Report of the 20th Session of the IPHC Research Advisory Board (RAB020)

Seattle, Washington, United States of America, 27 February 2019

Commissioners

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BIBLIOGRAPHIC ENTRY
IPHC 2019. Report of the 20th Session of the IPHC Research Advisory Board (RAB020). Seattle, Washington, U.S.A., 28 February 2018. *IPHC–2019–RAB020–R, 20 pp.*

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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

DEFINITIONS

A set of working definitions are provided in the IPHC Glossary of Terms and abbreviations: https://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 20th Session of the Research Advisory Board (RAB020) of the International Pacific Halibut Commission (IPHC) was held in Seattle, Washington, U.S.A. on 27 February 2019. The meeting was opened by the Vice-Chairperson Dr Josep Planas.

The following are a subset of the complete recommendations and requests for action from the RAB020 to the Commission, which are provided within Appendix IV.

RECOMMENDATIONS

IPHC Closed Area

RAB020-Rec.01 (para. 10) The RAB **AGREED** that the IPHC Closed Area (Pacific Halibut Fishery Regulations 2019, 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 Session of the IPHC Annual Meeting (AM096) in 2020.

REQUESTS

Effects of long-line gear on benthic habitats, lost gear, and spatial patterns in fishing

RAB020-Req.01 (para. 21) The RAB **NOTED** the limitations imposed on the fishing industry by the growing number of marine conservation areas that restrict particular fishing activities, and **REQUESTED** that the IPHC consider research examining the following aspects of the longline fishery:

a. The impact of longline gear on the ocean bottom, including how much habitat disturbance is created by setting and retrieving the gear;

b. The magnitude and impact of lost and abandoned longline gear over time; and

c. The extent of the geographic footprint (the bottom area directly affected) of longline gear.

Black cod pot fishing

RAB020-Req.02 (para. 24) The RAB **NOTED** the increasing use of pot gear to fish for sablefish in Alaska, and **REQUESTED** the IPHC gather data on the effect of this shift, including potentially:

a. How this change affects the catch of Pacific halibut in the sablefish fishery;

b. How the gear shift in the sablefish fishery might drive whale predation toward the Pacific halibut fishery; and

c. The change in these effects over time.

Impact of recreational fishery releases

RAB020-Req.03 (para. 29) The RAB **NOTED** the possibility of engaging recreational fishers in data collection efforts in order to better characterize the population of Pacific halibut released in the fishery, and **REQUESTED** that the IPHC Secretariat begin to explore such research possibilities, including guidance and best practices that might be required.

RAB020-Req.04 (para. 30) The RAB **NOTED** that recreational fishing logs may be left incomplete, in particular with regard to numbers of fish caught and released, and **REQUESTED** that the IPHC Secretariat work with relevant Contracting Party agencies to encourage and enforce complete data collection.

1. OPENING OF THE SESSION

1. The 20th Session of the Research Advisory Board (RAB020) of the International Pacific Halibut Commission (IPHC) was held in Seattle, Washington, U.S.A. on 27 February 2019. A total of seven (7) members attended the Session from the two (2) Contracting Parties, as well as two (2) observers and 19 IPHC Secretariat staff as observers or officers. Six (6) RAB Members were absent (apologies received from Art Davidson, Stephen Rhoads, Brad Mirau, and Richie Shaw). The list of participants is provided at Appendix I. The meeting was opened by the Vice-Chairperson, Dr Josep Planas, who welcomed participants to Seattle.
2. The RAB **EXPRESSED** its condolences for the recent departure of Mr Bruce Gabrys, who passed away at the end of January 2019.

2. ADOPTION OF THE AGENDA AND ARRANGEMENTS FOR THE SESSION

3. 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 (2019)

4. The RAB **RECALLED** its mandate as stated in the IPHC Rules of Procedure (2019) as follows:
   Appendix VII, I.1-3 *"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. The RAB may also make recommendations to the Scientific Review Board concerning research plans and priorities for its consideration. The Executive Director shall Chair the RAB's meetings, as well as communication with the Commission and the other IPHC subsidiary bodies on the RAB's behalf.*"
5. The RAB **NOTED** the revisions to the IPHC Rules of Procedure adopted by the Commission at its 95th Session of the Annual Meeting (AM095): *IPHC Rules of Procedure (2019)*.

