

Report of the Fishery Science Committee

The meetings of the Fishery Science Committee (FIS) was attended by 26 participants (*FIS Endnote 1*) via Zoom over two days, from September 23–24, 2020.

were held on Sunday, October 28 (18:00–20:00) and Wednesday, October 31, (14:00–18:00), 2018 in Yokohama, Japan. FIS Chair Dr. Xianshi Jin and Dr. Jacquelynne King were elected as the Chair and Vice-Chair, respectively, of FIS at PICES-2017. Dr. Jin called the meeting to order and welcomed members and observers (*FIS Endnote 1*). All members in attendance introduced themselves and absent members were noted. The draft agenda was reviewed by the participants and was adopted without revisions (*FIS Endnote 2*). Dr. King was appointed rapporteur.

AGENDA ITEM 1

Welcome and changes to FIS membership

Dr. Xiujuan Shan is a new Committee member replacing Dr. Jie Kong and representing China. Dr. Tetsuo Fujii is a new Committee member replacing Dr. Toyomitsu Horii and representing Japan.

AGENDA ITEM 2

Adoption of agenda

A WG 44 Workshop proposal for PICES-2021 was added to agenda item 4c, a presentation from the International Pacific Halibut Commission (IPHC) added as agenda item 6d, and a presentation from the North Pacific Anadromous Fish Commission (NPAFC) added as agenda item 6e.

AGENDA ITEM 3

Elections for Chair and Vice-Chair

Both the Chair and the Vice-Chair have completed a single term. Dr. Jin, Chair, accepted a second term as Chair. Dr. King, Vice-Chair, accepted a second term as Vice-Chair.

AGENDA ITEM 4

Reports of FIS-sponsored Expert Groups

- a. *S-CCME: Joint PICES/ICES Section on Climate Change Effects on Marine Ecosystems presented by Dr. Jackie King*

Dr. Jackie King completed her first term as Co-Chair, and declined a second term. Dr. Kirstin Holsman (USA) was elected as Co-Chair. Many planned activities in 2020 were restricted or postponed due to COVID-19. However, the Third Meeting of IPCC WG II AR6 Lead Authors was held in Faro, Portugal (January 26– February 1, 2020). Dr. Kirstin Holsman (S-CCME, USA) and Dr. Shin-ichi Ito (S-CMME, Japan) are Lead Authors and attended. The cut-off date for submitted papers to be considered in chapters has been extended to November 1, 2020. However, the Second Order Draft must be submitted by November 6, 2020 so Lead Authors should be told well in advance of intentions to submit. Dr. Shin-ichi (S-CMME, Japan) Ito is a Co-Chair of new joint PICES/ICES WG 45: Impacts of Warming on Growth Rates and Fisheries Yields. The WG held its first meeting virtually on September 7–10, 2020 and was able to make extensive progress in initiating the work of this WG.

Upcoming in May 2021 will be the postponed MSEAS 2020 “*Managing for sustainable use of the Earth’s marine and coastal systems*”. Dr. Alan Haynie (S-CCME, USA) is a member of the Scientific Steering Committee. The Fourth Meeting of the IPCC WG II AR6 Lead Authors is scheduled for March 1–7, 2021 in Guatemala. The Final Government Distribution will be May 28–July 23, 2021. Several stages of AR6 meetings and preparations have been extended in response to the COVID-19 pandemic, so it is anticipated that the dates will also be extended. In 2021 a new Science for Nature and People Partnership (SNAPP): Climate Resilient Fisheries Working Group will begin its work plan. Dr. Anne Hollowed (S-CCME, USA) is a WG Member. Several Theme Sessions related to or sponsored by SICCME, at the ICES Annual Science Conference originally scheduled for 2020, will be postponed to 2021.

S-CCME has finalized its Phase 4 (2021–2025) Implementation Plan (see [S-CCME report](#)). The IP continues Phase 3 initiatives, namely: advance new science focused on climate change effects on marine ecosystems through theme/topic sessions and workshops; update and improve predictions with IPCC AR6 scenarios; global synthesis of climate change impacts on marine ecosystems for sustaining the delivery of ecosystem goods and services; develop regional synthesis reports; contribute to 5th International Symposium on “*Effects of climate change on the World’s oceans*” in 2023. The IP will advance the following activities: synthesize SEES climate change modelling efforts to inform Climate-Resilient Development Pathways across UN Sustainable Development Goals; explore cultural and social impacts of climate change on fisheries and communities; support training for scientists, including Early Career Ocean Professionals through workshops and training programs, develop a S-CCME Communication Strategy (internal and external).

