



Report of the IPHC Secretariat (2021)

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PURPOSE

To provide the Commission with a draft update on the activities of the IPHC Secretariat in 2021, not already contained within other papers before the Commission.

1. STAFFING CHANGES

FT Arrivals	Type	Hire Date	Status	Branch and Position Title
Rachel Rillera	Regular full-time	1 June 2021	Active	FSSB: Setline Survey Specialist
Ola Wietecha	Regular full-time	26 Jul 2021	Active	FPSB: Administrative Specialist
Tina Wisnowski	Regular full-time	2 Aug 2021	Active	FPSB: Staff Accountant
Crystal Simchick	Temporary full-time	23 Aug 2021	Active	BESB: Biological Science Laboratory Technician
Tyler Jack-McCollough	Regular full-time	16 Sept 2021	Active	FSSB: Setline Survey Specialist (HQ)

We bid farewell to Nick Wilson (Staff Accountant), Keith Jernigan (Assistant Director), Monica Mocaer (Setline Survey Specialist), Dana Rudy (Otolith technician), Anna Simeon (Laboratory Technician), and Lara Erikson (Manager).

2. IPHC INTERNSHIP PROGRAM: 2021

The IPHC funds full-time internships each summer. In 2021 the IPHC hosted two undergraduate interns, Ms Maya **Stock** from Oregon State University (Corvallis, OR), and Ms Eva **Sukphon-Devita** from Western Washington University (Bellingham, WA).

Maya and Eva have participated in two activities of the Biological and Ecosystem Sciences Branch. Firstly, Maya and Eva have contributed to the generation of sex ratio information from the 2020 commercial samples by participating in all components of this important monitoring effort: from DNA extraction from fin clips to conducting the genotyping assays. Secondly, Maya and Eva have participated in the processing of blood samples and in the determination of stress indicators from Pacific halibut captured and released in the recently conducted DMR Recreational Study. The internship period runs from 21 June through 10 September 2021.

3. IPHC MERIT SCHOLARSHIP FOR 2020-23

The IPHC funds several Merit Scholarships to support university, technical college, and other post-secondary education for students from Canada and the United States of America who are connected to the Pacific halibut fishery. Generally, a single new scholarship valued at US\$4,000 per year is awarded every two years. The scholarships are renewable annually for the normal four-year period of undergraduate education, subject to maintenance of satisfactory academic performance.

A four (4) person IPHC Merit Scholarship Panel reviews applications and determines recipients based on academic qualifications, career goals, and relationship to the Pacific halibut industry.

In 2020, the IPHC Merit Scholarship was awarded to Mr Hahlen **Behnken-Barkhau** (Whitman College).

The list of current recipients and their expected years of receipt are provided below. Note that in 2016, the IPHC Merit Scholarship shifted from an award of US\$2,000 per year for four years,

with a new recipient selected each year, to an award of US\$4,000 per year for four years, with a new recipient selected every other year.

Name	2018	2019	2020	2021	2022	2023
Kaia Dahl (Petersburg, AK, USA)	\$4,000	\$4,000	\$4,000	\$4,000	-	-
Hahlen Behnken-Barkhau (Sitka, AK, USA)	-	-	\$4,000	\$4,000	\$4,000	\$4,000

4. MEETINGS OF THE COMMISSION AND SUBSIDIARY BODIES DURING 2021

Meeting	No.	Date	Location
Finance and Administration Committee (FAC)	97 th	25 Jan	Electronic
Annual Meeting (AM)	97th	25-29 Jan	Electronic
Conference Board (CB)	91 st	26-27 Jan	Electronic
Processor Advisory Board (PAB)	26 th	26-27 Jan	Electronic
Scientific Review Board (SRB)	18 th	15-17 June	Electronic
	19 th	21-23 Sept	Electronic
Work Meeting (WM)	2021	15-16 Sept	Electronic
Research Advisory Board (RAB)	22 nd	29 Nov	Electronic
Interim Meeting (IM)	97th	30 Nov – 1 Dec	Electronic

5. IPHC PACIFIC HALIBUT FISHERY REGULATIONS (2021)

5.1. IPHC FISHERY REGULATIONS ADOPTED IN 2021

In 2021, the Commission adopted **six (6)** fishery regulations/amendments in accordance with Article III of the Convention, as follows:

IPHC Fishery Regulations: Morality and Fishery Limits (Sect. 5)

(para. 72) The Commission **NOTED** and **ADOPTED** fishery regulation proposal IPHC-2021-AM097-PropA1, which provides the mortality and fishery limits framework for population at AM097 (Appendix IV).