3.2 Update on the actions arising from the 19th Session of the RAB (RAB019)

6. The RAB **NOTED** paper IPHC-2019-RAB020-03 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 19th Session of the IPHC Research Advisory Board (RAB019).
7. The RAB **AGREED** to consider and revise as necessary, the actions, and for these to be combined with any new actions arising from the RAB020.

3.2.1 Bycatch handling practices on all fleets catching Pacific halibut

8. **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

9. 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.
10. The RAB **AGREED** that the IPHC Closed Area (Pacific Halibut Fishery Regulations 2019, 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 Session of the IPHC Annual Meeting (AM096) in 2020.

3.2.3 Chalky Pacific halibut

11. See discussion at item 6.3.2 below.

3.2.4 Benthic habitat mapping

12. The RAB **NOTED** that the IPHC has begun collecting bathymetric data during all IPHC fishery-independent setline survey (FISS), and that this was a requirement for all contracted vessels in 2019.

3.2.5 Calibration of snap versus fixed gear

13. See discussion at item 5.2 below.

3.2.6 Whale depredation

14. See discussion at item 6.3.1 below.

3.3 Outcomes of the 95th Session of the IPHC Annual Meeting (AM095)

15. The RAB **NOTED** paper IPHC-2019-RAB020-04 which provided the outcomes of the 95th Session of the IPHC Annual Meeting (AM095) relevant to the mandate of the RAB.

3.3.1 Total mortality accounting

16. The RAB **NOTED** that, at the AM095, the Commission recommended evaluating and redefining TCEY, and that the IPHC Secretariat will evaluate this question during the year leading up to AM096;

> AM095–Rec.04 (para. 66) *The Commission **RECOMMENDED** evaluating and redefining TCEY to include the U26 component of discard mortalities, including bycatch, as steps towards more comprehensive and responsible management of the resource, in coordination with the IPHC Secretariat and Contracting Parties. The intent is that each Contracting Party to the Treaty would be responsible for counting its U26 mortalities against its collective TCEY. This change would be intended to take effect for TCEYs established at the 2020 Annual Meeting.*

3.3.2 Empirical mortality limit-setting methodology

17. The RAB **NOTED** that the Commission discussed an empirical (survey-based) mortality limit-setting methodology at AM095, and that the IPHC Management Strategy Advisory Board is considering including such approaches in the IPHC Management Strategy Evaluation program of work, and **AGREED** that such an approach was worth considering:

> AM095 (para. 52) *The Commission **NOTED** the potential benefits in terms of transparency and simplicity, of a management procedure setting mortality limits directly from modelled survey results, particularly for long-lived species where year-to-year demographic change will be relatively minor.*

4. SEASON OVERVIEW

18. The RAB **NOTED** the following key 2018 fishing updates provided by RAB members.

4.1 Effect of yelloweye rockfish abundance on spatial distribution of Pacific halibut harvest

19. The RAB **NOTED** that an abundance of yelloweye rockfish (*Sebastes ruberrimus*) in IPHC Regulatory Area 2B in the vicinity of Haida Gwaii, in conjunction with relatively low bycatch limits, is resulting in an elimination of the Pacific halibut fishery from these areas and a shift in the spatial distribution of the fishery to other grounds in the Convention Area.

4.2 Marine mammal interactions

20. The RAB **NOTED** continuing interaction of the Pacific halibut longline fishery with marine mammals in IPHC Regulatory Areas 2B and 4D; additionally noting that the inshore grounds on 2B remain relatively

unaffected while both orca (*Orcinus orca*) and sperm whales (*Physeter macrocephalus*) were encountered along the continental shelf break; and that high rates of orca along the 4D continental shelf edge appear to be causing a marked shift in eastern Bering Sea fishing effort to the grounds adjacent to St. Matthew Island.

