



**2022 Intersessional Science Board Meeting  
Report**

**Prepared by the Science Board Chair, Dr. Vera Trainer, and the PICES Secretariat**



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## Report of PICES Science Board: 2022 Intersessional Meeting (ISB-2022)

held online via Zoom, from April 11/12 (North America) to 13/14 (Asia).

### Agenda Item 1: Welcome, adoption of agenda

The Science Board (SB) Chair, Dr. Trainer, called the meeting to order. She provided a brief overview of meeting procedures and voting and led a brief round of introductions. She invited SB to review the agenda. No revisions were required. The list of participants follows:

### List of Participants

#### Science Board

Vera Trainer	Science Board Chair
Igor Shevchenko, rep. Russia	Science Board Vice-Chair
Steven Bograd	FUTURE SSC Co-Chair
Sukyung Kang	FUTURE SSC Co-Chair, Science Board Chair-Elect
Akash Sastri	BIO Chair
Xianshi Jin	FIS Chair
Mitsutaku Makino	HD Chair
Guangshui Na	MEQ Chair
Emanuele Di Lorenzo	POC Chair
Sung Yong Kim	MONITOR Chair
Jeanette Gann	TCODE Chair

#### \*Governing Council

Enrique Curchitser	PICES Chair
Tetsuo Fujii	PICES Vice-Chair

#### PICES Secretariat

Sonia Batten	Executive Secretary
Sanae Chiba	Deputy Executive Secretary
Lori Waters	Communication Officer
Alex Bychkov	Ex officio

#### Invited Guests

Hidetada Kiyofuji	F&A
Jennifer Jackson	POC Vice-Chair
Raphaël Roman	AP-ECOP
Hannah Lachance	AP-ECOP
Taewon Kim	Project SEAturtle
Kazuya Takahashi	Ministry of Foreign Affairs, Japan
Yugo Shimizu	Fisheries Agency, Japan



## Agenda Item 2: PICES Carbon Saving

**Summary:** Science Board (SB) acknowledged progress in PICES carbon savings in 2020 and 2021, and agreed to continue the conversation with the PICES community to promote carbon savings.

**Background:** ISB-2021: SB recommended PICES move towards carbon neutrality and environmentally-sustainable practices. SB-2021: SB recommended establishment of a Study Group to explore the best way for PICES to manage sustainability and greener meetings.

Details: PICES Secretariat Communications Officer, Lori Waters, provided a brief overview of PICES carbon savings realized to date through virtual meetings, which since ISB-2020 has totaled 3253.95 tonnes of carbon not released into the atmosphere, through avoidance of air travel (see Table below). This cumulative saving represents equivalencies such as taking 708 cars off the road for one year, or over 13 million kilometers not driven by an average passenger vehicle. Any PICES members who wish to review the carbon tracking updates or methodology may visit the carbon tracking page on PICES [website](#).

The SB Chair, Dr. Trainer, spoke to the importance of the survey outcome which urges PICES to develop an aspirational strategy in taking tangible actions to reduce our carbon emissions and mitigate climate change. She emphasized, though in-person meetings are necessary and valuable, PICES needs to seek creative ways to hold its meetings using virtual or hybrid strategies when possible. SB acknowledged the large amount of carbon saving by PICES since 2020, and agreed to strategically develop best practices to reduce carbon emission throughout our activities (see Agenda Item 11: Proposed New Expert Group : [SG-GREEN](#)).

2021 Meeting Carbon Savings: PICES	
PICES-2021, held virtually via Zoom, had 656 attendees representing 31 countries on 6 continents, and saved ~2200 tonnes of CO <sub>2</sub> emissions.	This is <a href="#">equivalent</a> to: <ul style="list-style-type: none"> <li>• Taking &gt;478 cars off the road for one year</li> <li>• Not burning ~937090 L of gasoline, ~1102966 Kg of coal, or 5093 barrels of oil</li> <li>• CO<sub>2</sub> taken up by ~2695 acres of forest, or 36377 tree seedlings over ten years</li> </ul>
PICES Cumulative Carbon Savings 2020-2021: 3253.95 tonnes**	
<ul style="list-style-type: none"> <li>• ISB-2020: 70.32 tonnes</li> <li>• AP-CREAMS 2020: 9.46 tonnes</li> <li>• MSEAS-2020: 182.41 tonnes</li> <li>• PICES-2020: 689.07 tonnes</li> <li>• ISB-2021: 102.26 tonnes</li> <li>• PICES-2021: 2200.42 tonnes</li> </ul>	These Cumulative savings are <a href="#">equivalent</a> to: <ul style="list-style-type: none"> <li>• Taking 708 cars off the road for one year, or 13,160, 926 kilometres driven by an average passenger vehicle.</li> <li>• Not burning: &gt;1.66 million L of gasoline, &gt;1.63 Million Kg of coal, or 7,324 barrels of oil</li> <li>• CO<sub>2</sub> taken up by 3987 acres of forest, or 53805 tree seedlings over ten years</li> </ul>

**\*\*NOTE:** There are some inaccuracies in the overall emission savings calculations, as it is likely that a significant percentage of attendees who were able to attend the virtual meetings may not have attended in-person meetings due to economic or other factors.



### **Agenda Item 3: Letter of Recognition for Individual's service to PICES**

**Summary:** Science Board (SB) **recommended Governing Council (GC)** approve the template letter which the PICES Secretariat drafted to be sent to supervisors of PICES Expert Group leaders to recognize their PICES contributions. The Secretariat agreed to establish a protocol for EG chairs to request a letter. The request form will be placed on the PICES website. See [Appendix A](#)

#### **Background:**

**SB2021:** SB unanimously recommended that the PICES Secretariat develop a template letter for PICES Expert Group chairs to request be sent to their supervisors to recognize their contributions within PICES

**GC-2021 (S/6):** GC reviewed the recommendation from SB that all Expert Group members be able to request a letter of recognition, signed by the Chair and Executive Secretary, indicating their participation in the organization that could be provided to their supervisor. GC instructs SB to work with the Secretariat to prepare a letter template and procedure guidelines at ISB-2022 that can be reviewed by GC.

**Details:** The SB Chair, Dr. Trainer, reviewed the background SB recommendation to create a mechanism for recognizing individuals for their service to PICES and to address the GC request for the Secretariat to draft a template letter. The goal of the letter is not only to recognize the individual's service, but also to help the employer/supervisor to better understand the significant commitment and responsibility required for service to PICES.

Dr. Trainer and PICES Secretariat, Dr. Chiba, presented the template letter and accompanying form (see following pages) to the SB. It was confirmed that the wording of the letter can be customized to fit an individual's needs, in particular to specify any achievements which they wish to have highlighted. The letter is primarily intended for Chairs of EG's. However, it can also be provided to other PICES members if they wish to be acknowledged.

Dr. Trainer called for comments on the request and the letter. Several comments and questions were received, including a suggestion of adding the protocol into the [PICES Guideline for Chairs and Convenors](#). Once GC approves the template letter at the 2022 intersessional GC meeting, the Secretariat will notify all current EG chairs of the protocol for requesting letters. Starting with the PICES-2022 annual meeting, new EG chairs will be notified of the option to request a letter as soon as they are appointed by their GC representative

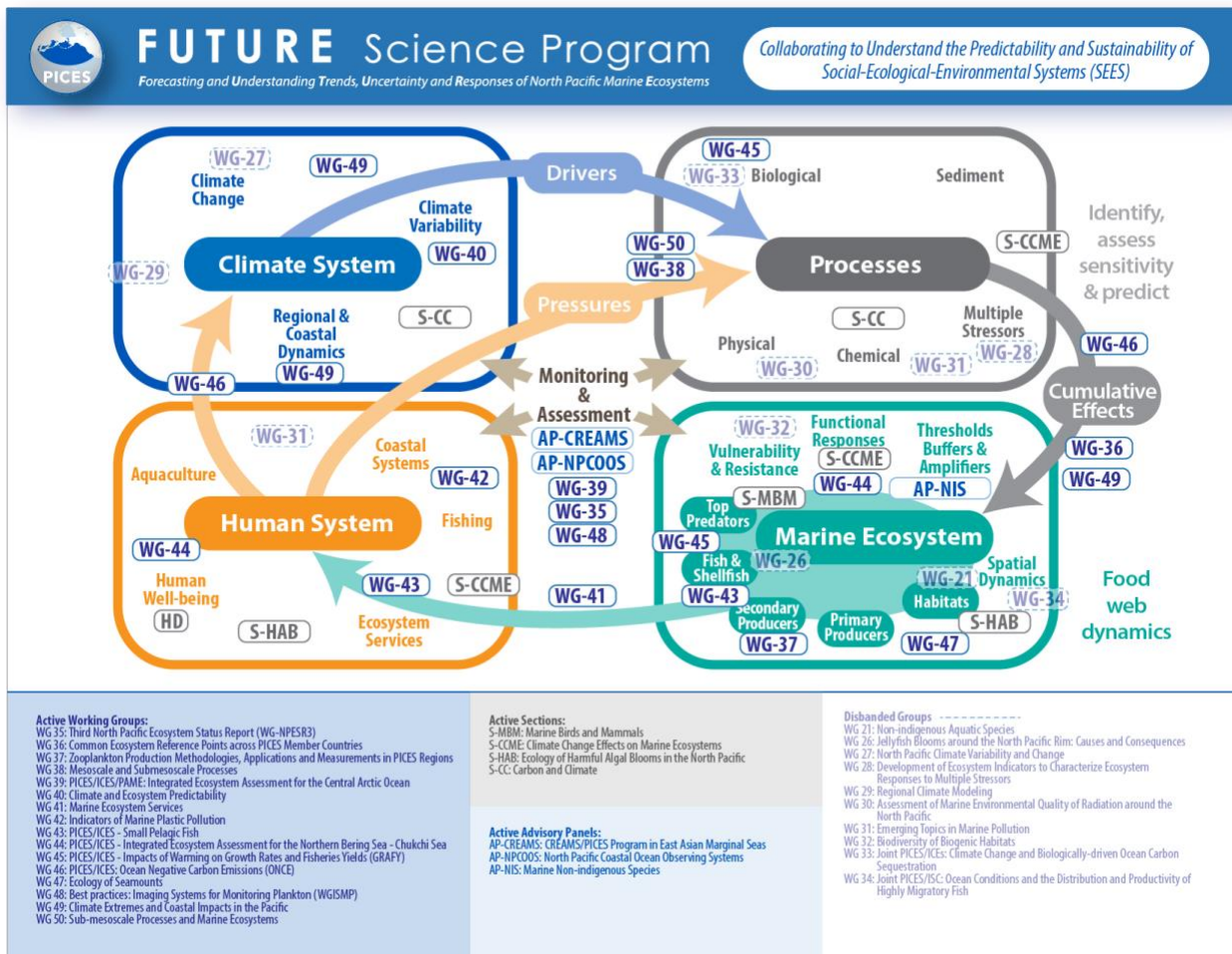
### **Agenda Item 4: FUTURE-SSC Report**

**Summary:** Science Board (SB) acknowledged the progress and current status of FUTURE Phase III activities, and agreed to add an agenda item during ISB-2022 to discuss the strategy for the FUTURE action plan in the coming years (See [Agenda \(addendum\)](#): Future of FUTURE).

#### **Details:**

FUTURE has entered Phase III of its [Science Plan](#) in 2021. The FUTURE Co-Chair, Dr. Bograd, provided a summary of the FUTURE-SSC intersessional meeting that was held a week ahead of ISB, which included an update of FUTURE science and an overview of its action plan for the coming years.

**Phase III update:** The FUTURE- Expert Groups Liaisons table was revised to reflect changes in recent SSC members and establishment and disbandment of Expert Groups. The FUTURE Schematic diagram which maps the roles of and interactions among Expert Groups within the FUTURE Social-Ecological-Environmental System (SEES) approach was also updated (see figure next page).



**Publication:** The FUTURE Product Matrix survey which maps Expert Group products (publications) is completed. This matrix depicts the strengths and gaps of FUTURE Phase II science. A peer-reviewed paper will be prepared based on this matrix to celebrate FUTURE accomplishments. The FUTURE Phase II Final Report is under preparation and will be completed by PICES-2022.

**Meetings:** FUTURE plans a one-day Workshop: “SmartNet: Promoting PICES and ICES Leadership in the UN Decade of Ocean Science for Sustainable Development” at PICES2022. Planning for the next FUTURE synthesis meeting, FUTURE Open Science Meeting (OSM), has been pending for the past 2 years due to the unforeseeable circumstances of the pandemic. The intention of OSM is to highlight the FUTURE Science Program scientific accomplishments to date. FUTURE SSC discussed the optimal timing and location of OSM, tentatively proposed either for spring 2023 in Hawaii or as a plenary workshop during PICES 2024.