(para. 73) The Commission **ADOPTED** the distributed mortality limits for each Contracting Party, by IPHC Regulatory Area, (Table 6) and sector, as provided in Appendix IV. [**Canada**: In favour=3, Against=0][**USA**: In favour=3, Against=0]

Table 6. Adopted TCEY mortality limits for 2021

Contracting Party IPHC Regulatory Area	Mortality limit (TCEY) (metric tonnes)	Mortality limit (TCEY) (mlbs)
Canada Total: 2B	3,175	7.00
USA: 2A	748	1.65
USA: 2C	2,631	5.80
USA: 3A	6,350	14.00
USA: 3B	1,415	3.12
USA: 4A	930	2.05
USA: 4B	635	1.40
USA: 4CDE	1,805	3.98
United States of America Total	14,515	32.00
Total (IPHC Convention Area)	17,690	39.00

IPHC Fishery Regulations: Commercial fishing periods (Sect. 9)

(para. 77) The Commission **ADOPTED** fishing periods for 2021 as provided below, thereby superseding the relevant portions of Section 9 of the IPHC Pacific halibut fishery regulations ([Appendix V](#)) by specifying that commercial fishing for Pacific halibut in all IPHC Regulatory Areas may begin no earlier than 6 March and must cease on 7 December.

IPHC Fishery Regulations: minor amendments

(para. 78) The Commission **NOTED** and **ADOPTED** fishery regulation proposal [IPHC-2021-AM097-PropA3](#), which proposed amendments to ensure IPHC Secretariat were formally regulated to allow them to sample Pacific halibut at the point of landing, with minor modification as identified during AM097 ([Appendix VI](#)).

Contracting Party fishery regulation proposals***IPHC Fishery Regulations: Charter management measures in IPHC Regulatory Areas 2C and 3A (Sect. 29)***

(para. 79) The Commission **NOTED** and **ADOPTED** fishery regulation proposal [IPHC-2021-AM097-PropB1](#), which proposed IPHC Regulation changes for charter recreational Pacific halibut fisheries in IPHC Regulatory Areas 2C and 3A ([Appendix VII](#)), in order to achieve the charter Pacific halibut allocation under the North Pacific Fisheries Management Council's (NPFMC) Pacific halibut Catch Sharing Plan:

- a) IPHC Regulatory Area 2C – one-fish bag limit with size limit of less than or equal to 50 inches or greater than or equal to 72 inches;
- b) IPHC Regulatory Area 3A – two-fish bag limit with one fish of any size and a second fish less than or equal to 32 inches, Wednesdays closed to retention of Pacific halibut, one trip per vessel and one trip per permit per day (no annual limit). See [IPHC-2021-AM097-PropB1](#) for additional detail.

IPHC Fishery Regulations: Commercial fishing periods (Sect. 9)

(para. 83) The Commission **ADOPTED** fishery regulation changes contained within IPHC-2021-AM097-INF05, which revises the derby season structure from openings Monday through Wednesday, to openings Tuesday through Thursday (Appendix VIII).

6. INTERACTIONS WITH CONTRACTING PARTIES**6.1. CONTRACTING PARTY REPORTS**

In 2021, the IPHC Secretariat has engaged agency representatives from both Contracting Parties regarding more comprehensive and timely reporting of all forms of Pacific halibut removals and directed commercial fishery revenue data. The IPHC Secretariat is working to identify and address data gaps in reporting.

In addition, the IPHC Secretariat continues to actively collaborate with domestic agencies from both Contracting Parties through existing and new Collective Agreements, and MoUs. These are detailed in the section below.

6.2. CANADA**6.2.1. Fisheries and Oceans Canada (DFO)*****Memorandum of Understanding/Collective Agreement – Rockfish***

The objective of the Memorandum of Understanding (MOU) / Collective Agreement with DFO and the PHMA is to 1) collect and utilize catch and biological sample data from species caught during the IPHC's annual fishery-independent setline survey (FISS); 2) lay forth the financial obligations associated with (1) hook by hook species identification data on the total catch and (2) biological data on rockfish species caught during FISS operations, as requested by DFO to survey rockfish populations off the British Columbia coastline. The activities covered under the MoU/CA are 100% cost recovered from the PHMA.

In early 2021, PHMA indicated to DFO and the IPHC that it had insufficient funds to provide for this sampling during the 2021 FISS.

Discussions are ongoing in developing an MoU for 2022.