4.3 Effects of long-line gear on benthic habitats, lost gear, and spatial patterns in fishing

21. The RAB **NOTED** the limitations imposed on the fishing industry by the growing number of marine conservation areas that restrict particular fishing activities, and **REQUESTED** that the IPHC consider research examining the following aspects of the longline fishery:

    a. The impact of longline gear on the ocean bottom, including how much habitat disturbance is created by setting and retrieving the gear;

    b. The magnitude and impact of lost and abandoned longline gear over time; and

    c. The extent of the geographic footprint (the bottom area directly affected) of longline gear.

22. The RAB **NOTED** that the IPHC has recently provided data on lost gear in response to a request from the Pacific Halibut Management Association (PHMA), and intends to make such data publicly available on the website.

23. The RAB **NOTED** that the IPHC is currently engaged in a cooperative study with DFO to examine the footprint of the Pacific halibut fishery in Canada before and after rationalization of the fishery.

4.4 Black cod pot fishing

24. The RAB **NOTED** the increasing use of pot gear to fish for sablefish in Alaska, and **REQUESTED** the IPHC gather data on the effect of this shift, including potentially:

    a. How this change affects the catch of Pacific halibut in the sablefish fishery;

    b. How the gear shift in the sablefish fishery might drive whale predation toward the Pacific halibut fishery; and

    c. The change in these effects over time.

25. The RAB **NOTED** that the IPHC currently samples landings of Pacific halibut caught in pot gear in the same manner as Pacific halibut caught with longline gear.

4.5 Environmental effects in IPHC Regulatory Area 2A

26. The RAB **DISCUSSED** the potential effect of hypoxic zones on catch in the IPHC fishery-independent setline survey (FISS) as well as in the commercial fishery in IPHC Regulatory Area 2A, and **NOTED** that IPHC analysis to date has shown no meaningful effect on space-time modelling of survey data results over time.

27. The RAB **NOTED** the importance of monitoring domoic acid levels as part of oceanographic monitoring efforts and **SUGGESTED** that the IPHC consider the possibility of collecting domoic acid level information during the oceanographic monitoring conducted as part of the FISS.

4.6 Impact of recreational fishery releases

28. The RAB **NOTED** that large numbers of fish are handled in the recreational fisheries that may not be accounted for because they are discarded at unknown rates; that fishers may not employ careful release methods; that the range and relative distribution of handling practices and prior-hooking injuries is currently undocumented; and that the IPHC will initiate research in 2019 to investigate discard mortality rates (DMR) in the recreational fisheries.

29. The RAB **NOTED** the possibility of engaging recreational fishers in data collection efforts in order to better characterize the population of Pacific halibut released in the fishery, and **REQUESTED** that the IPHC Secretariat begin to explore such research possibilities, including guidance and best practices that might be required.

30. The RAB **NOTED** that recreational fishing logs may be left incomplete, in particular with regard to numbers of fish caught and released, and **REQUESTED** that the IPHC Secretariat work with relevant Contracting Party agencies to encourage and enforce complete data collection.

4.7 Animal handling practices in fisheries

31. The RAB **NOTED** the attention that animal handling and kill practices in other food industries have attracted, and **SUGGESTED** that documentation of best animal handling and kill practices in fisheries might be useful to the fishing industry.

4.8 Hook standardization

32. The RAB **NOTED** an impromptu presentation on the variation in hooks available to fishers, posing the question of whether such variation could affect CPUE in the commercial fishery and the IPHC FISS, or public perception of IPHC FISS results. The RAB **CONSIDERED** several options regarding this question, including:

    a. Continue with present FISS practice and note new developments in hook design as they take place, noting that the current FISS practice already incorporates a degree of variability in equipment among vessels participating in the FISS;

    b. Standardise the FISS to use a particular make and model hook, noting that there is no international standard for hook sizes;

    c. Conduct a study of catch using different hook designs, noting that differences in catchability could be difficult to detect among potentially confounding variables.