**Future of FUTURE:** FUTURE is in the early stages of phase III and many of its activities are still in progress. However, with the establishment of another large-scale PICES (and ICES) Science Program “SmartNet” in 2021, which addresses the challenges and societal goals of UNDOS, FUTURE is facing transition of its leadership and revisions to its Phase III action plan. Seeing the extensive discussion among SB members on this topic, SB Chair, Dr. Trainer proposed an additional agenda item on day 2 and 3 to continue the discussion (See [Agenda \(addendum\): Future of FUTURE](#))

## Agenda Item 5: SmartNet/IPOD Report

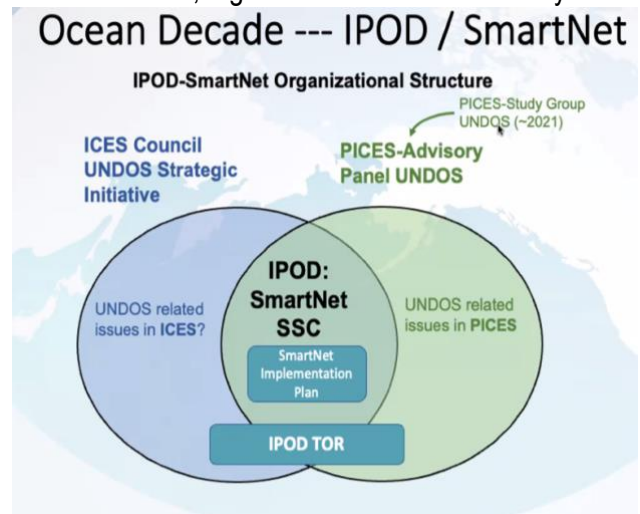
**Summary:** Science Board (SB) acknowledged the accomplishment of Study Group UNDOS, which is the PICES body established to promote the PICES contributions to UNDOS, including the UNDOS endorsed ICES/PICES Joint Programme Sustainability of Marine Ecosystem through global knowledge Networks ([SmartNet](#)), endorsed as an official UNDOS Programme in 2021.

**Details:** The SG-UNDOS Co-Chair, Dr. Bograd, outlined the activities of Study Group-UNDOS. PICES SG-UNDOS and ICES Council UNDOS Strategic Initiative formed the joint working group ICES PICES Ocean Decade (IPOD) which planned and promoted strategies and action plans to address UNDOS challenges and societal outcomes through virtual meetings. The major outcome of IPOD was the development of the SmartNet programme which is focused on, but was not limited to, the current ICES/PICES Joint studies, e.g. the climate-fisheries/ecosystem nexus, Social-Ecological-Environmental-System (SEES) dynamics, and human dimensions of coastal communities. Cross-cutting themes such as engagement and capacity development of ECOPs and underrepresented communities are one of the major pillars of SmartNet. The schematic diagram (right) describes the organizational structure of SG-UNDOS, IPOD and SmartNet. More details about SmartNet can be found on the website (link [here](#), and [here](#)) and the Fact Sheet on the next page.

IPOD has been actively reaching out to organizations representing diverse disciplines and geographical coverage since its establishment, for example, other UNDOS endorsed programmes such as Marine life 2030, GEOS, SUPREME, and the

Decade Collaborative Centre (Tula Institute). Others include Future Earth/OceanKAN, Asian Pacific Network, and more. SG-UNDOS fulfilled its Terms of Reference and has evolved into the Advisory Panel: AP-UNDOS, approved by GC after ISB. The major task of AP-UNDOS is implementation of SmartNet and synthesis of various UNDOS related PICES activities (see [Agenda #11-1](#)). Completed and upcoming SmartNet activities are as follows;

- Participated in OSM townhall event on Knowledge Action Network (Feb. 2022)
- Participated in Consortium for Ocean Leadership “Workshop to Coordinate Biological Observing Programms in UNDOS (Apr. 2022)
- Submitted SmartNet concept paper “Co-production of knowledge to support integrated assessment of marine social-ecological systems” to ICES Journal of Marine Science (~June 2022)
- Organized [Satellite event of UNDOS Lab Productive Ocean](#) “SmartNet: Establishing Global Knowledge Networks to achieve ‘a Productive Ocean’ (June 1, 2022)
- Hold SmartNet Workshop “SmartNet: Promoting PICES and ICES Leadership in the UN Decade of Ocean Science for Sustainable Development” at PICES-2022 (Sept 2022)
- Contribute to UNDOS National Surveys led by HD (~Oct 2022)
- Complete SmartNet Implementation Plan: Phase I action plan (~Dec, 2022)
- Plan workshop on community engagement (~Dec 2022)





**SmartNet Fact Sheet**



**Lead Institution**

**International Council for the Exploration of the Sea (ICES) & North Pacific Marine Science Organization (PICES)**

Contact  
Joern.Schmidt@ices.dk  
Steven.Bograd@noaa.gov

**KEY PARTNERS**

SmartNet will facilitate partner engagement by leveraging ICES and PICES partners and through creation of a global knowledge network

**DECADE CHALLENGES ADDRESSED**

CHALLENGE 1: Understand and beat marine pollution  
CHALLENGE 2: Protect and restore ecosystems and biodiversity  
CHALLENGE 3: Sustainably feed the global population  
CHALLENGE 4: Develop a sustainable and equitable ocean economy  
CHALLENGE 5: Unlock ocean-based solutions to climate change  
CHALLENGE 6: Increase community resilience to ocean hazards  
CHALLENGE 7: Expand the Global Ocean Observing System  
CHALLENGE 8: Create a digital representation of the Ocean  
CHALLENGE 9: Skills, knowledge and technology for all  
CHALLENGE 10: Change humanity's relationship with the ocean

**OCEAN BASINS**

North Atlantic	Indian
South Atlantic	Arctic
North Pacific	Southern
South Pacific	

**Summary**

SmartNet will establish a global knowledge network (GKN) for ocean science by strengthening and expanding the collaboration of ICES/PICES and partner organizations. It will support and leverage ICES/PICES member countries' activities related to UNDOS, by emphasizing areas of mutual research interest including climate change, fisheries and ecosystem-based management, social, ecological and environmental dynamics of marine systems, coastal communities and human dimensions, and communication and capacity development. It also incorporates strategies to facilitate UNDOS cross-cutting inclusivity themes relating to gender equality, early career engagement, and involvement of indigenous communities and developing nations in the planning and implementation of joint activities.

Duration: 01/01/2021 - 31/12/2030

**Priority Activities (first 2 years)**

- Establish ICES-PICES Expert Groups on key themes on marine social-ecological-environmental systems
- Facilitate stakeholder outreach and partner engagement in SmartNet activities
- Participate in Ocean Decade Laboratories and Communities of Practice
- Publication of SmartNet article for Eco Magazine
- Co-sponsor MSEAS Marine Socio-Ecological Systems Symposium teaser event, December 2021
- Co-sponsor 4th ICES-PICES Early Career Scientist Conference, May 2022, Canada
- Co-sponsor Small Pelagic Fish Symposium, Nov 2022, Portugal
- Co-sponsor ICES-PICES Joint Annual Meeting, Fall 2023, USA

***"SmartNet will reach far beyond our established networks to advance and share scientific understanding of marine ecosystems and the services they provide to generate state-of-the-art advice and evidence for meeting conservation, management, and sustainability goals."***

*ICES-PICES Ocean Decade Steering Committee*







## Agenda Item 6: Special Project Updates

**Summary:** Science Board (SB) reviewed and acknowledged the progress of the current Special Projects “SEAturtle” and “Ciguatera”, and the prospective project “BECI”.

### 1. SEAturtle: Sea turtle ecology in relation to environmental stressors in the North Pacific region

- <https://meetings.pices.int/projects/SEAturtle>
- **Term:** December 2018 – November 30, 2022
- **Project Science Team Co-Chairs:**
  - Taewon Kim (Inha University, Korea)
  - George Balazs (Golden Honu Services of Oceania, USA)
- **Funder:** the Ministry of Oceans and Fisheries of Korea
- **Parent PICES Committee:** Biological Oceanography Committee (BIO)

Dr. Taewon Kim, SEAturtle Science Team Co-chair, provided an update of the project. Though field research activities for Sea Turtle tagging were hindered due to the influence of COVID, the team successfully tracked the foraging areas and wintering locations of some turtles including one loggerhead turtle. One record near Japan indicates that Loggerhead foraging depths could reach up to 130 m deep. The team wishes to conduct more tagging research in the next year. The SEAturtle tagging project details are reported in Summer 2021 [PICES Press](#) vol 29, No.2.

Another highlight of this year’s research is the study of impacts of fishing gears on sea turtle ecology. Discarded fishing gear is reported as the most common type of marine debris which impacts large marine animals including sea turtles. This research suggests that lures and fishing lines from recreational fishing are more threatening to sea turtles than commercial fishing gear. The team proposed introducing a restriction on recreational fishing in Korea where there currently is no legislation on fishing licenses.

The SEAturtle Science Team did not make any requests of SB.

### 2. Ciguatera: Building Local Warning Networks for the Detection and Human Dimension of Ciguatera Fish Poisoning in Indonesian Communities

- <https://meetings.pices.int/projects/Ciguatera>
- **Term:** April 2020 – March 2023
- **Project Science Team Co-Chairs:**
  - Mitsutaku Makino (Atmosphere and Ocean Research Institute, The University of Tokyo, Japan)
  - Mark Wells (University of Maine, USA)
- **Project Coordinator:** Alexander Bychkov (PICES)
- **Collaborator:** Indonesian Agency for the Assessment and Application of Technology (BPPT) and Indonesian Institute of Sciences (LIPI)
- **Funder:** Ministry of Agriculture, Forestry and Fisheries (MAFF) of Japan, through the Fisheries Agency of Japan (JFA)
- **Parent PICES Committee:** Human Dimensions Committee (HD)

Dr. Makino, Project Science Team Co-Chair, updated the SB on the PICES / MAFF Ciguatera Special Project, which builds upon the technology developed during the FishGIS Special project completed in 2020. Though their initial field observation planning was forced to change due to COVID, the team had several online meetings since last year to discuss alternative plans.



The revised field program will be conducted by LIPI staff starting in May 2022, in which they will collect samples to obtain water quality and coral status indicators. The indicators are used for study of the benthic dinoflagellate (*Gambiidiscus* spp.) bloom which is responsible for Ciguatera Fish Poisoning. The team seeks to schedule another field study before the project termination in March 2023. To promote further research collaboration and capacity building programmes with Indonesian research organizations, a new MOU was signed between PICES and Indonesian Technology Institute (ITI) on March 23<sup>rd</sup>, 2022.

The Ciguatera Project Science Team did not make any requests of SB.

### **3. BECI: Basin Events to Coastal Impacts**

**Summary:** Dr. Chiba of the PICES Secretariat provided a brief update on the BECI project proposed by the North Pacific Anadromous Fish Commission (NPAFC) and PICES. Additional information will be provided at PICES-2022. The full proposal of the Special Project will be submitted to PICES in the near future.

**Background:** [BECI](#) was endorsed as an UNDOS project in 2021. At SB-2021, SB Recommends that PICES support continued development of the BECI project, and that NPAFC/BECI submit a full proposal for PICES consideration as a PICES Special Project. The Governing Council approved continued development of the NPAFC/BECI program, and that NPAFC/BECI be requested to submit a full proposal for consideration as a PICES Special Project (GC-2021/S/5)

### **Agenda Item 7: Awards**

**SB Decision:** Science Board (SB) chose the award recipients for the Wooster, POMA and the Zhu-Peterson awards, who will be recognized during the awards ceremony to take place during the opening ceremony of PICES-2022. Note: Information on the awardees is confidential until PICES-2022.

### **Agenda Item 8: Scientific and Technical Mid-Year Reports**

**Summary:** Science Board (SB), FUTURE and Committees reported and reviewed scientific achievements and progress on Terms of Reference of the respective Children Expert Groups since PICES-2021 as shown in the Briefing Book.

See [Appendix B](#) for the Reporting Committee list. SB also reviewed current TCODE activities on PICES data sharing strategies and protocols.

#### **PICES/TCODE: data sharing strategy update**

Ms. Jeanette Gann, the Chair of TCODE Committee, updated TCODE activities on development of PICES data sharing strategies and protocols.

Ms. Gann introduced **TCODE Catalogue Service** which was developed aiming to collate all PICES Scientific/Technical Reports with search function. Lori Waters, PICES Communication Officer, noted that she currently updates all PICES publications including Scientific/Technical Reports to [AquaDocs](#), the joint open access repository of UNESCO/IODE, and that the information of PICES publications including the AquaDocs link shall be more searchable and assessable in the upcoming new PICES website. Improvements in accessibility to the current **TCODE Metadata Bases** were also suggested.