Areas of conservation concern

The IPHC Secretariat continues to work with Fisheries and Oceans representatives to address gaps in coverage for the IPHC Fishery-Independent Setline Survey (FISS) in the IPHC Convention Area. An application was submitted again in 2021 to fish the FISS stations within the Marine Protected Areas in Canadian waters, which was denied.

Halibut Advisory Board (HAB)

The Executive Director participates as a HAB member, with Dr Basia Hutniczak as the IPHC alternate. This relationship is expected to continue into the future given the HAB's contributions to the Canadian decision-making process.

6.3. UNITED STATES OF AMERICA

6.3.1. NOAA Alaska Port Sampling Grant:

Incremental cost to the International Pacific Halibut Commission sampling program due to IFQ/CDQ programs (2019-2023)

The IPHC Port Sampling Program runs annually in Alaskan ports. The USA, via NOAA provide funds directly to the IPHC to pay for some of our Port Sampling costs (this is in addition to the annual USA Contributions to the IPHC General Budget). For background understanding, the IPHC is one of those who receive funds each year to cover off on partial costs for our Pacific halibut Fisheries Data program which had to be expanded in 1995 when the US implemented the IFQ program in Alaska. This change extended the length of the commercial season in Southeast Alaska (IPHC Regulatory Area 2C) and the Gulf of Alaska (IPHC Regulatory Areas 3A, 3B, 4A) from two days to 260 days. In the Bering Sea and Aleutian Islands, the season length went from 1-22 days to 260 days (season length varied by IPHC Regulatory Area). Prior to the implementation of the IFQ program in Alaska, the Commission's catch effort data collection was accomplished through the use of one or multiple personnel stationed temporarily in Pacific halibut landing ports for up to a week following the directed commercial fishing period, to collect the necessary data throughout the intensive landing period that existed with the 'Derby'-style pre-IFQ fishery. With the implementation of the IFQ program and the associated longer fishing season, it became necessary to alter the catch effort personnel deployment patterns to accomplish similar scientific protocols for representative sampling of the fishery landings. These sampling protocols require both biological and logbook targets specific to each IPHC Regulatory Area with both spatial and temporal requirements.

To meet these targets, it was necessary to station personnel in major ports for the extended, nine-month fishery season with employees on call to collect the necessary data (12 hours a day and six days a week). It also provides some funds that are meant to cover the costs of the sablefish data collection and reporting program as a service for NOAA.

The current Grant agreement was set up for 5 years and will end at the close of the 2023 fishing period, and is budgeted to cover 81% of our expenses for the Port Program. The IPHC is currently in discussions with NOAA personnel to update, improve, and extend the current arrangement past 2023. We expect to bring the new agreement to the Commission for consideration in the first half of 2022.

6.3.2. NOAA Pacific cod and Pacific spiny dogfish sampling agreement

NOAA-Fisheries, through the Alaska Fisheries Science Center (AFSC) requested sex and length data from Pacific spiny dogfish and length data from Pacific cod from all surveyed stations in 2021. The IPHC has been collecting this requested data from a subsample of Pacific spiny dogfish since 2011, and for Pacific cod in the Bering Sea since 2007 and in the Gulf of Alaska (GOA) since 2017. This remains a valuable collaboration and one which the IPHC will continue.

In 2021, the IPHC FISS team collected lengths of Pacific Cod and Pacific spiny dogfish at the request of NOAA-Fisheries.

IPHC Regulatory Area	Pacific spiny dogfish lengths/sex
2A	143
2B	516
2C	332
3A	807
3B	227
4A	3
4B	1
TOTAL	2,029
IPHC Regulatory Area	Pacific cod lengths
2B	500
2C	1380
3A	944
3B	497
4A	317
4B	217
4C	99
4D	160
IPHC Closed Area	15
TOTAL	4,129

6.3.3. Memorandum of Understanding – Rockfish – Washington Department of Fish and Wildlife

The objective of the Memorandum of Understanding (MoU) with WDFW is to 1) collect and utilize catch and biological sample data from species caught during the IPHC's annual fishery-independent setline survey (FISS); 2) agree on how proceeds from the sale of Pacific halibut (*Hippoglossus stenolepis*), rockfish (*Sebastes* spp.) and Pacific cod (*Gadus microcephalus*) will be disbursed; and 3) lay forth the financial obligations associated with undertaking additional FISS stations, as requested by the WDFW to survey rockfish populations off the Washington coastline.