33. The RAB **RECOMMENDED** that the IPHC consider standardising the FISS to use a particular model hook and to encourage each vessel to begin its FISS contract work each year with all new hooks.

5. IPHC FISHERY-INDEPENDENT SETLINE SURVEY

5.1 2019 FISS season: Expansion in IPHC Regulatory Areas 3A and 3B

34. The RAB **NOTED** paper IPHC-2019-RAB020-06 which provided an overview of the International Pacific Halibut Commission's (IPHC) fishery-independent setline survey (FISS) design and implementation in 2019, including the last year of the expansion series in IPHC Regulatory Areas 3A and 3B.

5.2 2019 FISS gear comparison: Fixed versus snap gear in IPHC Regulatory Area 2C

35. The RAB **NOTED** that the IPHC Secretariat will be undertaking a gear comparison during the 2019 FISS to compare the catch-rates of fixed-hook and snap gear. The comparison will evaluate whether data from both gear types can be used in the calculation of indices, and how data collected on the FISS compare to that obtained from the snap and fixed-hook gear used by the commercial fishery. All stations in IPHC Regulatory Area 2C will be fished twice, once by the FISS standard of fixed-hook gear and once by snap gear (with the order of fishing by each gear assigned randomly).

5.3 Utility of the IPHC FISS as a research platform

36. The RAB **NOTED** that the FISS might be able to provide a research platform to help close data gaps in other oceanographic and marine biological research, for example, the density and extent of domoic acid-producing organisms.

6. DESCRIPTION OF IPHC RESEARCH ACTIVITIES

6.1 Overview: IPHC 5-year Biological and Ecosystem Sciences Research Program (2017-21)

37. The RAB **NOTED** paper IPHC-2019-RAB020-05 which outlined the research projects proposed to, and endorsed by, the Commission, and provided an overview of the IPHC's 5-year Biological and Ecosystem Sciences Research Program (2017-21).

38. The RAB **NOTED** that some of the proposed research elements are paired with the IPHC fishery-independent setline survey (FISS) each year.

39. The RAB **ENDORSED** the general approach to research detailed in paper IPHC-2019-RAB020-05 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.

6.2 Core research streams: Updates for key ongoing research activities

6.2.1 Migration

6.2.1.1 Migratory behavior and distribution of Pacific halibut

40. 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.

41. The RAB **NOTED** the ongoing IPHC research into Pacific halibut migration, and **REQUESTED** that the IPHC Secretariat incorporate into its research the question of how changing ocean conditions might affect both migration rates and stock distribution over time.

6.2.2 Reproduction

6.2.2.1 Reproductive assessment of the Pacific halibut population

42. The RAB **NOTED** paper IPHC-2019-RAB020-07, which outlined the research project describing studies designed to improve our knowledge on reproductive development in female and male Pacific halibut.

6.2.2.2 Sex-marking at sea and applications of genetics to determine the sex ratio of the commercial catch

43. The RAB **NOTED** paper IPHC-2019-RAB020-08, which outlined the completion of the at-sea sex marking project and the application of genetic assays for sex identification in the commercial landings.

6.2.3 Growth

6.2.3.1 Factors affecting somatic growth in Pacific halibut

44. The RAB **NOTED** paper IPHC-2019-RAB020-09, which outlined the studies on growth in juvenile Pacific halibut by the IPHC Secretariat.

45. The RAB **NOTED** that biological data on Pacific halibut caught in the FISS are now displayed in the interactive tools on the IPHC website.

6.2.4 Discard mortality rates

6.2.4.1 Discard mortality rates and post-release survival in the Pacific halibut fisheries

46. 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.

47. 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.

