved data accuracy. This requires an ability to observe releases without influencing the handling of the fish.

5.2.6 Migratory behavior and distribution of Pacific halibut

34. The RAB **NOTED** paper IPHC-2018-RAB019-11 which outlined the research projects describing studies designed to improve our knowledge on Pacific halibut distribution and migration at all life stages, including the connectivity of Pacific halibut between the Gulf of Alaska and Bering Sea.

35. The RAB **NOTED** that larval connectivity studies were concentrated in the west, but connectivity of Regulatory Area 2 to other areas is also of interest. The IPHC Secretariat explained that the historical dataset being used is from NOAA larval surveys (plankton tows) and sampling in the eastern Gulf of Alaska has been minimal compared to the western areas. Likewise, it was pointed out that in the limited amount of data that have been collected in Regulatory Area 2 there have been very few larval Pacific halibut encountered, probably reflecting in part the limited spawning activity in this compared to other Regulatory Areas, making a larval connectivity study in this region impractical at this time.

5.2.7 IPHC research topics selected for 2018

36. The RAB **NOTED** paper IPHC-2018-RAB019-12 which outlined the new research projects by the IPHC Secretariat for 2018, and approved by the Commission at its 94th Annual Meeting.

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

6.1 Calibration of snap versus fixed gear

37. The RAB **NOTED** that the IPHC Secretariat and one of its associated graduate students, had previously conducted an extensive analysis of the directed Pacific halibut fishery CPUE in an effort to better understand data limitations, targeting behaviour, gear use and the differences in catchability among primary gear types (fixed-hook, snap gear, and autoline). This work indicated that current methods for subsetting logbook records were producing similar trends to more complex approaches using all available catch-rate information. The research paper associated with this work may be downloaded from the IPHC website:

    Monnahan CC and Stewart IJ (2015) Evaluation of commercial logbook records: 1991-2013. IPHC Report of Assessment and Research Activities 2014. p. 213-220. *https://iphc.int/library/documents/report-of-research-assessment-and-research-activities-rara/2014-report-of-assessment-and-research-activities*.

38. The RAB **RECOMMENDED** that after the current fishery-independent setline survey expansion project has been completed in 2019, a calibration experiment be conducted to evaluate the relative catchability of snap vs fixed gear types, and the potential for including snap gear in the annual setline survey design.

39. The RAB **AGREED** that the potential benefits of changes to the FISS design, such as including additional vessels using snap gear, should be weighed carefully against the possibility of introducing additional variance and undermining stakeholder confidence in the approach.

6.2 Whale depredation

40. The RAB **NOTED** that the IPHC Secretariat had proposed a research project on whale detection methods to commence in FY2018, though the Commission deferred the project's commencement to FY2019 for budgetary reasons. Thus, the following project will be implemented during the 2019 fishing period:

    Project 2018-3 ("Whale detection methods") proposes testing electronic monitoring-based methods to detect whale presence in the directed longline Pacific halibut fishery.

41. The RAB **NOTED** the importance of real-time tracking and the current efforts being undertaken on whale presence and inter-vessel communication.

42. The RAB **REQUESTED** that the IPHC Secretariat evaluate possible gear solutions for avoiding whale depredation, such as pot gear.

6.3 Alterations of flesh characteristics: mushy Pacific halibut

43. The RAB **NOTED** that the occurrence of mushy flesh in Pacific halibut appears not to be a great concern in the fishery in recent seasons.

6.4 Other topics of interest suggested by the Board

6.4.1 Hypoxia

44. The RAB **NOTED** that the mean setline survey WPUE in Oregon and California was similar in 2017 to 2016, while WPUE in Washington was down considerably. This could imply that the decrease overall of Regulatory Area 2A was attributable to the hypoxic zone off the Washington coast. However, if Pacific halibut simply moved to other locations within Regulatory Area 2A to avoid this zone, we may have expected to see a decrease in average catch rates even in the absence of hypoxia off the Washington coast. That is, the hypoxic zone may have led to a redistribution of Pacific halibut without affecting overall average catch rates.

45. **NOTING** the importance of continuing to collect environmental data during the FISS, the RAB URGED the IPHC Secretariat to consider ideas on how to better understand Pacific halibut behaviour in relation to environmental variability.