In 2021, the IPHC sampled the eight (8) additional stations at the request of the WDFW. The IPHC tagged 187 rockfish at sea, which were then sampled by WDFW staff during the offloads in Westport, WA. The costs incurred by these activities are 100% cost-recovered from the WDFW.

6.3.4. NORTH Pacific Fishery Management Council (NPFMC)

Abundance-Based Management of Pacific halibut bycatch (ABM)

The NPFMC's Abundance-Based Management Working Group (ABMWG) continued its work, with participation of the IPHC Secretariat. The Commission has supported the development of ABM due to its potential effect on the directed Pacific halibut fisheries.

At its January/February 2020 meeting, the NPFMC revised the ABM motion (Council D4 Motion AM80) to focus solely on the Amendment 80 sector for the forthcoming Pacific halibut ABM PSC

limit analysis and added a second motion ([Council D4 Motion PSC Limits](#)) containing additional options to consider in a discussion paper.

ABM was a priority agenda at the NPFMC October 2020 meeting. The Scientific and Statistical Committee (SSC) discussed the operating model and results from the simulation analysis. However, a misspecification in the simulation model left little time to review the updated results before the end of the SSC meeting, and the SSC unanimously decided to not review the results at that time. The Council discussed the outcomes extensively and moved to a new approach in [Council C6 Motion](#) as well as updating the purpose and need. The motion specifies four alternatives for analysis with one being status quo and the other three variations of a lookup table incorporating the two indices calculated from the FISS data and the EBS trawl survey data. Four options were specified that would reduce variability in the annual PSC limits and introduce performance standards that may increase or decrease the PSC limit depending on percent usage of the limit.

Following an initial review of a preliminary [draft environmental impact statement](#) (DEIS) in April 2020, the NPFMC modified the specified options, removed the option annual roll-overs, and requested the draft DEIS be revised in response to SSC requests before publishing it for a public comment period ([Council C2 Motion ABM](#)). The National Marine Fisheries Service (NMFS) will provide an analysis of comments at the November 2021 NPFMC meeting followed in December 2021 with the NPFMC taking final action to recommend a preferred alternative. Given this timeline, implementation could occur in January 2023.

6.3.5. PACIFIC FISHERY Management Council (PFMC)

IPHC Regulatory Area 2A Catch Sharing Plans and in-season management

The IPHC Secretariat collaborated with NOAA Fisheries and State agencies to conduct in-season management of the various fisheries identified in the IPHC Regulatory Area 2A Catch Sharing Plan. Date and possession restrictions were adjusted in season among the various fisheries to meet identified fishery needs while attaining and remaining within the applicable catch limits. Estimates of removals for 2021 will be presented during Agenda Item 5.

IPHC Regulatory Area 2A fishery management handover to the USA

The Council took final action in November 2020, and adopted the following:

- The Council will consider the directed fishery framework during the Catch Sharing Plan process in September and November; include any guidance for vessel limits and in-season changes for NMFS implementation.
- NMFS will issue permits for all Area 2A halibut fisheries: commercial-directed, incidental salmon troll, incidental sablefish, and recreational charter halibut fisheries.
- NMFS will determine the appropriate application deadlines for all commercial halibut applications, set to accommodate Council meetings and NMFS processing time.
- Proof of permit will be required to be onboard the fishing vessel and made readily available upon request, regardless of the type of permit (e.g., paper or electronic). NMFS will provide access to permits in a printable format or send paper copies directly to the participant.

As for the status of implementation, NMFS is anticipating the following schedule:

- A proposed rule will be published this fall with the expectation that the rule will be finalized by June/July 2022
- Collect information necessary to issue permits in June/July 2022

- Consider management alternatives through the Council process in September and November 2023
- Issue Permits by early 2023
- NMFS will manage the non-Indian directed commercial fishery beginning in 2023

7. IPHC COMMUNICATIONS AND OUTREACH

7.1. IPHC Website

The IPHC Secretariat continues to develop new ways to display data and statistics for our stakeholders and other interested parties, focusing particularly on the addition of timely and useful visual displays such as interactive maps for the IPHC Fishery-Independent Setline Survey (FISS) data, and commercial fishery data pages and catch tables. <https://www.iphc.int/www.iphc.int/data>

7.2. Annual Report

The 2020 Annual Report (1 January to 31 December 2020) was published on 2 April 2021 and is available for download from the IPHC website at the following link: <https://www.iphc.int/uploads/pdf/ar/iphc-2021-ar2020-r.pdf>

We continue to implement an accelerated production timeline for the IPHC Annual Report, thereby ensuring users of the report receive the summary information as close to the relevant year as possible. Continued feedback on the content, format and presentation of the Annual Report is welcome.