6.2.5 Genetics and Genomics

6.2.5.1 Application of genetics and genomics to improve our knowledge on population structure and distribution

48. The RAB **NOTED** that current IPHC Project 2019-01 ("*Integrating migration and genetics research to refine Pacific halibut population structure, distribution and movement*") proposes studies to improve our understanding of spawning site contributions to nursery areas in relation to year-class and recruit survival and strength, as well as of the relationship between nursery origin and adult distribution and abundance over temporal and spatial scales through the application of genetic approaches to address management-

relevant questions on population structure, distribution and movement, and that this project includes collecting genetic samples from spawning fish in western IPHC Regulatory Area 4B to fill a lack of data from that area.

6.3 IPHC research topics selected for 2019

49. The RAB **CONSIDERED** the degree which the selection of IPHC-funded research projects is weighed against the economic value of problems to be studied and **NOTED** that the perceived importance of a particular issue, such as chalkiness, to either the fishery or the public may be a factor in deciding where to allocate research resources, notwithstanding the economic impact of the topic of scientific inquiry. Issues that have a bearing upon specific constituencies or harvest sectors may have economic impacts that are locally important but regionally less important.

6.3.1 Whale depredation

50. The RAB **NOTED** that the IPHC Secretariat had proposed a research project on whale detection methods to commence in 2018, though the Commission deferred the project's commencement to 2019 for budgetary reasons. Thus, the following project will be implemented during the 2019 fishing period: Project 2019-02 ("Whale detection methods") proposes testing electronic monitoring-based methods to detect whale presence in the directed longline Pacific halibut fishery.

51. The RAB **NOTED** that the IPHC Secretariat is engaged in research with other partners to evaluate the effectiveness of whale detection techniques.

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

6.3.2 Alterations of flesh characteristics: chalky Pacific halibut

53. The RAB **NOTED** that the IPHC Secretariat is undertaking a survey in 2019 gather information that would assist in answering the following questions.

    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 variable, i.e. high incidence until about 2010 and then 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 females, as well as fish of different sizes?

54. The RAB **NOTED** that offer from some RAB members to assist in development of the survey questionnaire to gather data on the incidence of chalky Pacific halibut, and that it would be useful when conducting the survey to recruit fishers and processors ahead of time so that they would be better prepared to provide useful data.

6.3.3 Bycatch reduction

55. The RAB **NOTED** the IPHC Secretariat is participating in Project 2019-04 ("*Use of LEDs to reduce Pacific halibut catches before trawl entrainment*"), which proposes evaluating whether artificial illumination (e.g. LEDs) in trawl gear can reduce Pacific halibut bycatch before trawl entrainment in relation to the physiological condition of the fish. This study will be performed in the framework of a Bycatch Reduction Engineering Program (BREP-NOAA)-funded study led by Pacific States Marine Fisheries Commission, in which the IPHC is a collaborating partner.

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

56. The RAB **NOTED** a request from the IPHC Secretariat to consider acceptable levels of aggregation and/or elapsed time for making commercial logbook data public, noting that this might make it easier to use the data in support of public presentation and discussion within the IPHC process, as well as making more

historical data available to the public than is now the case under the IPHC's current data confidentiality practices.

8. OTHER BUSINESS

8.1 Date and place of the 21st and 22nd Sessions of the IPHC Research Advisory Board

57. The RAB **NOTED** the IPHC meetings calendar (2019-21) adopted by the Commission at its 95th Session included the next two Sessions of the RAB.

58. The RAB **REQUESTED** that the IPHC Secretariat consider dates earlier in February for RAB021 and RAB022 in order to enable better participation by current or potential RAB members.

9. REVIEW OF THE DRAFT AND ADOPTION OF THE REPORT OF THE 20TH SESSION OF THE IPHC RESEARCH ADVISORY BOARD (RAB020)

59. The report of the 20th Session of the Research Advisory Board (IPHC-2019-RAB020-R) was **ADOPTED** via correspondence on 5 March 2019, including the consolidated set of recommendation and requests arising from the RAB020, provided at Appendix IV.