46. The RAB **NOTED** that the hypoxic event off the Washington coast that occurred during 2017 affected the catch rates on the Washington ad-hoc densification of the setline survey grid. As a result, the Commission directed the IPHC Secretariat to replicate the ad-hoc densification off the Washington coast in the 2018 setline survey. It was highlighted that there was a minor effect of the densified expansion grid on the precision of Regulatory Area 2A estimates of WPUE in 2017.

6.4.2 IPHC Fishery-independent setline survey bait standards

47. The RAB **NOTED** that due to the scientific nature of the IPHC's fishery-independent setline survey (FISS), IPHC bait quality and standardization requirements exceed those normally provided by industry as bait chum salmon (*Oncorhynchus keta*). The minimum grade of chum salmon for the FISS is #2 semi-bright or better with "meat" colored flesh (Alaska Seafood Marketing Institute grade A to E). Fish of a higher quality are acceptable but not preferred over the minimum. IPHC Sea Samplers are instructed to inspect the bait when loaded on FISS vessels and to contact the office immediately if the bait does not meet standards. If bad or soured bait is set, the station is considered unsuccessful and ineffective and must be hauled and set again after a waiting period of 48 hours. There were no reports from the 2017 FISS season that bait not meeting IPHC quality standards was set.

7. OTHER BUSINESS

7.1 Date and place of the 20th and 21st Sessions of the IPHC Research Advisory Board

48. The RAB **NOTED** the IPHC meetings calendar (2018-20) adopted by the Commission at its 94th Session included the next two Sessions of the RAB as detailed in Table 1.

49. **NOTING** that this is the first time the RAB has been held in February, the RAB **AGREED** that the IPHC Secretariat should liaise with RAB members, especially those unable to attend the 19th Session, to consider other date options that avoid fishing conflicts, while still serving the Commission's research planning needs.

Table 1. RAB meeting schedule (2019 and 2020)

Meeting	2019			2020		
	Session	**Date**	**Location**	**Session**	**Date**	**Location**
Research Advisory Board (RAB)	20th	27 February	Seattle, WA, U.S.A.	21st	26th February	Seattle, WA, U.S.A.

8. REVIEW OF THE DRAFT AND ADOPTION OF THE REPORT OF THE 19TH SESSION OF THE IPHC RESEARCH ADVISORY BOARD (RAB019)

50. The report of the 19th Session of the Research Advisory Board (IPHC-2018-RAB019-R) was **ADOPTED** via correspondence on 09 March 2018, including the consolidated set of recommendation and requests arising from the RAB019, 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@iphc.int	Dr Josep **Planas** Branch Head: Biological and Ecosystem Sciences Branch, International Pacific Halibut Commission Email: josep@iphc.int

RAB Members

Canada	United States of America
Mr Dave **Boyes** Email: mcboyes@icloud.com	Mr Steve **Daniels** Email: sdindigo@gmail.com
Mr Art **Davidson** Email: artdavidson@telus.net	Mr Lando **Echevario** Email: lechevario@yahoo.com
	Mr Bruce **Gabrys** Email: gabryscpa@mtaonline.net
	Mr Jim **Hubbard** Email: kruzof@ak.net
	Mr Scott **Mazzone** Email: smazzone@quinault.org
	Mr Charles **McEldowney** Email: charlesM@icicleseafoods.com
	Mr Al **Pazar** Email: alpazar@gmail.com
	Mr Stephen **Rhoads** Email: deep_pow@hotmail.com
Absent	
Mr Brad **Mirau** Email: brad@aerotrading.ca	Mr Lu **Dochtermann** Email: DochtermannLudger@gmail.com
Mr Richie **Shaw** Email: SOIpow@recn.ca	Mr Jay **Hebert** Email: jjpeche@comcast.net

IPHC Secretariat

Name	Position and email
Dr David **Wilson**	Executive Director, david@iphc.int
Mr Stephen **Keith**	Assistant Director, steve@iphc.int
Mr Claude **Dykstra**	Research Biologist, claude@iphc.int
Ms Lara **Erikson**	Commercial Fisheries Data Program Manager, lara@iphc.int
Ms Joan **Forsberg**	Age Laboratory Supervisor, joan@iphc.int
Ms Jamie **Goen**	Fisheries Statistics and Services Branch Manager, jamie@iphc.int
Dr Allan **Hicks**	Quantitative Scientist, allan@iphc.int
Mr Ed **Henry**	Survey Technical Operations Coordinator, ed@iphc.int
Mr Chris **Johnston**	Age Laboratory Technician, chris@iphc.int
Dr Timothy **Loher**	Research Scientist, tim@iphc.int
Dr Josep **Planas**	Biological and Ecosystem Sciences Branch Manager, josep@iphc.int