7.3. IPHC Circulars and Media Releases

IPHC Circulars continue to serve as the formal inter-sessional communication mechanism for the Commission. Circulars are used to announce meetings of the Commission and its subsidiary bodies, as well as inter-sessional decisions made by the Commission.

<https://www.iphc.int/library/documents/category/circulars>

IPHC Media Releases are the primary informal communication with all stakeholders. In some cases, these will duplicate the formal communications provided in IPHC Circulars.

<https://www.iphc.int/library/documents/category/media-releases>

Stakeholders are encouraged to request that their email addresses be added to IPHC distribution lists at the following link: <https://www.iphc.int/form/media-and-news>

7.4. IPHC External engagement

There is a considerable amount of effort put into public outreach, attending conferences and meetings that enhance knowledge, contributing expertise to the broader scientific community through participation on boards and committees, and seeking further education and training. In 2021, much of this engagement took place electronically due to the COVID-19 pandemic.

Committees and external organisation appointments

North America:

- 1) *Technical Subcommittee (TSC) of the Canada-United States Groundfish Committee*
- Dr. Josep Planas & Ms. Lara Erikson

Canada:

- 1) *Halibut Advisory Board* (Canada) - Dr. David Wilson (Dr. Basia Hutniczak – Alternate)

United States of America:

- 1) *Bering Sea/Aleutian Islands Plan Team* - Dr. Allan Hicks
- 2) *Bering Sea Fishery Ecosystem Plan Team* - Dr. Ian Stewart
- 3) *North Pacific Fishery Management Council (NPFMC) Abundance-based Management Working Group* – Dr. Allan Hicks
- 4) *NPFMC Scientific and Statistical Committee* - Dr. Ian Stewart
- 5) *NPFMC Trawl Electronic Monitoring Committee* – Ms. Huyen Tran
- 6) *North Pacific Research Board Science Panel* - Dr. Josep Planas
- 7) *Fisheries Monitoring Science Committee (NOAA-Alaska)* – Dr. Ray Webster
- 8) *Interagency electronic reporting system for commercial fishery landings in Alaska (eLandings) Steering Committee* – Ms. Kamala Carroll and Ms. Huyen Tran
- 9) *Interagency electronic reporting system for commercial fishery landings in Alaska (eLandings) IT Steering Committee* – Ms. Huyen Tran and Mr. Afshin Taheri
- 10) *Interagency electronic reporting system for commercial fishery landings in Alaska (eLandings) Interagency Coordination Committee (ICC)* – Ms. Huyen Tran
- 11) *Stock Assessment Review (STAR) of Vermilion and Sunset Rockfishes (PFMC)* – Dr. Allan Hicks

Conferences and symposia (chronological order)

- 1) Participation (remote) in the North American Association of Fisheries Economists biannual meeting - Dr. Basia Hutniczak
- 2) World Fisheries Congress, Adelaide, SA, Australia – remote participation – Dr David T. Wilson, Dr Josep Planas, Mr Andy Jasonowicz, Mr Colin Jones.

Academic affiliations 2021**Affiliate Faculty:**

- 1) Dr. Allan Hicks - University of Washington School of Aquatic and Fishery Sciences, Seattle, WA, USA
- 2) Dr. Ian Stewart - University of Washington School of Aquatic and Fishery Sciences, Seattle, WA, USA
- 3) Dr. Josep Planas - Alaska Pacific University, Anchorage, AK, USA

Graduate student committee member:

- 1) Dr. Allan Hicks - University of Massachusetts School for Marine Science & Technology, Dartmouth, MA, USA
- 2) Dr. Allan Hicks - University of Washington School of Aquatic & Fishery Sciences, Seattle, WA, USA
- 3) Dr. Ian Stewart - Alaska Pacific University, Anchorage, AK, USA
- 4) Dr. Ian Stewart - University of Washington School of Aquatic & Fishery Sciences, Seattle, WA, USA
- 5) Dr. Josep Planas - Alaska Pacific University, Anchorage, AK, USA