S-CCME requests a 1-day Business Meeting at PICES-2021; it will use a portion of the time to develop a Communication Strategy. S-CCME currently does not have a member from Russia, and requests Russia provide a member. Russia suggested Dr. Alexei Somonov.

S-CCME requests:

- Approval of S-CCME Implementation Plan Phase 4;
- 1-day meeting at PICES-2021;
- A member from Russia to be appointed to S-CCME.

b. Working Group 43: Joint PICES/ICES Working Group on Small Pelagic Fish presented by Dr. Ryan R. Rykaczewski.

The WG held its first meeting in mid-March 2020 at ICES in Denmark. At that meeting, target species were defined as Engraulida and Clupeid fishes (anchovies, sardines, sprats, herring), and task forces (TF) were formed to begin work planning and identifying basic, applied and social science aspects of small pelagic fish dynamics to be undertaken: 1) TF on Ecological Process Knowledge; TF on Translating Process Knowledge and TF on Social-Ecological Approaches. Within each TF are specific activities for collaboration.

The WG will hold a Symposium on “*Small pelagic fish: New frontiers in science for sustainable management*”, tentatively planned for February 21–25, 2022 in Lisbon, Portugal, and is looking for co-sponsorship from international organizations. A committee of conveners is in place and an SSC is being formed. The WG would like to request additional Russian membership. No sessions or workshops are proposed for PICES-2021. A 0.5 Business Meeting for PICES-2021 is requested.

WG 43 requests:

- ½-day meeting at PICES-2021;
- A member from Russia to be appointed to WG 43.

c. Working Group 44: Joint PICES/ICES Working Group on Integrated Ecosystem Assessment for the Northern Bering Sea - Chukchi Sea (NBS-CS) presented by Dr. Elizabeth A. Logerwell

The WG held first meeting September 1–2, 2020, in which it outlined the approach and methodology and Work Plan for 2020–2021. This upcoming year the WG will: draft a “Methods for IEA” publication, due at PICES-2021, with monthly virtual status report meetings; hold an inter-sessional meeting to draft a scoping document to identify a centralized location for document sharing; compile an inventory of scientific metadata and of institutions’ programs, due at PICES-2021, with monthly virtual status report meetings; pursue development of Indigenous knowledge sharing with knowledge holders to facilitate its co-production while protecting intellectual property as through the UN Declaration on the Rights of Indigenous peoples.

WG Terms of Reference revisions were approved after a lengthy process: Co-Chair nominations were approved in April 2020 and membership was determined only at end of August, 1 week before WG 44’s meeting at PICES-2020. As such, the WG requests a 1-year extension to 2023. ICES has already approved this extension. The FIS Committee understands the need for a 1-year extension and would normally delay support until the end of year 2, but in this instance, since it is a joint ICES/PICES WG and approved by ICES, FIS Committee supports the extension request now.

Membership of the WG is still not fully completed. The WG requests additional members from Japan and Canada; recommended candidates are Kohei Matsuno (Hokkaido University) additional Canadian members: Nadja Steiner (DFO) and Martin Nantel (DFO). FIS Committee supports these recommendations.

The WG requests a 1-day meeting at PICES-2021.

Finally, the WG submitted a proposal for a 0.5-day Workshop on “*The Northern Bering Sea-Chukchi Sea Integrated Ecosystem Assessment: Recent finding, progress, and the way forward*”, with 1 Invited Speaker, for PICES-2021 (see [WG 44 meeting report](#)). Topics will include describing the work on the IEA to date and recent findings about the NBC-CS ecosystem, especially those that shed new light on the ecosystem’s status changes and processes. FIS recognizes that Sessions and Workshops from PICES-2020 will be carried over to PICES-2021, but recommends that this workshop be added to a potential waiting list.

WG 44 requests:

- 1-day business meeting at PICES-2021;
- Additional members from Japan and Canada;
- ½-day workshop at PICES-2021;
- A 1-year WG extension, to 2023.

d. Working Group 45: Joint PICES/ICES Working Group on Impacts of Warming on Growth Rates and Fisheries Yields (GRAFY) presented by Dr. Shin-ichi Ito

WG 45 held a successful first meeting in September 7–10, 2020. The WG developed a 6-month Implementation Plan for each of the 4 main Terms of Reference. Members have also collated metadata on long-term datasets for fish size-at-age for 121 stocks, with future additions. The WG is still waiting for PICES membership to be finalized. The WG requests a 1-day meeting at PICES-2021.

WG 45 request:

- A 1-day business meeting at PICES-2021.