TCODE will hold a Workshop at PICES-2022 to summarize national data archive strategies and data sharing policies for each PICES member nation and identify potential barriers to sharing. They plan to expand the idea for establishing PICES Data Sharing Protocol during the workshop or future working group if necessary/useful.



## Report of PICES Science Board: 2022 Intersessional Meeting (ISB-2022)

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Ms. Gann has joined the [UNDOS Data Coordination Group](#) (DCG) which consists of 25 International data specialists from a variety of backgrounds including government, industry, academic, and other stakeholder groups. The group focuses on strategic exchange and coordination between key actors, and guidance and advice to various parts of the Ocean Decade community. Gann encouraged SB members to review the DCG activities.

### Agenda Item 9: EG Proposals for SB Recommendation (with funding request)

#### 1. Proposal for Travel Support

**Summary:** Science Board (SB) received travel support requests from [WG39](#): Joint PICES/ICES/PAME Working Group on an Integrated Ecosystem Assessment for the Central Arctic Ocean, and [WG45](#): Joint PICES/ICES Working Group on Impacts of Warming on Growth Rates and Fisheries Yields (GRAFY). SB reviewed eligibilities and rationales of the proposals and agreed to **recommended that Governing Council (GC)** approve the travel fund requests.

EG	Conference title / Date / Location	Recipient name / organization / country / contact	Amount and rational of fund request
WG39	7 <sup>th</sup> WGICA Annual Meeting Oct 11-13 Copenhagen, Denmark	Sei-ichi Saitoh (ssaitoh@arc.hokudai.ac.jp), Hokkaido Univ, Japan	(CA\$) 3000 Partial support Dr. Saitoh is WG39 Chair
EG	Conference title / Date / Location	Recipient name / organization / country / contact	Amount and rational of fund request
WG45	WG45 organized session and Joint ICES/PICES WGGRAFY meeting at ICES Annual Science Conference, Sept 19-22, Dublin, Ireland	Shuyang Ma (mashuyang@Ouc.edu.cn), Ocean University of China  WG45 member, ECOP, invited speaker	Ma: (CA\$) 3500 Airfare from Qingdao to Dublin and accommodation. Dr Ma is an ECOP member of WG45, and invited speaker of the session. His participation will increase a chance to extend WG's analyses to Chinese water.



## Agenda Item 10: EG Proposals for SB Recommendation (without funding request)

### 1. Membership Needs/Changes

**Summary:** Science Board (SB) acknowledged membership requests of each Expert Group and asked for GC's action to approve appointment of new members and dismissal of members who stepped down at an appropriate timing. SB members were encouraged to urge their national delegates to consider appointment of new members at their earliest convenience, to enable EGs to begin their work as soon as possible after groups are formed. \*Also see [Agenda Item 17](#): EG Membership Confirmation Protocol.

EG (Reporting Committee)	Country	Name/Organizations if identified	e-mail
TCODE	Russia	1-2 members	-
SG-APN (SB)	China Canada Russia	1-2 members for each	-
S-HAB (BIO)	Russia	1 additional member	-
AP-UNDOS	China	Need representative from China * Upon approval of AP	-
AP-NPCOOS (MONITOR)	China	1-2 new members. * "There has been a notable absence of participation of Chinese members in AP-NPCOOS activities in 2020 and 2021 business meetings, and no response to communications. Request assistance in appointing new members from China"	-
ECOP (FUTURE)	Japan	Hana Matsubara / University of Tokyo (PhD candidate), link to UNDOS.	hmatsubara@g.ecc.u-tokyo.ac.jp
WG44 (HD)	USA	Jamal Moss / NOAA	Jamal.moss@noaa.gov
WG45 (FIS)	Russia	Natalia Yaragina / Polar Branch of Russian Research Institute of Marine Fisheries and Oceanography. She expresses her interest to join.	yaragina@pinro.ru
S-CCME (FIS)	USA	Elliott Hazen Climate change adaptation expert with particular expertise in SDMs, dynamic management and protected resources	Eliot.hazen@noaa.gov
	Canada	Member from Canada needed to replace Jackie King.	
AP-NIS (MEQ)	USA	P Sean McDonald / University of Washington Carolyn Tepolt / WHOI *Need US members with broad expertise in NIS in Pacific marine waters and DNA methods. Also to improve gender balance Note: J. Davis stepped down at PICES2020 but official request from US delegates has not been received by PICES	psean@uw.edu ctepolt@whoi.edu
WG48 (BIO)	Japan	Dhugal Lindsay / JAMSTEC Kazutaka Takahashi / University of Tokyo	dhugal@jamstec.go.jp akazutak@ecc.u-tokyo.ac.jp
	Canada	Paul Covert (ECOP) / DFO	Paul.Covert2@dfo-mpo.gc.ca
	USA	[Stepdown] Alexis Fischer (ECOP) / NOAA	alexis.fischer@noaa.gov
	USA	[Change in country: Canada to USA] Joseph A. Needoba / OHSU-PSU School of Public Health	needobaj@ohsu.edu



2. Change of Plan (TOR, Action Plan, Term)

Summary: Science Board (SB) recommended Governing Council (GC) approve the revised Action Plan for 2022-2026 of S-MBM: Section on Marine Birds and Mammals (Appendix C-1) and revised Terms of Reference (TOR) for 2021-2025 of S-HAB: Section on Harmful Algal Blooms in the North Pacific (Appendix C-2). SB recommended AP-ECOP: Advisory Panel for Early Career Ocean Professionals to revise the proposed change of its TOR to resubmit to SB-2022.

Table with 3 columns: EG (Reporting Committee), TOR, Action Plan or Term, and Rational for change. Rows include ECOP (FUTURE), S-MBM (BIO), and S-HAB (MEQ).

Proposed changes to AP-ECOP TOR were reviewed by SB. The change is in response to the decision of GC (GC 2021) requesting its TOR to include the conventional PICES definition of Early Career Scientists "less than 36 years old, or who obtained their PhD within the last 5 years". However, given the current global mainstream which encourages multiple disciplinary/sectoral engagement in ocean science, AP-ECOP intends to expand the definition to be more inclusive so that ECOP with diverse backgrounds could participate and in the longer-term. Dr. Lachance, AP-ECOP member, referred to the PICES ECOP engagement plan which recommends the definition of ECOP (see below)

ECOP DEFINITION
ECOP is broadly considered an ocean professional who is in the initial phases of his/her/their career and self-identifies as an early career scientist or practitioner. We recommend that PICES use an expanded definition for ECOPs to include professionals who graduated with a degree more than 5 years ago but who still consider themselves as early in their career.
The definition we propose is:
Self-identified: Someone who self-identifies as an early career professional and in the beginning of his/her/their career
Within 10 years of obtaining a degree or 5 years in a current position: 10 years or less since obtaining a degree or less than 5 years in a current job or profession
We suggest that this broader definition be applied to the general PICES ECOP definition, but recognize that PICES ECOP award(s) (e.g., PICES Zhu-Peterson award criteria) could be based on different rules, depending on needs or funding. In addition, this definition would also be aligned with the standard used by the Ocean Decade ECOP Program.

There was discussion among SB members and Dr. Trainer, SB Chair, suggested she will work with AP-ECOP and a proposal for these revisions shall be presented to SB-2022 for standardizing the ECOP language.



### 3. Change of Chairs

**Summary:** Science Board (SB) **recommends Governing Council (GC)** approve the appointment of new chairs for AP-ECOP: Advisory Panel for Early Career Ocean Professionals and AP-SciCom: Advisory Panel on Science Communication as proposed.

EG	Current Chair to replace	New Chair Name/Country/Organization
AP-ECOP	-	Hannah Lachance / USA / NOAA Minkyong Kim / Korea / Kyunpook National Univ Raphael Roman / Canada *upon official approval of his membership by Canada *AP plans to have 4 co-chairs and one more chair from western NP side will be identified later
AP-SciCom	-	Tammy Norgard / CANADA / DFO

**Note:** Selection and approval of EG Chairs ([PICES Rules and Procedures: Rule 17](#))

**Committee** Chairs are elected from and by its members assigned through the election at PICES Annual Meeting.

**WG** Co-Chairs are selected from the membership by **SB** for approval by **GC** to serve for the life of the group.

**SG** Chair(s) are selected by GC if the group reports directly to GC, or nominated by an executive committee and approved by the GC if the group reports to an executive committee. The Chair or Co-Chair serve for the life of the group (typically one year);

**AP** Chair(s) are selected from the membership by **SB**, for approval by **GC** to serve for a period to be determined by **SB**

### 4. Change of Parent Committee

**Summary:** Science Board (SB) **recommended GC** to approve Human Dimensions Committee to become a parent committee of WG43: Joint PICES/ICES Working Group on Small Pelagic Fish.

EG	Current Committee	New Committee	Rational of Change	SB Action
WG43	FIS	FIS and HD	To address human dimension aspects of WG activities.	*SB Recommended the proposal at PICES-2021 but not reported to GC



### Agenda Item 11: Proposed New Expert Groups

**Summary:** Science Board (SB) reviewed proposals of new Experts Groups and **recommended Governing Council** approve establishment of: **AP-UNDOS:** Advisory Panel on United Nations Decade of Ocean Science (see [Appendix D-1](#) for proposal) and **SG-GREEN:** Study Group on Generating Recommendations to Encourage Environmentally- Responsible Networking (see [Appendix D-2](#) for proposal). SB recommended that the work plan and WG proposal for **WG on Human Networks to Power Sustainability** (see [Appendix D-3](#)) be further developed, and submitted to SB during PICES-2022.

Name	Parent Committee	<ul style="list-style-type: none"> <li>• Linkages to other PICES EGs and/or other organizations/programmes.</li> <li>• Background and Goals</li> </ul>
AP-UNDOS	SB	SG-UNDOS established the foundation of ICES/PICES collaboration strategy during UNDOS. AP-UNDOS will implement the UNDOS endorsed ICES/PICES joint Programme SmartNet and synergise other UNDOS related activities in PICES.
SG-GREEN	SB	SB-2021: SB recommended establishment of a Study Group to explore the best way for PICES to manage sustainability and greener meetings.
WG on Exploring Human Networks to Power Sustainability	HD	To contribute to implementation of SmartNet (with AP-UNDOS, FUTURE, WG49) in Human Dimension aspects. Collaborator: UNDOS Regional Collaborative Center for NE Pacific.

#### 1. AP-UNDOS: Advisory Panel on United Nations Decade of Ocean Science

AP-UNDOS evolved from SG-UNDOS which established the foundation of ICES/PICES collaboration strategy during UNDOS. The SG-UNDOS will be terminated as of ISB2022. The prospective AP Co-chair, Dr. Bograd, outlined the objectives and TOR of the group. The AP-UNDOS shall function as the de facto Steering Committee of the UNDOS-endorsed ICES/PICES joint Programme “SmartNet,” together with ICES Council UNDOS Strategic Initiative. The major task during the initial phase of the AP is to implement SmartNet and synergise with other UNDOS-related activities in PICES. In the long run, however, its tasks are not limited to SmartNet but will include promotion of PICES engagement in diverse UNDOS related subjects.

Dr. Bograd noted that there had been a concern about the possible redundancy in activities and human resources of AP-UNDOS/SmartNet and FUTURE. The SB Chair, Dr. Trainer, emphasized the needs of structural arrangement which allows regular dialogues between the two groups in regard to effective task sharing. Dr, Bograd suggested the appointment of AP-UNDOS liaison among FUTURE members would be a favorable option.

Given that the AP’s implementation plan (TOR No. 3) stresses wider community engagement, SB member Ms. Gann suggested the AP consider recruiting AP member(s) from indigenous communities.

#### 2. SG-GREEN: Study Group on Generating Recommendations to Encourage Environmentally- Responsible Networking

The SB Chair and the lead of the Study Group, Dr. Trainer, explained the background and concept of the group. There is an increasing demand for climate-ocean scientists to be thoughtful in implementing research activities in a more sustainable manner. Given the large carbon saving that the PICES community achieved by switching its meetings from in-person to virtual meetings in the past two years, we are urged to reconsider the conventional



scheme of PICES activities to be more environmentally-friendly, for example, by applying a hybrid format to the PICES meetings, which also enables wider participation. Because this transition would require significant resources and facilities which are not immediately available to PICES, the Study Group aims to develop creative solutions and recommendations to manage to make PICES activities “greener”.

SB member, Dr. Di Lorenzo mentioned the Sustainable Meeting Task Force of American Geophysical Union (AGU) which produced some concrete deliverables that could be useful to PICES, and offered his help connecting PICES to AGU. He stressed the needs of PICES’s urgent actions as one of the world’s leading international ocean science organizations. He also suggested a creative approach such as establishment of a new working group which aims to develop carbon reduction tools (not only for meetings but research activities).