8. IPHC PUBLICATIONS IN 2021

Published peer-reviewed journal papers

- Carpi, P., Loher, T., Sadorus, L.L., Forsberg, J.E., Webster, R.A., Planas, J.V., Jasonowicz, A., Stewart, I.J., and Hicks, A.C.** (2021) Ontogenetic and spawning migration of Pacific halibut: a review. *Reviews in Fish Biology and Fisheries*. <https://doi.org/10.1007/s11160-021-09672-w>
- Kroska, A.C., Wolf, N., **Planas, J.V.**, Baker, M.R., Smeltz, T.S., and Harris, B.P. (2021) Controlled experiments to explore the use of a multi-tissue approach to characterizing stress in wild-caught Pacific halibut (*Hippoglossus stenolepis*). *Conservation Physiology*. Vol. 9(1): coab001. doi.org/10.1093/conphys/coab001
- Loher, T.**, Bath, G.E., and Wischniowski, S. (2021). The potential utility of otolith microchemistry as an indicator of nursery origins in Pacific halibut (*Hippoglossus stenolepis*). *Fisheries Research* 243: 106072. doi.org/10.1016/j.fishres.2021.106072.
- Lomeli, M.J.M., Wakefield, W.W., Herrmann, B., **Dykstra, C.L., Simeon, A., Rudy, D.M., and Planas, J.V.** (2021) Use of Artificial Illumination to Reduce Pacific Halibut Bycatch in a U.S. West Coast Groundfish Bottom Trawl. *Fisheries Research*. 233:105737. doi.org/10.1016/j.fishres.2020.105737
- Sadorus, L.L.**, Goldstein, E.D., **Webster, R.A.**, Stockhausen, W.T., **Planas, J.V.**, and Duffy-Anderson, J.T. (2021) Multiple life-stage connectivity of Pacific halibut (*Hippoglossus stenolepis*) across the Bering Sea and Gulf of Alaska. *Fisheries Oceanography*. Vol. 30(2):174-193. doi.org/10.1111/fog.12512
- Stewart, I.J., Hicks, A.C., and P. Carpi** (2021). Fully subscribed: Evaluating yield trade-offs among fishery sectors utilizing the Pacific halibut resource. *Fisheries Research* 234. doi:10.1016/j.fishres.2020.105800
- Stewart, I.J.**, Scordino, J. J., Petersen, J.R., Wise, A.W., Svec, C.I., Buttram, R.H., Monette, J.L., Gonzales, M.R., Svec, R., Scordino, J. Butterfield, K., Parker, W., and Buzzell, L.A. (2021) Out with the new and in with the old: Reviving a traditional Makah halibut hook for modern fisheries management challenges. *Fisheries Magazine: American Fisheries Society* (early view). doi.org/10.1002/fsh.10603
- Taylor, I.G., Doering, K.L., Johnson, K.F., Wetzel, C.R., and **Stewart, I.J.** (2021). Beyond visualizing catch-at-age models: Lessons learned from the r4ss package about software to support stock assessments. *Fisheries Research*. Vol. 439:105924. doi.org/10.1016/j.fishres.2021.105924

In press peer-reviewed journal papers

- Loher, T., Dykstra, C.L., Hicks, A., Stewart, I.J., Wolf, N., Harris, B.P., Planas, J.V.** Estimation of post-release longline mortality in Pacific halibut (*Hippoglossus stenolepis*) using acceleration-logging tags. *North American Journal of Fisheries Management* (In Press).

Submitted peer-review journal papers – In review

- Fish, T., Wolf, N., Smeltz, T. S., Harris, B. P., and **Planas, J. V.** Reproductive biology of female Pacific halibut (*Hippoglossus stenolepis*) in the Gulf of Alaska. *Frontiers in Marine Science* (In Review).
- Hutniczak, B.** Method for Efficient Updating of Regional Supply and Use Tables, *Journal of Economic Structures* (In Review).

Jasonowicz AJ, Simeon A, Zahm M, Cabau C, Klopp C, Roques C, Iampietro C, Lluch J, Donnadiou C, Parrinello H, Drinan DP, Hauser L, Guiguen Y, and Planas JV. Generation of a chromosome-level genome assembly for Pacific halibut (*Hippoglossus stenolepis*) and characterization of its sex-determining genomic region. *Molecular Ecology Resources* (In Review)

Loher, T., McCarthy, O., Sadorus, L.L., Erikson, L.M., Simeon, A., Drinan, D.P., Hauser, L., Planas, J.V., and Stewart, I.J. A test of deriving sex-composition data for the North American Pacific halibut (*Hippoglossus stenolepis*) directed commercial fishery via an at-sea marking program. *Fisheries Research* (In Review).

9. RECOMMENDATION

That the Commission **NOTE** paper IPHC-2022-AM098-04 which provides the Commission with an update on activities of the IPHC Secretariat in 2021 not detailed in other papers before the Commission.

APPENDICES

Nil.