APPENDIX I
LIST OF PARTICIPANTS

RAB Officers

Chairperson	Vice-Chairperson
Dr David T. **Wilson** *(apologies)* 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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APPENDIX II
AGENDA FOR THE 20TH SESSION OF THE IPHC RESEARCH ADVISORY BOARD (RAB020)

Date: 27 February 2019
Location: Seattle, Washington, U.S.A.
Venue: IPHC Training Room, Salmon Bay
Time: 09:00-17:30
Chairperson: Dr David T. Wilson (IPHC Executive Director)
Vice-Chairperson: Dr Josep Planas (IPHC 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

3.1 IPHC Rules of Procedure (2019)
3.2 Update on the actions arising from the 19th Session of the RAB (RAB019)
3.3 Outcomes of the 95th Session of the IPHC Annual Meeting (AM095)

4. SEASON OVERVIEW: RAB MEMBERS

5. IPHC FISHERY-INDEPENDENT SETLINE SURVEY (FISS)

5.1 2019 FISS season: Expansion in IPHC Regulatory Areas 3A and 3B (R. Webster)
5.2 2019 FISS gear comparison: Fixed versus snap gear in IPHC Regulatory Area 2C (I. Stewart)

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

6.1 Overview: IPHC 5-year Biological and Ecosystem Sciences Research Plan (2017-21) (J. Planas)
6.2 Core research streams: Updates for key ongoing research activities (Project leaders)

6.2.1 Migration

6.2.1.1 Migratory behaviour and distribution of Pacific halibut (T. Loher, L. Sadorus)

6.2.2 Reproduction

6.2.2.1 Reproductive assessment of the Pacific halibut population (J. Planas)
6.2.2.2 Sex-marking at sea and applications of genetics to determine the sex ratio of the commercial catch (T. Loher, J. Planas)

6.2.3 Growth

6.2.3.1 Factors affecting somatic growth in Pacific halibut (J. Planas)

6.2.4 Discard mortality rates

6.2.4.1 Discard mortality rates and post-release survival in the Pacific halibut fisheries (C. Dykstra)

6.2.5 Genetic and Genomics

6.2.5.1 Application of genetics and genomics to improve our knowledge on population structure and distribution (J. Planas)

6.3 IPHC research topics selected for 2019 (J. Planas)

- Whale depredation
- Alterations of flesh characteristics: chalky Pacific halibut

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

8. OTHER BUSINESS

8.1 Date and place of the 21st and 22nd Sessions of the IPHC Research Advisory Board (Chairperson)

9. REVIEW OF THE DRAFT AND ADOPTION OF THE REPORT OF THE 20th SESSION OF THE IPHC RESEARCH ADVISORY BOARD (RAB020) (Chairperson)

APPENDIX III
LIST OF DOCUMENTS FOR THE 20TH SESSION OF THE IPHC RESEARCH ADVISORY BOARD (RAB020)

Document	Title	Availability
IPHC-2019-RAB020-01	Agenda & Schedule for the 20th Session of the IPHC Research Advisory Board (RAB020)	✓ 14 Nov 2018 ✓ 17 Jan 2019
IPHC-2019-RAB020-02	List of Documents for the 20th Session of the IPHC Research Advisory Board (RAB020)	✓ 22 Jan 2019 ✓ 11 Feb 2019
IPHC-2019-RAB020-03	Update on the actions arising from the 19th Session of the RAB (RAB019) (D. Wilson & J. Planas)	✓ 17 Jan 2019
IPHC-2019-RAB020-04	Outcomes of the 95th Session of the IPHC Annual Meeting (AM095) (IPHC Secretariat)	✓ 11 Feb 2019
IPHC-2019-RAB020-05	Overview: IPHC 5-year biological and ecosystem sciences research program (2017-21) (J. Planas)	✓ 17 Jan 2019
IPHC-2019-RAB020-06	IPHC fishery-independent setline survey (FISS) design and implementation in 2019 (R. Webster & I. Stewart)	✓ 23 Jan 2019
IPHC-2019-RAB020-07	Reproductive assessment of the Pacific halibut population (J. Planas)	✓ 22 Jan 2019
IPHC-2019-RAB020-08	Sex identification of commercial landings (J. Planas)	✓ 23 Jan 2019
IPHC-2019-RAB020-09	Factors affecting somatic growth in juvenile Pacific halibut (J. Planas)	✓ 22 Jan 2019
IPHC-2019-RAB020-10	Discard mortality rates and post-release survival in the directed Pacific halibut fishery (C. Dykstra)	✓ 22 Jan 2019
IPHC-2019-RAB020-11	Migratory behavior and distribution of Pacific halibut (T. Loher, J. Forsberg & L. Sadorus)	✓ 23 Jan 2019
IPHC-2019-RAB020-12	IPHC research topics selected for 2019 (J. Planas)	✓ 22 Jan 2019