Dr. Trainer noted that Study Group membership was open and encouraged additional ECOP members to join. Though it is not conventional for a newly proposed Expert Group to be approved intersessionally by GC, SB supported the value of the proposal and unanimously agreed to recommend immediate establishment of SG-GREEN so that it could start its activities in a timely manner.

### **3. WG on Human Networks to Power Sustainability**

Dr. Makino, the chair of Human Dimension Committee which is the prospective parent committee of this new working group, outlined the proposal on behalf of the proposed working group chairs, Shion Takemura (Japan Fisheries Research & Education Agency) and Karen L. Hunter (Fisheries and Oceans Canada). The goal of the WG is to contribute to implementation the Human Dimension aspects of SmartNet, especially through collaboration with AP-UNDOS, FUTURE, and WG49: Climate Extreme and Climate Extremes and Coastal Impacts in the Pacific.

Dr. Makino and his colleagues have conducted keyword analysis using the past PICES reports to identify the strengths and gaps of PICES research and how these have changed since the 1990s. Once approved, the WG will expand this approach by collecting large datasets through communication with all PICES countries and partner organisations. They will identify how the outcomes of PICES and its SmartNet partners can effectively address the UNDOS challenges through interaction among the human networks. The SB strongly supported the value of the WG strategy and recommended the organizing group to further develop the idea and submit a Working Group proposal at PICES-2022.

SB member, Dr. DiLorenzo suggested that role and support of the WG collaborator, Ocean Decade Regional Collaborative Centre for NE Pacific be clarified in the revised proposal, and Dr. Makino agreed with this suggestion. SB member, Dr. Bograd commented that SmartNet has already started collaborating with the Centre through the planning of a SmartNet UNDOS Lab Satellite Event in June 2022, and that they are keen to help with logistics and planning of our UNDOS-related events.





### Agenda Item 12: PICES-2022: Update

**Summary:** Science Board (SB) supported the draft schedule of PICES-2022 and agreed with the Secretariat’s request for Expert Groups to hold business meetings virtually prior to PICES-2022 with sufficient time allowed for them to report to Parent Committees, SB, and GC.



Venue: Paradise Hotel Busan ([link](#))

Format: in-person with ad hoc option of remote participation

Abstract submission due: June 15

\*Video streaming of talks is available but only in the main grand ballroom

### Tentative Schedule of PICES-2022

Preparation		
February 15	<a href="#">Website</a> & Abstract submission / Registration Open	
April	Invited Speakers & Travel support request identified	
May	Secretariat site visiting	
June 15th	Abstract submission due	
July	Session, WS, Business meeting schedule identified	
August – September 10 <sup>th</sup>	Pre PICES-2022 virtual EG Business Meeting	*Pre-PICES-2022 virtual business meeting is recommended for EGs
PICES-2022		
Date	Session and Workshop	Business meeting
September 23-25	Workshops (9)	Committee & EG Business meeting
September 26	Opening / SB Topic Sessions	
September 27- 30	Topic Sessions (9), Paper Sessions (~5), Poster Session, Closing Session.	Committee Business Meetings F&A Meeting
September 30-October 1		SB Meeting
October 1-2		GC Meeting

**Details:** Dr. Sanae Chiba of the PICES Secretariat provided an overview of the planning and schedule of PICES-2022. She clarified that, though WIFI is available at the venue, there are only limited options for remote participation at the conference venue. Thus, participants are encouraged to travel to Busan. Some special arrangements can be made, e.g. AP-SciCom Workshop plans to have an online lecture of a professional science communicator. Dr. Chiba noted the conference format could be modified in future due to unforeseen circumstances.

Dr. Chiba noted that the conference duration is shorter than a regular meeting: it will begin on a Friday instead



## **Report of PICES Science Board: 2022 Intersessional Meeting (ISB-2022)**

*held online via Zoom, from April 11/12 (North America) to 13/14 (Asia).*

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of Wednesday, because Experts groups were encouraged to hold their business meetings remotely in advance of the Annual meeting unless they specifically requested in-person meetings. This promotes a more environmentally sustainable and “greener” meeting and allows timely reporting from Expert Groups, Committee, SB to GC. Expert Groups will be asked to submit their requests which require SB recommendation and GC approval prior to the Annual Meeting even if in-person business meetings are scheduled during PICES-2022 . The SB Chair, Dr. Trainer, urged SB members to support the new scheme by reminding their child Expert Groups that they have been requested to hold their business meetings virtually.

On-site business meeting requests were initially approved (at GC-2021) for the following Expert Groups: WG47, AP-NPCOOS, AP-CREAMS (0.5 day), WG43, WG44, WG45, WG49, S-CCME (1.0 day), FUTURE SSC (2.0 day), and seven Standing Committees (0.75 day). Dr. Chiba will communicate with other Expert Groups to allow on-site meetings, if needed, only if the rooms are available at the venue.

PICES Vice Chair, Dr. Fujii also agreed with the scheme that will enable smooth reporting from Expert Groups to GC as he was concerned with the tight schedule of past business meetings during past in-person Annual meetings, which occasionally had caused miscommunication, particularly between SB and GC. Responding to Fujii’s concern, Trainer suggested a possible option of a post-meeting virtual GC meeting so that SB recommendations will be well prepared before passing it to GC. Dr. Fujii request that GC meeting in person to allow members to meet one another, especially because there are some new members.

### **Presentation Archive Protocol**

**Summary:** SB agreed to the Secretariat’s proposal to set a 3-year limit for archiving electronic presentations from Annual Meetings on the PICES website. Secretariat will delete the files from the PICES server after 3 years .



## **Agenda Item 13: 2023 ICES/PICES Joint Annual Meeting**

**Summary:** Science Board (SB) members agreed that they will serve as members of PICES-2023 Session selection panel, which is responsible for evaluating session and workshop proposals and developing the conference schedules together with members of ICES and the Local Organizing Committee.

Conference Title:

Connecting Oceans, Science and Communities

Date: October 23-27, 2023 (core conference dates)

Location: Seattle, USA

Local Organizer: NOAA National Marine Fisheries Service (NMFS)

Venue: Westin Seattle Hotel



Connecting Oceans, Science and Communities

### **SCOPE:**

This is the first joint annual meeting of ICES and PICES ever proposed. This conference will provide a unique opportunity to foster long-lasting collaborations on our shared priorities, building on existing joint activities and promoting cross-fertilisation at all levels of the organizations. Just a few years into the United Nations Decade of Ocean Science for Sustainable Development, this conference is a chance to assess progress made so far and set a path for the rest of the Decade. Priorities for ICES and PICES within the Decade focus on climate change, fisheries and ecosystem-based management, social, ecological and environmental dynamics of marine systems, coastal communities, traditional ecological knowledge and human dimensions. Opportunities to engage new partners, especially around the cross-cutting themes of Early Career Ocean Professionals, diverse communities, and engaging with local and Indigenous communities are especially encouraged.

**Details:** Dr. Chiba of the PICES Secretariat provided an overview of the planning and scope of the first-ever ICES/PICES joint annual meeting to be held in Seattle, Washington, USA in Oct 2023. The IP23 (ICES/PICES-2023) Working Group, consisting of representatives of both organizations and local organizers, has had a series of virtual meetings every few months since early 2021 to discuss the conference structure and logistics. One of the urgent action items is to appoint Session Selection Panel members who are responsible for evaluating session and workshop proposals and developing conference schedule. The PICES Executive Secretary, and IP23 lead, Dr. Batten, asked SB members to act as the Session Selection Panel members and work together with the members of ICES and Local Organisers, SB members agreed to take on the task.

The call for Session and Workshop proposals will be open sometime in early summer. Dr. Chiba noted that due to the nature of the joint meeting, the Session/Workshop selection will occur a few months earlier than the usual PICES schedule (and a few months later than the usual ICES schedule).



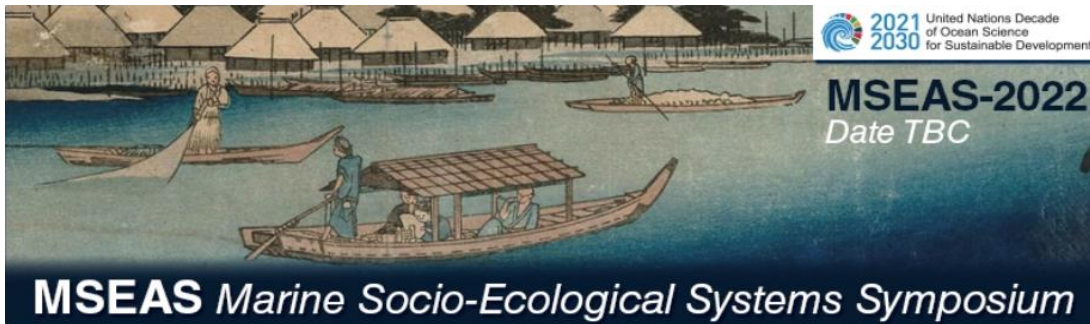
## Agenda Item 14: PICES-Sponsored Conferences / Symposia

Summary: Dr. Chiba of the PICES Secretariat provided a summary of the upcoming PICES-sponsored or other relevant international conferences and symposia planned from 2022-2025, and Science Board (SB) acknowledged the progress and planning of international conferences and symposia (1-8 as listed below). Dr. Chiba also reported on a request from SOLAS for ECOP travel support to their Open Science Conference to be held from September 25-29, 2022 (see the addendum in the list below). SB **recommended Governing Council (GC)** approve PICES co-sponsorship of the SOLAS Open Science Conference 2022 for support travel of Early Career Ocean Professionals from PICES member countries and/or ECOP event scheduled during the Conference.

### List of PICES-Sponsored or Relevant Conferences / Symposia

#### 1. **MSEAS Symposium**

*“Managing for Sustainable use of the Earth’s marine and coastal system”*



- Local Host Chair / Vice Chair: Toyomitsu Horii / Mitsutaku Makino
- Venue: Yokohama Port Opening Memorial Hall (Jack's Tower), Japan
- Provisionally postponed to 2023~
- Primary Sponsors: PICES, ICES, NOAA Fisheries
- Online Virtual Webinar was held December 2021 ([video available](#))

#### 2. **ESSAS Annual Science Conference 2022 (in-person/online hybrid)**

*“Bridging the past and present to manage the future of northern fisheries and ecosystems”*

- Date: June 19-22
- Local Host Chair / Vice Chair:
- Venue: U Washington, Seattle, USA
- Co-organizer: Ocean Past Initiatives (OPI): global research network for marine historical research
- PICES is Collaborator of ESSAS (not sponsor)





## Report of PICES Science Board: 2022 Intersessional Meeting (ISB-2022)

held online via Zoom, from April 11/12 (North America) to 13/14 (Asia).

### 3. 4<sup>th</sup> ICES PICES Early Career Scientist Conference 2022

“Ocean Science for the Future We Want”

- Date: July 18-21 (Postponed from May)
- Local Host: DFO, Canada
- Venue: Delta Hotel, St John’s, Newfoundland, Canada
- Convenor from PICES: Sonia Batten (PICES Executive Secretary)
- SSC from PICES: Paul Covert (Canada), Heejoong Kang (Korea), Hannah Lachance (USA), Raphael Roman (Japan/Canada)
- Theme sessions ([link](#))



### 4. IYS Synthesis Symposium

“Synthesis of the International Year of the Salmon (IYS) and Roadmap to 2030: Salmon in a Rapidly Changing World”

- Date: October 4th - 6th 2022
- Location: The Westin Bayshore, Vancouver, Canada
- Host: The North Atlantic Salmon Conservation Organization (NASCO) and the North Pacific Anadromous Fish Commission (NPAFC)
- Abstract submission due: April 15

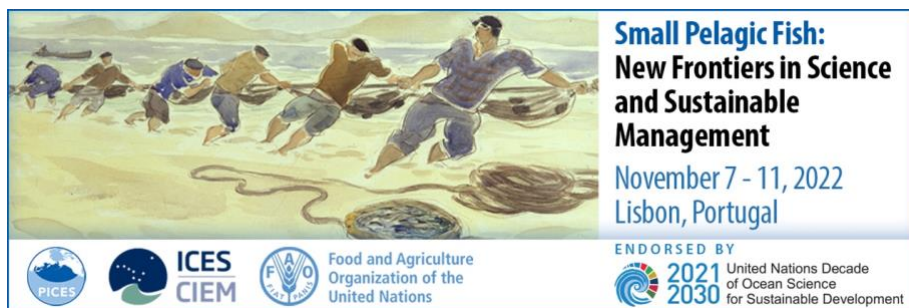
\*PICES is not a sponsor



The International Year of the Salmon (IYS): 2018- 2022.