Ms Lauri **Sadorus**	Research Biologist, lauri@iphc.int
Ms Anna **Simeon**	Biological Science Laboratory Technician, anna@iphc.int
Mr Eric **Soderlund**	Survey Vessel Operations Coordinator, eric@iphc.int
Dr Ian **Stewart**	Quantitative Scientist, ian@iphc.int
Dr Ray **Webster**	Quantitative Scientist, ray@iphc.int
Ms Colin **Winkowski**	Survey HR Coordinator, colin@iphc.int

APPENDIX II
AGENDA FOR THE 19TH SESSION OF THE IPHC RESEARCH ADVISORY BOARD (RAB019)

Date: 28 February 2018
Location: Seattle, Washington, U.S.A.
Venue: IPHC Training Room, Salmon Bay
Time: 09:00-17:30 (Schedule below)
Chairperson: Dr David T. Wilson (IPHC Executive Director)
Vice-Chairperson: Dr Josep Planas (IPHC Biological & Ecosystem Science Branch Manager)

1. OPENING OF THE SESSION (Chairperson)

2. ADOPTION OF THE AGENDA AND ARRANGEMENTS FOR THE SESSION (Chairperson)

3. IPHC PROCESS

- 3.1 IPHC Rules of Procedure (2017)
- 3.2 Update on the actions arising from the 18th Session of the RAB (RAB18)
- 3.3 Outcomes of the 94th Session of the IPHC Annual Meeting (AM094)

4. SEASON OVERVIEW: RAB MEMBERS

5. DESCRIPTION OF IPHC RESEARCH ACTIVITIES (J. Planas & Project leaders)

- 5.1 Brief overview of IPHC 5-year Biological Research Program (J. Planas)
- 5.2 Ongoing research activities (Project leaders)
  - 5.2.1 IPHC fishery-independent setline survey expansion and densification (R. Webster)
  - 5.2.2 Reproductive assessment of the Pacific halibut population (J. Planas)
  - 5.2.3 Sex-marking at sea and genetic validation of sex identification (T. Loher)
  - 5.2.4 Factors affecting somatic growth in juvenile Pacific halibut (J. Planas)
  - 5.2.5 Discard mortality rates and post-release survival in the directed Pacific halibut fishery (C. Dykstra)
  - 5.2.6 Migratory behavior and distribution of Pacific halibut (T. Loher, L. Sadorus)
- 5.3 IPHC research topics selected for 2018 (J. Planas)

6. GUIDANCE ON, AND DISCUSSION OF, OTHER POTENTIAL APPLIED RESEARCH PROJECTS (Chairperson)

- Review of minimum size limit and discussion of maximum size limit
- Calibration of snap versus fixed gear
- Whale depredation
- Alterations of flesh characteristics: chalky and mushy Pacific halibut
- Other topics of interest suggested by the Board

7. OTHER BUSINESS

- 7.1 Date and place of the 20th and 21st Sessions of the IPHC Research Advisory Board (Chairperson)

8. REVIEW OF THE DRAFT AND ADOPTION OF THE REPORT OF THE 19th SESSION OF THE IPHC RESEARCH ADVISORY BOARD (RAB19) (Chairperson)

APPENDIX III
LIST OF DOCUMENTS FOR THE 19TH SESSION OF THE IPHC RESEARCH ADVISORY BOARD (RAB019)