APPENDIX IV
CONSOLIDATED SET OF RECOMMENDATIONS OF THE 20TH SESSION OF THE IPHC RESEARCH ADVISORY BOARD (RAB020) TO THE COMMISSION

RECOMMENDATIONS

IPHC Closed Area

RAB020-Rec.01 (para. 10) The RAB **AGREED** that the IPHC Closed Area (Pacific Halibut Fishery Regulations 2019, 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 Session of the IPHC Annual Meeting (AM096) in 2020.

Hook standardization

RAB020-Rec.02 (para. 33) The RAB **RECOMMENDED** that the IPHC consider standardising the FISS to use a particular model hook and to encourage each vessel to begin its FISS contract work each year with all new hooks.

REQUESTS

Effects of long-line gear on benthic habitats, lost gear, and spatial patterns in fishing

RAB020-Req.01 (para. 21) The RAB **NOTED** the limitations imposed on the fishing industry by the growing number of marine conservation areas that restrict particular fishing activities, and **REQUESTED** that the IPHC consider research examining the following aspects of the longline fishery:

a. The impact of longline gear on the ocean bottom, including how much habitat disturbance is created by setting and retrieving the gear;

b. The magnitude and impact of lost and abandoned longline gear over time; and

c. The extent of the geographic footprint (the bottom area directly affected) of longline gear.

Black cod pot fishing

RAB020-Req.02 (para. 24) The RAB **NOTED** the increasing use of pot gear to fish for sablefish in Alaska, and **REQUESTED** the IPHC gather data on the effect of this shift, including potentially:

a. How this change affects the catch of Pacific halibut in the sablefish fishery;

b. How the gear shift in the sablefish fishery might drive whale predation toward the Pacific halibut fishery; and

c. The change in these effects over time.

Impact of recreational fishery releases

RAB020-Req.03 (para. 29) The RAB **NOTED** the possibility of engaging recreational fishers in data collection efforts in order to better characterize the population of Pacific halibut released in the fishery, and **REQUESTED** that the IPHC Secretariat begin to explore such research possibilities, including guidance and best practices that might be required.

RAB020-Req.04 (para. 30) The RAB **NOTED** that recreational fishing logs may be left incomplete, in particular with regard to numbers of fish caught and released, and **REQUESTED** that the IPHC Secretariat work with relevant Contracting Party agencies to encourage and enforce complete data collection.

Migration

RAB020-Req.05 (para. 41) The RAB **NOTED** the ongoing IPHC research into Pacific halibut migration, and **REQUESTED** that the IPHC Secretariat incorporate into its research the question of how changing ocean conditions might affect both migration rates and stock distribution over time.

Whale depredation

RAB020-Req.06 (para. 52) The RAB **REQUESTED** that the IPHC Secretariat evaluate possible gear solutions for avoiding whale depredation, such as pot gear.

Date and place of the 21st and 22nd Sessions of the IPHC Research Advisory Board

RAB020-Req.07 (para. 58) The RAB **REQUESTED** that the IPHC Secretariat consider dates earlier in February for RAB021 and RAB022 in order to enable better participation by current or potential RAB members.