**IYS themes:** 1. Status of Salmon, 2. Information Systems, 3. Salmon in a Changing Salmosphere, 4. New Frontiers, and 5. Human Dimensions.

### 5. ICES/PICES/FAO International Symposium on Small Pelagic Fish (SPF) 2022



- Local Organizer: Portuguese Institute of Sea and Atmosphere (IPMA), Calouste Gulbenkian Foundation
- Venue: Calouste Gulbenkian Foundation
- Abstract submission due: May 22 (extended to May 29)

#### **PICES Member involvement:**

WGSPF/WG43: ICES/PICES Working Group on Small Pelagic Fish (WGSPF/WG 43)

\* 3-day meeting of WGSPF is planned immediately after the symposium

Symposium Convenor: Ryan Rykaczewski (USA), Akinori Takasuka (JPN)

SSC: many PICES Scientists

Coordinator: Alexander Bychkov

### 6. ECCWO5



## Report of PICES Science Board: 2022 Intersessional Meeting (ISB-2022)

held online via Zoom, from April 11/12 (North America) to 13/14 (Asia).



- Venue: TBD
- Local host: Institute of Marine Research, Norway
- Session/Workshop selection undergoing
- Abstract submission: TBA
- Primary Sponsor: ICES, PICES, IOC, FAO,

### **PICES Member involvement:**

Symposium Convenors: Sonia Batten (Executive Secretary)

SSC: Emanuel Di Lorenzo (USA), Mitsutaku Makino (Japan), Tsuneo Ono (Japan), Erin Satterthwaite (USA)

### **7. 7<sup>th</sup> ICES/PICES Zooplankton Production Symposium 2024**

- Date: March 16-21, 2024
- Location: Hobart, Australia
- Venue: Hotel Grand Chancellor, Hobart
- Local Host: CSIRO

Symposium Scope and SSC members will be identified in due course

### **8. PICES Event associated with Expo 2025**

- Expo 2025 date: April 13 – October 13, 2025
- Location: Osaka Japan
- Host: Japanese government Bureau International des Expositions
- Theme and Focus: Designing Future Society for Our Lives: Saving Lives, Empowering Lives, Connecting Lives.



**PICES Correspondent:** Alex Bychkov, Sanae Chiba (Secretariat)

### **Background**

PICES was invited to participate in the 2025 World EXPO, to be held in Osaka, Japan in 2025. SB and GC agreed at PICES-2021 to explore the possibility for PICES to showcase its scientific achievements in conjunction with EXPO, including providing a PICES display at an EXPO pavilion and/or holding a one-day science event.

### **Update**

PICES representatives (incl. Batten, Bychkov, Chiba, Fujii) had a meeting with EXPO organizers in December 2021. We concluded that holding a space for a display through the EXPO period was not feasible because of the cost. We will continue our discussion with organizers to explore the possibility of holding a one-day PICES Science event with -a short- term (perhaps one week) display. The preferable timing of the Science event will be during the last week (or near very end) of EXPO as the PICES Japanese delegate is also exploring the possibility of holding PICES-2025, which will be hosted by Japan, at a location near the EXPO venue soon after the end of EXPO, e.g., in mid-October, so that PICES participants also can be engaged in the one-day EXPO event .



**Surface Ocean-Lower Atmosphere Study (SOLAS) Open Science Conference 2022 (Addendum)**

- Date: September 25th - 29th 2022
- Location: Cape Town, South Africa (Hybrid)
- Venue: TBC
- Sponsor: SCOR, Future Earth, WCRP etc.

\*Conference website will open soon

Funding Request: SOLAS Deputy Executive Director sent a request for PICES co-sponsorship of the SOLAS Open Science Conference to the PICES Executive Secretary on Apr 10, 2022. SOLAS requested PICES's support for travel of ECOP(s) and Early Career Scientist Day Event (Sept 25<sup>th</sup>). PICES Secretariat, Dr. Bychkov, mentioned that PICES and SOLAS had mutually supported ECOP activities in the past. For the 7<sup>th</sup> SOLAS OSC in 2019, PICES allocated 4500 USD to partially support the attendance of 2 early career scientists and co-sponsor the Early Career Scientist Day.

Considering the past collaboration in capacity building between PICES and SOLAS, SB recommended GC approve co-sponsoring SOLAS Open Science Conference 2022 to be held from September 25-29, for support travel of Early Career Ocean Professionals from PICES countries. SB requested that the Secretariat ensure that PICES be involved in the selection process of travel support awardees.



## Agenda Item 15: Capacity Building Events

### PICES Events

Summary: Science Board (SB) member and MONITOR Chair, Dr. Kim, outlined the upcoming Summer School events organized by MONITOR children Expert Groups. SB acknowledged the progress and revision of the summer schools, and was urged to encourage eligible PICES community members to participate in the events.

#### **1. PICES Virtual Summer School – Ocean Big Data (organizer: AP-NCOOS)**

Date: August 8-19, 2022

Co-organizer: Ocean Network Canada

Application call: [opened](#) - April 29

Successful application notified: - May 13

Participants: up to 30

Approved PICES fund: CA\$ 15K (max)



#### Activities

- Pre-recorded lectures introducing datasets and their oceanographic context
- Data analysis assignments and online access to datasets and statistical tools
- Virtual tutorial and Q&A access to instructors
- Presentations by participants on the results of their analyses

#### **2. PICES Summer School – Ocean turbulence: from observing to research (organizer: AP-CREAMS)**

This Capacity Building event was initially scheduled for 2019 and approved at PICES, but postponed to 2020 because of the late confirmation of Chinese funding, then postponed again to 2022 because of COVID.

However, due to the lingering influence of COVID, AP-CREAMS has decided to hold this event fully virtual.

Date: August 22-26, 2022

Co-organizer: Institute of Oceanology, CAS, China

Application call: [opened](#) - May 30.

Successful application notified: - May 31

Participants: graduate students and early-career scientists

Note: According to the change, a previously approved fund for student travel support CA\$ 11K is not required.



### Partner Organizations' Activities and Events

Summary: Dr. Chiba of the PICES Secretariat outlined the upcoming Capacity Building Events organized by PICES partner organizations. Science Board (SB) acknowledged the importance of the summer schools and urged encouragement of eligible PICES community members to participate in these events. SB members were reminded that previously approved funding CA\$10K travel support is available for PICES ECOPs who plan to attend the SOLAS Summer School in Cape Verde, Senegal in 2023.





### 3. SCOR Capacity Development ([link](#))

Note: The PICES Deputy Executive Secretary, Sanae Chiba, is a SCOR Capacity Development Committee member (July 2021~)

#### Core Programmes:

- [Visiting Scholars Programme](#)
- [Fellowship Programme](#) (with POGO)
- [Travel support for Conference](#) (proposal must be submitted by Organization)
  - Funded US\$ 6K for participants of 2022 International ECS Conference (July 2022)
  - Fund available for application (NSF fund US\$75K/year for 2020-2023)

### 4. SOLAS Summer School

Eligible applicants: post-graduate students and post-doc researchers with backgrounds in multidisciplinary air-sea interactions.

[Virtual school 2022](#) (June 13-17, application closed)

[Summer School 2023](#) (Date: TBD, in-person)

Application open in summer/fall 2022

Registration fee: 650 Euro

Venue: OSCM (Ocean Science Centre Mindelo), Cape Verde, Senegal

\*Participants of 2022 virtual school are eligible for application to 2023 Summer School.

NOTE: At PICES-2020, SB Recommended funding of \$10K for travel support for ECOPs to attend the SOLAS Summer School in 2021, and SB recommended at ISB2021 to defer the funding support to 2023.

### 5. [IMBeR ClimEco8 Summer School \(August 15-20, 2022\)](#)

\*No other information is available

Designed for 60-70 post-graduate students and early career researchers, led by an interdisciplinary group of scientists which includes leaders in their respective fields.

## Agenda Item 16: Proposal for PICES Science Intern Scheme

**Summary:** Science Board (SB) supported the idea of developing a new Science Intern Scheme at PICES in addition to the conventional intern programme to promote engagement of ECOPs in PICES Science especially UNDOS-related science projects and activities. SB agreed to further explore the idea and feasible options through discussion with Secretariat, and submit the revised proposal at PICES-2022 (see [Appendix E](#) for proposal and comments of PICES Executive Secretary).

**Details:** The SB Chair, Dr. Trainer outlined the idea of a PICES Science Intern scheme which will allow post-doctoral level research scientist(s) to engage in overarching science programs in PICES, to expand upon the current PICES internship program or [PICES Visiting Scientist Program](#). She noted that the new scheme aims to create a career development opportunity for ECOPs and stressed the needs for PICES member countries to share resources in support of this intern scheme.

PICES Executive Secretary, Dr. Batten, discussed the idea with Trainer in advance of ISB, and shared her



comments on the proposal ([Appendix E](#)). She would welcome additional interns who could help PICES, especially in coordination of PICES science, but noted that the new scheme might require additional logistics and administrative protocols, and PICES might be required to clearly differentiate the roles of interns under the current scheme compared to the new scheme. She noted that targeted tasks on UNDOS activities (e.g. defined as the UNDOS Intern) might be a reasonable strategy that member countries might support. Though SB members generally supported this idea, Dr. Trainer concluded that further discussion will be needed between the SB and the Secretariat to clarify all options.

## **Agenda Item 17: EG Membership Confirmation Protocol**

**Summary:** Science Board (SB) recommended Governing Council (GC) accelerate the process for approval/appointment of Expert Group membership after the requests are submitted by SB.

**Details:** The Science Board Chair, Dr. Trainer outlined the issues related to the delay of Expert Group (EG) membership appointments. When SB recommends the establishment of new EGs with a suggested list of members, the official appointments of the members often take a long time, sometimes even more than 6 months despite repeated requests by the Executive Secretary for membership decisions. This has caused serious delays in launching EG activities and stagnation of implementation plans. This situation makes it difficult for EG's who wish to plan activities for upcoming annual meetings. Among the examples are AP-SciCom and AP-ECOP, whose co-chairs had not been officially approved for months after PICES-2021, leaving these APs without leadership or much progress due to the lack of membership and leadership. SB suggested that the Secretariat and GC consider this situation seriously and work together to urge the national delegates to make decisions promptly (approve or not approve) on submitted membership requests.

## **Agenda Item 18: PICES Committee Action Plan Protocol**

**Summary:** Science Board (SB) agreed with the Secretariat's request to review outdated Action Plans of SB and Committees posted on PICES website, and to update plans as required during PICES-2022, so that the plans fit the current PICES Strategic Plan.

**Details:** Dr. Chiba of the PICES Secretariat noted that currently there is inconsistency in the practice of developing, reporting and posting the Action Plans of SB and PICES Standing Committees. For some Committees, Action Plans are outdated: 2012-2015 for SB, BIO, FIS, MEQ, no Action Plan posted for HD, etc. The PICES rule is shown here: ([Guidelines for Chairs and Convenors: III. Scientific and Technical Committees](#)) reads, "Chair of a Scientific / Technical Committee is responsible for;

- maintaining an up-to-date Action Plan to indicate how the Committee's activities are, or will, achieve goals under the [PICES Strategic Plan](#) (2016~);
- regularly reviewing the performance of the Committee with respect to its Action Plan;

SB members discussed the necessity of Committee Action Plans. While some members recalled SB previously concluded it was not necessary (note: SB didn't recommend amendment of the PICES rule above) others agreed with sharing the vision among Committee members.

Dr. Chiba noted that Committee Action Plans should align with PICES Strategic Plan (current version: 2016~), and that the Secretariat will ask Committee Chairs to revise their Action Plans. SB agreed to ask Committees to review the outdated Action Plan during their business meetings prior to PICES-2022 and, if needed, submit the updated versions to the Secretariat.



## Agenda Item 19: Publications update

### 1. Peer Reviewed Journal Papers (published)

**Recommendation:** Science Board (SB) acknowledged the following published peer-reviewed journal papers as accomplishments of PICES Expert Groups and **recommended Governing Council (GC)** to approve posting information of these papers on PICES publication webpage.