AGENDA ITEM 5

Report from FUTURE SSC

Dr. Sukyung Kang, Co-Chair of the FUTURE SSC, presented an update. The upcoming annual Work Plan will focus on 3 core activities: 1) the second FUTURE Open Science Meeting (aim for summer–fall 2022); 2) PICES engagement with the UN Decade of Ocean Science; 3) revision of the Science and Implementation Plans.

The FUTURE program is currently transitioning from Phase II to III (2021–2025). Phase III will maintain momentum developed during FUTURE Phase II. Overall objectives and key questions of the FUTURE program are still relevant and reflective of the needs of PICES integrative science. Phase III will be implemented to exploit recent accomplishments (Social-Environmental-Ecological Systems (SEES) approach), and to leverage and provide leadership to UN Decade for Ocean Science. The SSC will evaluate Phase II progress towards objectives, determine which objectives cannot be resolved or are now of lower priority, and identify new activities needed to accomplish objectives (in a Final Report). The SSC will continue to facilitate trans-disciplinary research and communication, although PICES should maintain traditional disciplinary activities. A joint PICES/ICES Study Group on UN Decade is being proposed which will advise how PICES and ICES can participate as leaders (proposed Co-Chairs, Steven Bograd (PICES), Aaron McPherson (ICES and PICES)). The Study Group will prepare a proposal for a joint Decade Programme, with anticipation of Decade Projects and Activities with other organizations.

AGENDA ITEM 6

Reports from other organizations

a. North Pacific Fisheries Commission (Alex Zavolokin)

The NPFC–PICES framework for enhanced scientific collaboration in the North Pacific lists 3 priorities: Support for stock assessment of priority species; Vulnerable marine ecosystems and ecosystem approach to fisheries management (EAFM). At PICES-2019, a joint NPFC-PICES workshop was held on the influence of the environment on Pacific saury. At PICES-2020 a PICES-NPAFC-NPFC workshop will be held on a pan-Pacific ecosystem survey program (species captured of interest to NPFC include saury, mackerel species, Japanese sardine, neon flying squid, Japanese flying squid and all other species aside from tuna and salmon). Additionally the PICES/ICES WG 45 on *Small Pelagic Fish* has NPFC membership and it is anticipated that NPFC financial support for the WG-SPF 2022 Symposium in Lisbon, Portugal will be approved in February 2021.

b. Pacific Salmon Commission (John Field)

The PSC is a bilateral treaty organization between Canada and US to ensure coordinated salmon management and allocation. There is also collaborative research for both coastal and freshwater life stages. The PSC is also currently undertaking informal roundtable dialogue on climate change impacts on salmon. The PSC is interested in formal cooperation with PICES. A framework, akin to PICES frameworks with other organizations would likely be a good option. This would require discussion with the PSC Commissioners, and then an initiation with PICES, if approved by PICES Governing Council to do so.

Recommendation: FIS Committee supports pursuing the development of a PICES–PSC Framework for collaborative research opportunities.

c. International Pacific Halibut Commission (Josep Planas)

The IPHC is a bilateral treaty organization between Canada and US to ensure coordinated Pacific halibut management, research and assessment. There is a formal Memorandum of Understanding between PICES and the IPHC which is valid until 2024. At PICES-2019, a Joint IPHC-PICES Workshop was held on “*Integrating biological research, fisheries science and management of Pacific halibut and other widely distributed fish species across the North Pacific in the face of climate environmental variability*”. Papers from that workshop will be published in a special issue in *Fisheries Research*. At PICES-2021 a more broadly focused workshop will be convened on “*Integrating biological research, fisheries science and management of broadly distributed flatfish species across the North Pacific Ocean in the face of climate and environmental variability*”. Three main topics of workshop include: east–west North Pacific flatfish species connectivity, distributional changes of flatfish species in North Pacific, and discussion of establishing an international collaborative consortium on flatfishes.

d. North Pacific Anadromous Fish Commission (Vladimir Radchenko)