Document	Title	Availability
IPHC-2018-RAB019-01	Agenda & Schedule for the 19th Session of the IPHC Research Advisory Board (RAB019)	✓ 30 Nov 2017
IPHC-2018-RAB019-02	List of Documents for the 19th Session of the IPHC Research Advisory Board (RAB019)	✓ 18 Jan 2018 ✓ 22 Feb 2018
IPHC-2018-RAB019-03	Update on the actions arising from the 18th Session of the RAB (RAB018) (IPHC Secretariat)	✓ 26 Jan 2018
IPHC-2018-RAB019-04	Outcomes of the 94th Session of the IPHC Annual Meeting (AM094) (IPHC Secretariat)	✓ 22 Feb 2018
IPHC-2018-RAB019-05	Overview: IPHC 5-year research program (2018-2023) (J. Planas)	✓ 26 Jan 2018
IPHC-2018-RAB019-06	IPHC fishery-independent setline survey expansion and densification (R. Webster)	✓ 29 Jan 2018
IPHC-2018-RAB019-07	Reproductive assessment of the Pacific halibut population (J. Planas)	✓ 26 Jan 2018
IPHC-2018-RAB019-08	Sex-marking at sea and genetic validation of sex identification (T. Loher)	✓ 29 Jan 2018
IPHC-2018-RAB019-09	Factors affecting somatic growth in juvenile Pacific halibut (J. Planas)	✓ 26 Jan 2018
IPHC-2018-RAB019-10	Discard mortality rates and post-release survival in the directed Pacific halibut fishery (C. Dykstra)	✓ 26 Jan 2018
IPHC-2018-RAB019-11	Migratory behavior and distribution of Pacific halibut (T. Loher, L. Sadorus)	✓ 29 Jan 2018
IPHC-2018-RAB019-12	IPHC research topics selected for 2018 (J. Planas)	✓ 26 Jan 2018

APPENDIX IV
CONSOLIDATED SET OF RECOMMENDATIONS OF THE 19TH SESSION OF THE IPHC RESEARCH ADVISORY BOARD (RAB19) TO THE COMMISSION

RECOMMENDATIONS

Bycatch handling practices on all fleets catching Pacific halibut

RAB019–Rec.01 (para. 7) **NOTING** that the IPHC Secretariat is currently conducting a research project evaluating handling practices associated with physiological condition and survival of discarded Pacific halibut in the directed longline fishery that will produce, as deliverables, best practice handling guidelines for the reduction or control of discard mortality rates by late 2019, the RAB reiterated its previous **RECOMMENDATION** that the IPHC Secretariat develop '*Best practice handling guidelines*' for each of the primary gear types (fixed-hook, snap gear, auto-longline, pots and trawl) which catch Pacific halibut, both directed and non-directed.

IPHC Closed Area

RAB019–Rec.02 (para. 9) The RAB **AGREED** that the IPHC Closed Area (Pacific Halibut Fishery Regulations 2018, Sect. 11) is not currently meeting its intended objective of protecting juvenile Pacific halibut when it is open to non-directed fisheries, and **RECOMMENDED**, in coordination with the NPMFC, that the IPHC Secretariat examine alternative management regimes for the Closed Area, and for these to be presented at the 96th Annual Meeting in 2020.

Chalky Pacific halibut

RAB019–Rec.03 (para. 13) The RAB reiterated its previous **RECOMMENDATION** that the IPHC Secretariat undertake research to answer the following, with the intention of developing of simple field test for chalky flesh:

a. What causes chalky flesh in Pacific halibut and to what degree? Are there particular environmental signatures (temperature, dissolved oxygen, etc.) that characterize areas with incidence of chalky flesh?

b. Why does the occurrence of chalky flesh in Pacific halibut appear to be reappearing after a period of limited occurrence in Regulatory Areas 3A and 3B in 2016, and again in 3A during the 2017 fishing period?

c. Are there differences in the occurrence of chalky flesh in males and female, as well as fish of different sizes?

Benthic habitat mapping

RAB019–Rec.04 (para. 18) The RAB **RECOMMENDED** that the IPHC include a requirement on all IPHC fishery-independent setline survey contracts, that vessels collect bathymetric composition data and provide them to the IPHC Secretariat.

Calibration of snap versus fixed gear

RAB019–Rec.05 (para. 38) The RAB **RECOMMENDED** that after the current fishery-independent setline survey expansion project has been completed in 2019, a calibration experiment be conducted to evaluate the relative catchability of snap vs fixed gear types, and the potential for including snap gear in the annual setline survey design.

REQUESTS

Whale depredation

RAB019–Req.01 (para. 42) The RAB **REQUESTED** that the IPHC Secretariat evaluate possible gear solutions for avoiding whale depredation, such as pot gear.