S-CC (POC)	Jiang, L.-Q et al. (2021) Coastal Ocean Data Analysis Product in North America (CODAP-NA) – an internally consistent data product for discrete inorganic carbon, oxygen, and nutrients on the North American ocean margins, Earth Syst. Sci. Data, 13, 2777–2799, <a href="https://doi.org/10.5194/essd-13-2777-2021">doi.org/10.5194/essd-13-2777-2021</a>
WG46 (POC)	Jiao N et al. (2020) Microbes mediated comprehensive carbon sequestration for negative emission in the ocean. National Science Review 7: 1858-1860. <a href="https://doi.org/10.1093/nsr/nwaa171">doi: 10.1093/nsr/nwaa171</a>
WG46 (POC)	Jiao N et al (2021) Excessive greenhouse gas emissions from wastewater treatment plants by using the chemical oxygen demand standard Science China: Earth Science 65: 87-95 <a href="https://doi.org/10.1007/s11430-021-9837-5">doi.org/10.1007/s11430-021-9837-5</a>
WG46 (POC)	Jiao, N (2021) Developing Ocean Negative Carbon Emission Technology to Support National Carbon Neutralization, Bulletin of Chinese Academy of Sciences (Chinese Version) 36. DOI: <a href="https://doi.org/10.16418/j.issn.1000-3045.20210123001">https://doi.org/10.16418/j.issn.1000-3045.20210123001</a>
WG46 (POC)	Wang, F et al. (2021) Technologies and perspectives for achieving carbon neutrality, The Innovation <a href="https://doi.org/10.1016/j.xinn.2021.100180">doi.org/10.1016/j.xinn.2021.100180</a>

### 2. Products of collaboration with other organizations (published)

**Recommendation:** Science Board (SB) acknowledged the following publication as a collaborative product of PICES Expert Groups and partner organizations, and **recommended Governing Council (GC)** to approve posting information of this product on PICES website.

EG	Citation	Comment
S-HAB (MEQ)	GlobalHAB (2021) Guidelines for the Study of Climate Change Effect on HABs. Paris, UNESCO-IOC/SCOR. M. Wells et al. (eds.) (IOC Manuals and Guides no 88) <a href="https://doi.org/10.25607/OBP-1692">doi.org/10.25607/OBP-1692</a>	Posted on S-HAB website

### 3. WG Final Report in Progress

**Acknowledgement:** Science Board (SB) acknowledged the progress of the following Working Group final reports, which are currently in various stages (1. In preparation, 2. Being reviewed of parent Committee, 3. submitted to the Secretariat, 4. previously approved by SB and nearly completion).



## Report of PICES Science Board: 2022 Intersessional Meeting (ISB-2022)

held online via Zoom, from April 11/12 (North America) to 13/14 (Asia).

EG	Type of publication & Title	Stages	comments
WG30 (MEQ) Disbanded	<b>PICES Science Report</b> Assessment of Marine Environmental Quality of Radiation around the North Pacific	4. <b>Approved</b> PICES 2013 final formatting	
WG35 (MONITOR /TCODE)	<b>PICES Special Publication NPESR III: online supplemental materials</b> NPESR III Regional Reports (R11 – R24)	4. <b>Approved</b> PICES 2017 Under editing & formatting (except R14 and R19)	Individual report will be published as completed.
WG37 (BIO) To be disbanded	<b>PICES Science Report</b> Zooplankton Production Methodologies, Applications and Measurements in PICES Region	4. <b>Approved</b> PICES-2021 Under editing & formatting	
WG36 (FUTURE)	<b>PICES Science Report</b> Common Ecosystem Reference Points across PICES Member Countries	2. Under Committee review	
WG38 (POC)	<b>Journal Review Paper</b> WG synthesis paper, Progress in Oceanography	1. In preparation (nearly done)	
WG40 (POC/FUTURE)	<b>Journal Review Paper</b> WG Topic Issue, Frontiers in Marine Science	1. In preparation	Will be published in 2022?
WG41 (HD/FUTURE)	<b>PICES Science Report</b> Marine Ecosystem Services	1. In preparation	Draft submission Sept 2022

### 4. Definition of Final Report Completion and Timing of WG Disbandment

**Summary:** Science Board (SB) agreed with the timing of WG disbandment as the Secretariat suggested: the WG disbands upon WG Final Report completion and submission to the Secretariat after review and approval of Parent Committee(s), and **recommended Governing Council (GC)** approve amendment of [PICES Rule of Procedure 13](#). SB also acknowledged that a WG can submit its Final Report as various formats; typically as a PICES Science/Technical Report, but also as a Journal Review/Synthesis Paper, Special publication etc. as stated in the [PICES Guidelines of Chairs and Convenors V](#).

**Details:** Dr. Chiba of the PICES Secretariat raised the issue that the timing of a Working Group disbandment is not clear in the current [PICES Rule of Procedure 13](#), which states: a WG shall be disbanded either after preparation its final report, or as determined by SB, for inadequate progress in achieving its tasks. SB agreed it is reasonable that a WG ceases its activities after approval and submission of the final manuscript to the Secretariat.

Dr. Chiba explained that EGs are due to submit their final reports to the Parent Committees at the end of their term but there is no official deadline because their circumstances vary. SB members were urged to gently remind their children EGs that final reports are expected, particularly for those groups where GC has already extended their terms in order to complete their reports.

Dr. Chiba also noted that [PICES Guidelines of Chairs and Convenors V](#), defined the format of the final report as “typically a PICES Science / Technical Report”, however it also can be in other formats, such as peer-reviewed journals. SB member, Dr. Kang expressed concern that it might be difficult to track WG accomplishments against their Terms of Reference if their final report is submitted as a journal paper. Dr. Chiba responded that WG achievements should be reported to the Parent Committee(s) and SB at ISB and SB bi-annually, and in their Annual Reports.



## **Agenda (addendum): Future of FUTURE**

**Conclusion:** Science Board (SB) acknowledged the need for a discussion about the FUTURE Phase III (2021-2025) strategy and recommended holding a facilitated virtual meeting between SB and the FUTURE SSC prior to PICES-2022.

### **Discussion Summary at [Agenda item 4: FUTURE SSC](#)**

Upon the launch of United Nations Decade of Ocean Science (UNDOS) in 2021 and the establishment of UNDOS endorsed ICES/PICES Joint Programme [SmartNet](#), there is a concern about some redundancies between FUTURE and SmartNet Science plans and the rationale and feasibility for PICES to have two overarching science programs. FUTURE SSC and SB are urged to strategize how FUTURE activities should effectively be integrated with UNDOS relevant activities in PICES. The FUTURE Co-chair, Dr. Bograd suggested three options for FUTURE in coming years;

1. Continue activities without change (keep FUTURE)
2. Curtail some activities in FUTURE and transition to UNDOS activities (downsize FUTURE)
3. Integrate FUTURE activities into UNDOS/SmartNet scheme (wrap-up FUTURE)

SB members argued the pros and cons of each option, but the views were divided, and consensus was not reached. The “keep FUTURE” opinion emphasized the importance of FUTURE as the PICES flagship science program with clear focus on the North Pacific Ocean. The “wrap-up FUTURE” opinion expressed concern about redundancy in FUTURE and SmartNet/AP-UNDOS structures and the lack of resources to maintain two independent large programs, thus stressed the need for integration and synergy of FUTURE and SmartNet/AP-UNDOS.

SB also discussed new leadership for FUTURE. The current FUTURE Co-Chair, Dr. Kang will step down at the beginning of her tenure as the SB Chair during PICES-2022. Dr. Bograd, the current FUTURE Co-Chair, has a demanding role as the SmartNet Chair and the incoming AP-UNDOS Chair. Thus, FUTURE is urged to identify new leadership to implement its Phase III Action Plan.

### **Details of Day 2 and Day 3 discussion**

Seeing the discussion at Agenda item 4, SB Chair, Dr. Trainer, asked all SB members to express their thoughts on the questions below:

1. What are your thoughts on the future of FUTURE and how should it be integrated with UN Decade activities
2. What are your ideas for new leadership of FUTURE
3. Should SB have a virtual facilitated meeting with the FUTURE SSC before PICES-2022 to help them strategize their future?

#### **Q1: What are your thoughts on the future of FUTURE and how should it be integrated with UN Decade activities**

Members expressed their various thoughts which were generally divided into three options, “keep”, “downsize” or “wrap-up” FUTURE. Dr. Bograd commented that FUTURE would need at least a few years of transition period if it would wrap-up, and that, considering the huge amount of effort required for the PICES community to launch a post-FUTURE flagship program, it would be reasonable to invest our efforts and resources in UNDOS right now. Dr. Trainer stressed that the idea of wrapping up FUTURE before the end of Phase III (2025) with its synthesis symposium or OSM (2023 or 2024) is to celebrate FUTURE’s accomplishments and develop the next phase of PICES science upon them with new, fresh ideas.

SB discussed how we could integrate and synergise FUTURE science in context of UNDOS related activities in PICES toward the next phase no matter which option was chosen. SB member, Dr. Makino introduced the idea of the new Working Group “Exploring Human Networks to Power Sustainability ([Appendix D-3](#))” which aims to



systematically analyse links and gaps of PICES science and the UNDOS 10 challenges and 7 societal outcomes. He suggested that this study would help identify FUTURE contribution to UNDOS in an integrated manner. The proposal is under revision and will be submitted to SB for recommendation at PICES-2022. SB members strongly supported the idea of this new Working Group.

Q2: What are your ideas for new leadership of FUTURE

SB members identified possible candidates of successor of the current Co-Chair, Dr. Kang from the western North Pacific side who was expected to have past experience of and passion toward FUTURE science.

There was a suggestion that FUTURE could have 4 Co-Chairs including two ECOP members to provide them with leadership experience in the flagship science program of the international organization. SB members almost unanimously support the idea, and ECOP representative, Dr. Roman, agreed with the idea, too, because fostering leadership skill among ECOPs as their career achievements is one of the scopes of their strategic plan. Trainer commented she expects ECOPs to take a leading role in the transition of FUTURE by bringing innovative and fresh ideas into it.

Q3: Should SB have a virtual facilitated meeting with the FUTURE SSC before PICES-2022 to help them strategize their future?

SB members almost unanimously supported the idea. Dr. Bograd added that although it has been hard to reach consensus on the future of FUTURE, it is the time for FUTURE to reach a resolution. The Secretariat suggested using a professional facilitator to help members reach consensus.

- End of report –



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## Appendix A Template Letter of Recognition of Individual Service to PICES



**NORTH PACIFIC  
MARINE SCIENCE  
ORGANIZATION**

<insert date>

<Chair / Recipient Name and Address>

Dear <insert Chair name>

It is my pleasure to acknowledge your recent appointment as Chair of PICES <Insert EG> for a <Insert # years> year term, through 20<insert End Year>. In your role as Chair of <Insert EG>, you will <insert description of Chair role>.

PICES appreciates you fulfilling this important role, which helps to advance scientific knowledge of the North Pacific and its living resources, including research of marine ecosystems, their interactions with land and atmosphere, their role and response to global weather and climate change, the use and resources of marine ecosystems, and interactions with human activities.

Congratulations on your serving as Chair. While it comes with significant responsibility, it is important to acknowledge that this position recognizes the respect and high regard in which you are held by the international community of your science peers.

Sincerely,

Dr. Enrique Curchitser

PICES Chair

Dr. Sonia Batten,

Executive Secretary, PICES

**Secretariat**

Institute of Ocean Sciences  
P.O. Box 6000,  
Sidney, B.C.,  
Canada, V8L 4B2  
Phone: (250) 363-6366  
Fax: (250) 363-6827  
E-Mail:  
secretariat@pices.int  
Internet: [www.pices.int](http://www.pices.int)

Chair

Dr. Enrique Curchitser

**Vice-Chair**

Dr. Tetsuo Fujii

cc: <Supervisor name, title, address>  
<Department Head name, title, address>

**Executive Secretary**

Dr. Sonia Batten



## Appendix A (continued)



### Request for Letter of Acknowledgement for Service to PICES

*The intent of this form is to have PICES provide a letter to the employer / supervisors of PICES Chairs of Expert Groups, so that organizations and supervisors better understand the Chair role for a specific group, its importance, and the level of commitment it requires.*

<b>Today's date:</b>	
<b>Details of person requesting Acknowledgement Letter:</b>	
Name:	
Title and organization:	
Address:	
Requestor's role(s) in PICES:	
Which (if any) specific achievement(s) would you like to highlight in this letter as they relate to your role in PICES?	
<b>Details for recipient of a copy of your Acknowledgement Letter (e.g. your supervisor, organization or department head)</b>	
Name:	
Title and organization:	
Address where the letter will be sent:	
<b>Additional Details:</b>	
If there is specific language that you would like to have included, please include it below:	

Please return your completed form with your request to: [Sanae.Chiba@pices.int](mailto:Sanae.Chiba@pices.int)





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## Appendix B

### Reporting Committee List – ISB2022

**Shaded** = Expert Groups with more than one parent Committees

See each link for the information of Expert Group and contact information of chairs.