NPAFC member countries include all of those of PICES. There is a Memorandum of Understanding between PICES and the NPAFC. At PICES-2019 a Joint NPAFC-PICES workshop on a pan-Pacific integrated high seas expedition was convened. In March 11–April 7, 2020, a Canadian commercial charter completed a portion of the Gulf of Alaska in support of the anticipated Pan-Pacific expedition. A virtual conference on the winter ecology of Pacific salmon will be held in February 2021, which can help inform the survey design and sampling protocols of the integrated high seas expedition. As part of International Year of the Salmon, a signature multi-nation survey will have total pan-Pacific simultaneous coverage with vessels from Canada, Russia and US in winter. That survey has been recommended to be delayed from 2021 to 2022 due to COVID restrictions. Another signature project of IYS is the Likely Suspects Framework, where a conceptual model and case studies will be developed through a series of virtual workshops from December 2020 through August 2021. This project will include considerations of aquaculture impacts. Initial results will be presented at an IYS wrap-up Symposium in November 2022, with a final report in December 2022. Third signature project of IYS is the development of a Data Mobilization-Roadmap, with the expected outcome to make freely available an information system that contains historic (including archived data) and current data about salmon and their environment. This project is expected to be completed in 2022. The NPAFC is interested in a collaborative Decade Project with PICES. It would be useful to create a SG of NPAFC-PICES involvement into the UN Decade. Also, a review and update of the 1998 NPAFC-PICES Framework for Enhanced Scientific Cooperation in the North Pacific might be warranted. At PICES-2020 a FIS Topic Session is being jointly convened with NPAFC and NPFC on “*Implementing a collaborative, integrated ecosystem high seas survey program to determine climate/ocean mechanisms affecting the productivity and distribution of salmon and associated pelagic fishes across the North Pacific Ocean*”. The 3rd NPAFC-IYS Workshop on “*Linkage between Pacific salmon production and environmental changes*” is postponed to May 2021, and abstracts are accepted until January 2021.

FIS Endnote 1

FIS participation list

Members

Xianshi Jin (China, Chair)
 Jackie King (Canada, Vice-Chair)
 Elena P. Dulepova (Russia)
 Tetsuo Fujii (Japan)
 Sukgeun Jung (Korea)
 Sukyung Kang (Korea)
 Steven Lindley (USA)
 Elizabeth A. Logerwell (USA)
 Xiujuan Shan (China)
 Mikhail A. Stepanenko (Russia)
 Nobuaki Suzuki (Japan)
 Naoki Tojo (Japan)

Observers

Alex Zavolokin (NPFC)
 John Field (PSC)
 Vladimir Radchenko (NPAFC)
 Lisha Guan (China)
 Shin-ichi Ito (Japan)
 Catherine Michielsens (PSC)
 Fiona Martens (PSC)
 Ryan Rykaczewski (USA, PICES WG 43 Co-Chair)
 Josef Planas (IPHC)
 Paul Spencer (USA)

Members unable to attend

Canada: Chris Rooper
 China: Zhoujun Ma
 Korea: Heewon Park
 Russia: Alexander I. Glubokov
 USA: Gordon Kruse

PICES

Vera Trainer (Science Board Chair)
 Sonia Batten (Executive Secretary)
 Harold (Hal) Batchelder (Deputy Executive Secretary)
 Alex Bychkov (past Executive Secretary)

FIS Endnote 2

FIS meeting agenda

<p>Pacific time Wednesday, September 23, 16:00 – 18:00 Thursday, September 24, 16:00 – 18:00</p>	<p>Japan and Korea Wednesday, September 24, 08:00 – 10:00 Thursday, September 25, 08:00 – 10:00</p>
<p>China Wednesday, September 24, 07:00 – 09:00 Thursday, September 25, 07:00 – 09:00</p>	<p>Russian West Wednesday, September 24, 09:00 – 11:00 Thursday, September 25, 09:00 – 11:00</p>

Day 1

1. Welcome and changes to FIS membership
2. Adoption of agenda
3. Elections for Chair and Vice-Chair
4. Reports of FIS-sponsored Expert Groups
 - a. S-CCME Joint PICES/ICES Section on Climate Change Effects on Marine Ecosystems (Dr. Jackie King)
 - Phase 4 Implementation Plan
 - b. Working Group 43: Joint PICES/ICES Working Group on Small Pelagic Fish (Dr. Ryan R. Rykaczewski)
 - c. Working Group 44: Joint PICES/ICES Working Group on Integrated Ecosystem Assessment for

the Northern Bering Sea - Chukchi Sea (NBS-CS) (Dr. Elizabeth A. Logerwell). Workshop proposal for PICES-2021.

- d. Working Group 45: Joint PICES/ICES Working Group on Impacts of Warming on Growth Rates and Fisheries Yields (GRAFY) (Dr. Shin-ichi Ito)

Day 2

5. Report from FUTURE SSC

6. Other Organizations

- a. North Pacific Fisheries Commission (Alex Zavolokin)
- b. Pacific Salmon Commission (John Field)
- c. International Pacific Halibut Commission (Josep Planas)
- d. North Pacific Anadromous Fish Commission (Vladimir Radchenko)