Reporting Committee	Will Report on These EGs	Other Parent Committee(s)
<a href="#">FUTURE</a>	1. SG-UNDOS: <a href="#">United Nations Decade of Ocean Science</a>	
	2. AP-ECOP: <a href="#">Early Career Ocean Professionals</a>	SB
	3. WG49: <a href="#">Climate Extremes and Coastal Impacts in the Pacific</a>	
<a href="#">BIO</a>	1. S-MBM: <a href="#">Marine Birds and Mammals</a>	
	2. WG47: <a href="#">Ecology of Seamounts</a>	
	3. WG48: <a href="#">Towards best practices using Imaging Systems for Monitoring Plankton (WGISMP)</a>	
<a href="#">FIS</a>	1. S-CCME: <a href="#">Climate Change Effects on Marine Ecosystems</a>	BIO, POC
	2. WG43: PICES/ICES - <a href="#">Small Pelagic Fish</a>	(HD)
	3. WG45: <a href="#">PICES/ICES - Impacts of Warming on Growth Rates and Fisheries Yields (GRAFY)</a>	
<a href="#">HD</a>	1. WG44: <a href="#">PICES/ICES - Integrated Ecosystem Assessment for the Northern Bering Sea - Chukchi Sea</a>	FIS
<a href="#">MEQ</a>	1. S-HAB: <a href="#">Ecology of Harmful Algal Blooms in the North Pacific</a>	
	2. AP-NIS: <a href="#">Marine Non-indigenous Species</a>	
	3. WG42: <a href="#">Indicators of Marine Plastic Pollution</a>	
<a href="#">POC</a>	1. S-CC: <a href="#">Carbon and Climate</a>	BIO
	2. WG46: <a href="#">Ocean Negative Carbon Emissions (ONCE)</a>	BIO
	3. WG50: <a href="#">Sub-mesoscale Processes and Marine Ecosystems</a>	
<a href="#">MONITOR</a>	1. AP-CREAMS: <a href="#">CREAMS/PICES Program in East Asian Marginal Seas</a>	POC
	2. AP-NPCOOS: <a href="#">North Pacific Coastal Ocean Observing Systems</a>	TCODE
<a href="#">TCODE</a>		
<a href="#">SB</a>	1. SG-SCPSC: <a href="#">PICES/PSC – Scientific Cooperation in the North Pacific Ocean</a>	
	2. SG-PICES/APN- <a href="#">Scientific Cooperation in the Pacific Ocean</a>	FUTURE
	3. AP-SciCom: <a href="#">Science Communications</a>	FUTURE
	4. WG39: <a href="#">PICES/ICES/PAME an Integrated Ecosystem Assessment for the Central Arctic Ocean</a>	



## Appendix C -1 Revised Activity Plan

### **S-MBM Activity Plan, 2022-2026**

2022.01.25

#### **Co-Chairs of S-MBM**

The S-MBM proposes to address the next stage of Climate and Trophic Ecology of Marine Birds and Mammals over the next 5 years. This program has been chosen because marine birds and mammals (MBMs) can have top-down effects on marine ecosystems and because MBMs respond to multiple scales of variability in the environment and their prey-base. We are completing our update of the 2000 report (Hunt et al., 2000) on diets and food consumption of marine mammals with case studies from seabirds as well based on additional datasets and improved bioenergetic models. Combining this information with data on prey quantity, quality, composition and distribution will further allow us to better understand and predict how variability in prey will impact MBMs. In particular, we plan on examining the influence of climate variability and change on trophic linkages and, ultimately, the distribution and abundance of MBMs in the North Pacific. In addition, our project will link directly with other PICES committees (e.g., BIO, FIS, POC, MEQ), provide improved data on energy flow needed for ecosystem models for PICES sub-regions and broader LMEs, and will address the goals of FUTURE to forecast ecosystem status and understand how marine ecosystems in the North Pacific respond to climate change and human activities.

Our project is premised on the fact that MBMs are important top predators that respond directly to changes in, and consume large amount of, forage species. It also recognizes that MBMs can induce trophic cascades, and that they are susceptible to changes in marine food web structure and productivity as a result of both natural and anthropogenic impacts. MBMs overlap directly with anthropogenic stressors, such as climate change, plastic and other pollutants, increased shipping, and fishery interactions. Finally, many MBMs are easily observed and highly mobile, and are considered sentinels of ecosystem status and health. As such, we believe the detailed analyses of MBMs that we are proposing will contribute significantly to meeting the objectives of FUTURE.

The following describes: 1) the rationale of our proposed project, and 2) describes potential activities or products to be accomplished by the S-MBM over these 5 years.

Our activity plan will focus on the “Interaction between MBMs and other ecosystem components and stressors.” This will include important sub-themes such as:

- Documenting, understanding, and potentially forecasting changes in forage species and response of MBMs to these changes.
- MBMs as ecological indicators of changing marine ecosystems using metrics such as population vital rates, spatiotemporal distributions and abundances, diet composition, body condition and stress hormones.

Phases:

2. Identification and assessment of important stressors (anthropogenic and environmental) on MBMs, developing Pathways of Effects (POE) models, and estimating potential impacts from these stressors.
3. Use of MBMs as indicators of impacts regionally and among regions.
  4. Comparative synthesis of information from phase 1 and 2 across the PICES region.

Upcoming possible workshop themes:

1. Anthropogenic stressors, mechanisms and potential impacts on MBMs (led by M Kim, P O'Hara and Y Watanuki)
2. Climate change (including Marine Heat Waves) associated changes in migration patterns/distribution of MBM (led by W Sydeman, K Hattori and P O'Hara)
3. Predicting changes in small pelagic prey fish and potential impacts on MBMs (led by H W Kim and E Hazen)
4. MBMs as indicators of impacts (led by R Ream and W Sydeman)



## Appendix C-2 Revised TOR

### **Section on Ecology of Harmful Algal Blooms in the North Pacific Terms of Reference (2021-2025)**

1. Guide ongoing deliverables to address the goals of IOC's UN Decade of Ocean Science for Sustainable Development (UNDOS) and the FUTURE science program of PICES.
2. Contribute to the development of the PICES North Pacific Ecosystem Status Report.
3. Produce summary reports on east-west and north-south occurrence (similarities and differences) of selected HAB species and new species of concern.
4. Developing guidelines for quantifying changes in the character, magnitude and frequency of HAB events in PICES Nations related to expected and measured trends of climate change.
5. Contributing to the development of global HAB research activities including the GlobalHAB status report (ICES, PICES, IOC) and the UN Decade of Ocean Science for Sustainable Development.
6. Continuing PICES member country data entry into the joint ICES-PICES Harmful Algal Event database (HAE-DAT) to allow global comparison of changes in harmful algal blooms.

## Appendix D-1

### *Proposal for* **PICES Advisory Panel on the UN Decade of Ocean Science (AP-UNDOS)**

**Parent Committee:** PICES Science Board

**Term:** April 2022 – TBD

**Proposed Chairs:** Steven Bograd (USA; FUTURE SSC), Sanae Chiba (Secretariat)

#### Background

The UN Decade of Ocean Science for Sustainable Development (UNDOS) provides an unprecedented opportunity to strengthen and expand PICES science and outreach in collaboration with ICES and other partner organizations. At PICES-2019 in Victoria, Canada, an ad-hoc group of ICES and PICES scientists began bilateral discussions on joint activities in support of the UNDOS. The strategic plans and objectives of PICES and ICES are well-aligned with UNDOS objectives, positioning our organizations and their associated networks to play a leading role in addressing UNDOS priorities and societal outcomes. Coordination between PICES and ICES led to the formation of the Joint ICES/PICES Study Group/Strategic Initiative on UN Decade of Ocean Science (SG-UNDOS; <https://meetings.pices.int/members/study-groups/SG-UNDOS>), which was formed in October 2020 and approved for a 6-month extension by PICES Governing Council in October 2021. Parallel with the creation and activities of SG-UNDOS, the team proposed a UN Ocean Decade Programme<sup>1</sup>, Sustainability of MARine ecosystem Through knowledge NETworks (SmartNet; <https://www.ices.dk/about-ICES/global-cooperation/Pages/Smartnet.aspx>), which was endorsed as a Decade Programme by the IOC in June 2021. SmartNet is the primary venue for ICES and PICES to play a leading role in advancing and communicating scientific understanding of marine ecosystems for societal outcomes in support of UNDOS; to bring together diverse networks to increase capacity to conduct ocean science in support of sustainable development; and to foster the range of skills necessary to support broad and overarching marine science goals, with particular emphasis on cross-cutting inclusivity themes relating to gender equality, early career ocean professional engagement, and significant involvement of indigenous communities and developing nations. SmartNet will support and leverage ICES, PICES, and member countries' priorities and initiatives related to UNDOS, by emphasizing areas of mutual research interest and policy needs, including climate change, fisheries and ecosystem-based management, social, ecological and environmental dynamics of marine systems, coastal communities and human dimensions, and communication and capacity development (Figure 1).



Figure 1: Activities and objectives of SmartNet.

<sup>1</sup> A Decade programme is global or regional in scale and will contribute to the achievement of one or more of the Ocean Decade Challenges. It is long-term (multi-year), interdisciplinary and multi-national. A programme will consist of component projects, and potentially enabling activities

**Rationale for an Advisory Panel**

PICES is expected to play a large role in facilitating transformational science during the UN Decade of Ocean Science for Sustainable Development (2021-2030). While the SmartNet Programme will continue to function throughout the Decade, the SG-UNDOS has completed its objectives to: (a) establish a common strategy for joint activities and provide regional leadership in support of UNDOS; (b) identify and strengthen relationships with partner professional and multilateral organizations to facilitate UNDOS engagement; and (c) develop an UNDOS Programme for endorsement by the IOC. A new PICES Expert Group, with a sufficient lifetime, is needed to continue planning, communicating and exercising PICES engagement through the extent of the Ocean Decade. This engagement will include, but is not limited to, SmartNet activities.

We thus propose an **Advisory Panel** on the UN Decade of Ocean Science with the following **Terms of Reference**:

1. Define and promote the joint scientific activities of PICES and partner organizations (including ICES) that will contribute to UN Ocean Decade societal outcomes.
2. Implement the SmartNet Programme (in partnership with ICES), organize its activities and partnerships, monitor its progress, and communicate updates to the PICES community.
3. Implement a strategy that prioritizes engagement with early career ocean professionals, indigenous communities, developing nations, and recognizes the importance of promoting diversity and gender equity in our activities; Coordinate with FUTURE SSC, AP-ECOP and AP-SciCom to develop these strategies.
4. Develop recommendations for new UN Ocean Decade activities for endorsement by UNESCO-IOC, with new and existing partners, allowing for participation of additional partners throughout the Decade.
5. Develop recommendations for new and existing PICES Expert Groups to implement and maintain SmartNet and UN Ocean Decade activities, and encourage and support Expert Group participation in all aspects of the UN Ocean Decade.

**Relationships Amongst UNDOS-Related Groups**

AP-UNDOS will be the primary body to facilitate PICES engagement with the UN Decade of Ocean Science through the lifetime of the Decade. We expect that the initial primary activity of AP-UNDOS will be the implementation of SmartNet (ToR 2). This activity necessitates close coordination with the ICES-PICES Ocean Decade (IPOD), which serves as the Scientific Steering Committee for SmartNet (Figure 2). We emphasize that AP-UNDOS will provide the broader function of planning and implementing PICES engagement in all UNDOS activities, beyond the scope and purview of SmartNet/IPOD. In this capacity, AP-UNDOS will coordinate with PICES Science Board, the FUTURE Scientific Steering Committee, and other Expert Groups engaged in UNDOS-related activities. In the short-term, we anticipate a significant role in planning the ICES-PICES-2023 Joint Meeting and participating in other international symposia.

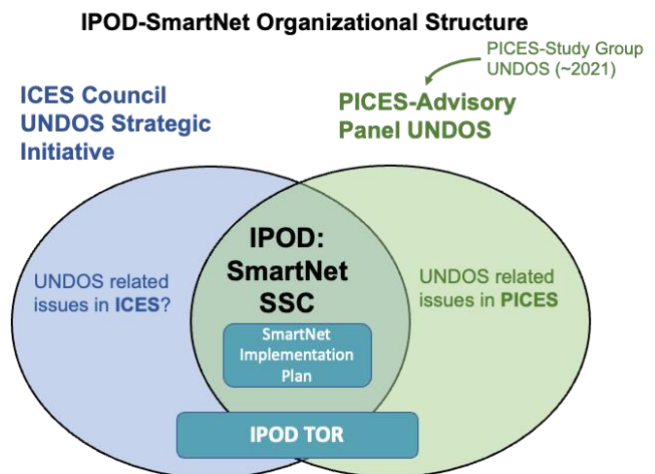


Figure 2: IPOD-SmartNet organizational structure.



## Report of PICES Science Board: 2022 Intersessional Meeting (ISB-2022)

held online via Zoom, from April 11/12 (North America) to 13/14 (Asia).

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### Proposed Membership and Chairs

Given the effectiveness of SG-UNDOS, we propose to maintain the same PICES members in AP-UNDOS. In addition, the SG-UNDOS Chairs received expressions of interest from several PICES ECOPs, and would recommend that these individuals become AP-UNDOS members.

#### Chairs

Steven Bograd (USA) – [steven.bograd@noaa.gov](mailto:steven.bograd@noaa.gov)

Sanae Chiba (PICES Secretariat) - [Sanae.Chiba@pices.int](mailto:Sanae.Chiba@pices.int)

#### Full Members

Jennifer Jackson (Canada) - [jennifer.jackson@hakai.org](mailto:jennifer.jackson@hakai.org)

Andrea White (Canada) – [andrea.white@dfo-mpo.gc.ca](mailto:andrea.white@dfo-mpo.gc.ca)

China members TBD

Mitsutaku Makino (Japan) – [mmakino@aori.u-tokyo.ac.jp](mailto:mmakino@aori.u-tokyo.ac.jp)

Hiroaki Saito (Japan) – [hsaito@aori.u-tokyo.ac.jp](mailto:hsaito@aori.u-tokyo.ac.jp)

#Sukyung Kang (Korea) – [sukyungkang@korea.kr](mailto:sukyungkang@korea.kr)

Hanna Na (Korea) - [hanna.ocean@snu.ac.kr](mailto:hanna.ocean@snu.ac.kr)

Yuri Zuenko (Russia) - [zuenko\\_yury@hotmail.com](mailto:zuenko_yury@hotmail.com)

\*Evgeniia Kostianaia (Russia; ECOP) - [evgeniia.kostianaia@gmail.com](mailto:evgeniia.kostianaia@gmail.com)

Emanuele Di Lorenzo (USA) – [edl@gatech.edu](mailto:edl@gatech.edu)

Kirstin Holsman (USA) – [kirstin.holsman@noaa.gov](mailto:kirstin.holsman@noaa.gov)

\*Emily Lemagie (USA; ECOP) - [emily.lemagie@noaa.gov](mailto:emily.lemagie@noaa.gov)

Erin Satterthwaite (USA; ECOP) – [esatterthwaite@ucsd.edu](mailto:esatterthwaite@ucsd.edu)

Vera Trainer (USA) - [Vera.L.Trainer@noaa.gov](mailto:Vera.L.Trainer@noaa.gov)

\*Raphael Roman (Ex Officio; UNESCO-IOC ECOP Programme) - [raph.genf@gmail.com](mailto:raph.genf@gmail.com)

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\*Not original SG-UNDOS members

#Will be SB Chair, 2022-2025



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## Appendix D-2

### Proposal for a **Study Group on Generating Recommendations to Encourage Environmentally-Responsible Networking (SG-GREEN)**

The CoVID-19 pandemic has accelerated the need for and expansion of remote conferencing capability worldwide. While there may never be a complete replacement for the social events and serendipitous brainstorming provided by in-person meetings, the urgency of climate change impacts of global travel has highlighted the importance of a balanced approach to sharing scientific knowledge through a combination of remote conferencing and in-person meetings. Similarly, a targeted focus on the UN Decade of Ocean Science for Sustainable Development (UNDOS) has brought to light the importance of remote conferencing as a platform which can provide increased opportunities for under-represented people and countries to be heard, despite economic, travel, or other limitations. Also, several EU countries are now limiting scientist's travel in recognition of the urgent need to address the climate crisis. PICES has the opportunity to play a leadership role in exploring the appropriate balance of in-person and remote meetings, providing an example for the international community. This will create a lasting positive legacy for PICES well into the future, that helps improve environmental justice, equity, and diversity in planning its engagement with the worldwide scientific community.

#### **Terms of Reference**

The main objectives of the proposed SG-GREEN are to:

- Identify a mechanism agreeable to all PICES member countries for sustained green meetings within the PICES scientific structure. In particular, to establish a mechanism that is inclusive to under-represented people and communities, early career ocean professionals, etc.
- Create recommendations for PICES on best practices to reduce GHG emissions and waste relative to meetings
- Establish organization-wide green initiatives, such as: eliminating single use plastics, reduced printing, reduced purchases of single use or limited use items at meetings, including meeting swag.
- Recommendations for divesting PICES from financial structures which support fossil fuels toward climate-responsible industries.
- Provide recommendations for best practices in purchasing carbon offsets for members for face-to-face meetings, including suggestions for including offsets as part of the conference registration fees
- Provide suggested actions to promote PICES green initiatives and climate change information.

#### **Expected Deliverables/Products**

- Conduct a survey of other organizations to determine the best practices for e-meetings, virtual collaboration and hybrid meetings.
- Conduct targeted consultations of PICES members regarding carbon offsets and hybrid meetings.
- Develop a communications piece to help facilitate further carbon reduction initiatives, specifically highlighting SG findings.
- Publication of PICES green initiatives in PICES Press and other literature, such as ECO magazine, to set an example and investigate the value of environmentally-friendly policies.
- -Work towards setting carbon budgets and targets for decreasing carbon emissions related to PICES activities over time.

#### **Proposed SG members**

Vera Trainer (USA)  
Lori Waters (Secretariat)  
Phoebe Woodworth-Jefcoats  
Sukyung Kang (Korea)

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## Appendix D-3

### **Proposal for a Working Group on 'Exploring Human Networks to Power Sustainability' (WG-XXXXX)**

**Parent Committees:** HD

**Requested Term:** October 2022 – October 2025

**Potential co-chairs** (from East and West of the Pacific)

Shion Takemura (Japan Fisheries Research & Education Agency)

Karen L. Hunter (Fisheries and Oceans Canada)

**Collaborator organization:**

Rebecca G. Martone (Ocean Decade Regional Collaborative Center for NE Pacific)

#### **Background**

For more than 30 years, PICES has initiated international research projects that provide a link between various institutions, countries, and cultural spheres across the North Pacific Ocean. This leadership position gives PICES an advantage to make progress towards the goals outlined for the UN Decade of Ocean Science (2021-2030). Principally, the knowledge and experience of across the PICES research community offers a unique opportunity to design and deliver 'Transformative Ocean Science' for UNDOCS with leadership by the Human Dimensions Committee (HDC). The HDC began research in 2020 to conduct a preliminary assessment of the PICES human network towards understanding how the organization may already be addressing a variety of UNDOCS goals. The research team assembled and analysed research products created within PICES since 1992. The application of modern text and correspondence analysis techniques supported the use of these materials as a rich data source for exploring the PICES' human network and its linkages to UNDOCS. We established that although PICES research has a broader focus than ever, including globally relevant and more human dimensions-oriented investigations, the scope of work that has been undertaken provides significant inputs for almost all UNDOCS goals and considerable gaps in others. We see promise in how the evaluation of the human networks can power our understanding of the pathways and tools we use to achieve sustainability and other ocean science goals. We aim to expand our initial work on the PICES organization to by studying linkages among research activities and their social networks within PICES nations and other significant marine science organizations around the globe.

#### **Expected goals**

1. Increase our understanding of characteristics and gaps in ocean science between northeast and northwest Pacific Ocean.
2. Facilitate PICES activities supporting UNDOCS within PICES nations and other significant marine science organizations from around the globe.
3. Develop methodology to evaluate how the human networks can power 'Transformative Ocean Science'.

#### **Tentative TORs**

1. Summarize data availability of the database for research activities in PICES nations (Yr 1)
2. Compare similarity and difference of research topics between PICES nations and UNDOCS goals based on case studies using text and correspondence analysis as per (Takemura et al. in prep). (Yr 1-2)
3. Identify key human networks and research focuses to bridge gaps in north Pacific
4. Ocean. (Yr 1-2)
5. Evaluate human networks data sets with network analysis to map linkages for achieving "Transformative Ocean Science" (Yr 2-3)
6. Outline successes and gaps in 'Transformative Ocean Science' within PICES nations and other major marine science organizations from around the globe. (Yr 2-3)
7. Publish final report. (Yr 3)





## **Report of PICES Science Board: 2022 Intersessional Meeting (ISB-2022)**

*held online via Zoom, from April 11/12 (North America) to 13/14 (Asia).*

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### **Tentative member**

Shion Takemura (Japan Fisheries Research & Education Agency)

Karen L. Hunter (Fisheries and Oceans Canada)

Mitsutaku Makino (AORI, University of Tokyo) (Japan)

Rebecca G. Martone (Ocean Decade Regional Collaborative Center for NE Pacific) (Canada)

Individual from any formalized UNDOS group from PICES nations



## Appendix E

### Proposal: Expansion of PICES Intern Program

The recent approval of the Advisory Panel on Early Career Ocean Professionals (AP-ECOP) has brought to light the importance of integrating ECOP into the PICES scientific structure. The goals of the AP-ECOP state that in order to remain vibrant and relevant over the long-term, professional organizations such as PICES must attract, integrate and retain diverse perspectives, especially of early career professionals. Engaging ECOPs in PICES promotes diversity, initially generationally, but eventually by incorporating a greater number of disciplines and sectors and by developing and strengthening relationships with countries and organizations located in different ocean basins; provides expertise in new research techniques and greater emphasis on science communication, outreach, and enhances organizational capacity. However, because many ECOP are working on their advanced degrees or are in postdoctoral positions, their involvement in PICES is a “side activity” in which they are invested to gain experience, to connect with other international scientists, and to advance the scientific inquiry in their field of expertise. A stronger connection to ECOP can be gained by expanding the PICES intern program to include a science focus.

The [PICES intern program](#) was approved in October 1999, and revised in November 2014. It has primarily been used to acquire administrative assistance in the PICES Secretariat, and to provide experience for ECOP in PICES member countries in the functioning of an international organization.

Currently, the PICES Intern program has two goals:

- Professional development of marine scientists and managers from PICES member countries (Canada, China, Japan, Korea, Russia, USA);
- Increasing the capacity of the PICES secretariat to support the work of PICES.

One of the tasks for interns is to “coordinate international cooperative programs in marine science”, therefore it is timely that the PICES Intern Program be expanded to include the coordination of science, such as the PICES efforts to address the goals of the UN Decade of Ocean Sciences for Sustainable Development. For example, one idea is for a PICES intern to provide coordination and synthesis of the new 5-year Working Group on Climate Extremes (WG-49). This intern could be a leader in helping to fulfil the Terms of Reference of WG-49, such as “Develop a census of historical climate extreme events around the Pacific Rim to describe their characteristics, identify potential climate and ocean drivers, and catalogue the ecological and socioeconomic consequences.”

#### **Request to SB:**

Funding for PICES Science Interns (Postdoctoral level) as a financial contribution by each member nation. Compensation is requested for the intern at the career-appropriate level for their home country, including funds for travel and publications. The focus is on scientific development and career advancement (through publications) to attract postdoctoral level candidates.

**Location:** PICES Science Interns can work remotely from their member country offices, but would receive 1-year (More?) funding from PICES to complete a discrete scientific coordination task.



## Appendix E (Continued)

### Comments from PICES Executive Secretary:

1. PICES could use all the help it can get in coordinating/administering the activities of the organization!
2. The current Intern program does allow for science coordination;  
“PICES Intern Program will allow early career individuals from PICES member countries to gain experience in operations of intergovernmental scientific organizations and coordination of multidisciplinary international ecosystem research programs by working in the PICES Secretariat for periods of up to one year”.  
I think any such internship should focus on science coordination, rather than just science to distinguish it from a post-doc where research is the focus.
3. Hosting of a PICES intern within another country as suggested will require changes to the program definition – not impossible but just to bear in mind. While PICES is spread over the six countries the Secretariat is not and there are quite clear rules about Intergovernmental Organizations and the host country. But so long as the countries are OK with supporting an intern who may be based in another country, but paid for by the Secretariat, it can likely work.
4. The program also says “The PICES Secretariat would supervise up to one intern at any point in time” which I think was to make sure that the limited staff weren’t overwhelmed with having to train up multiple overlapping interns. I think if a case could be made that we gain more than we put in then this can be gotten around and having two, with different roles, would be OK. If the person were based in a different country but still “supervised” by the Secretariat I am not sure if this would be easier, or more work.
5. Level of remuneration is already listed under the Intern program description (\$3k a month). I am not sure it would be a good idea to have two different levels of intern support? May not be an issue if one is never based at the Secretariat.
6. Where we have a strong need right now is in coordination of PICES UNDOS activities. WG49 could fall under this too. I think this could be a good area to focus on and potentially more access to national funds to support it since many have identified UNDOS as an activity to support? So we might have an UNDOS intern, but recognise that several interns would come and go during the program.