

Report of the FUTURE Scientific Steering Committee



The FUTURE SSC conducted a virtual meeting for three hours on each of three consecutive days, from October 4/5 to October 6/7. FUTURE SSC Co-Chairs, Drs. Steven Bograd (USA) and Sukyung Kang (Korea) led the meetings, which were hosted online by the PICES Secretariat.

AGENDA ITEM 1

Introductions and nomination of a rapporteur

Self-introductions were made (*FUTURE SSC Endnote 1*); Lori Waters (Secretariat) agreed to serve as rapporteur.

AGENDA ITEM 2

Adoption of agenda

The agenda was adopted with one modification. Mitsutaku Makino (Japan) presented a proposal of a WG on Science Communication in Agenda Item 7 (Discussion on FUTURE and PICES Engagement in UNDOS) on October 5/6 (*FUTURE SSC Endnote 2*).

AGENDA ITEM 3

Changes in membership and revision of liaison table

Drs. Ian Perry (Canada), Sinjae Yoo (Korea) and Toyomitsu Horii (Japan) have stepped down from the FUTURE SSC. Dr. Jennifer Boldt (Canada) is a new member replacing Ian Perry. Drs. Hanna Na (Korea) and Tetsuo Fujii (Japan) are new members replacing Sinjae Yoo and Toyomitsu Horii, respectively.

The SSC revised the liaison table (*FUTURE SSC Endnote 3*) to reflect the changes in SSC membership and the addition of new Working Groups and completion of others.

AGENDA ITEM 4

SSC general business and updates

Dr. Bograd provided a briefing to SSC members on the recent activities of the FUTURE SSC since PICES-2019.

- *FUTURE SSC Inter-sessional Meeting*: The FUTURE SSC conducted a virtual meeting for three hours on each of three consecutive days, from April 26/27 to April 28/29 (see PICES Press, Summer 2020, [Vol. 28, No. 2, pp. 4-5](#)).

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- *Early Career Researcher SEES Award:* Dr. Bograd reviewed the motivation and logistics of this FUTURE-sponsored award, which is designed to both advance the Social-Environmental-Ecological Systems (SEES) approach in PICES and engage early career researchers in conducting these studies. The [Award](#), which was approved at PICES-2019, provides travel support to the PICES Annual Meeting, an invited speaking slot and a certificate to an early career scientist(s) who proposes the best SEES approach to their work. The SSC discussed means to promote the SEES Award such as having a strong presence on the PICES website and strengthening relationships with Early Career Ocean Professionals (ECOP).
- *PICES-2021 plans:* Dr. Bograd reviewed the FUTURE SSC activities for the 2020 Annual Meeting (originally planned for Qingdao, China, but held virtually), which includes a business meeting, support for three topic sessions (S7, S9, and S12) and two workshops (W7 and W9), and a SSC-sponsored plenary (S16) discussion on “PICES engagement in the UN Decade of Ocean Science”. Since Executive Secretary Dr. Sonia Batten noted that any sessions approved for PICES-2020 have been carried over to PICES-2021, the SSC will postpone the FUTURE-supported topic sessions and workshops to the next Annual Meeting.
- *FUTURE Schematic in PICES:* The FUTURE schematic was originally prepared to map PICES expert groups onto the SEES diagram to provide the linkages between expert groups and identify thematic gaps. The SSC discussed ways to update the schematic, including WGs 41, 42, 43, 44, 45, 46 and newly formed WGs. The SSC will maintain a time series of the FUTURE schematic to demonstrate how the emphasis of PICES research has changed over time.

AGENDA ITEM 5

Updates from children: WG 36, WG 40 and WG 41

The SSC reviewed the activities of three Working Groups that are parented or co-parented by the FUTURE SSC: 36 (Common Ecosystem Reference Points); 40 (Climate and Ecosystem Predictability); and 41 (Marine Ecosystem Services). WG 36 is preparing two peer-reviewed manuscripts on (a) methodologies to quantify thresholds in ecological time series and (b) a case study for the west coast of Vancouver Island. They plan to complete their final report in January 2021. WG 40 provided updates on forecasting efforts, and is currently completing a special issue of *Frontiers in Marine Science* on “North Pacific climate and ecosystem predictability on seasonal to decadal timescales” (10 manuscripts submitted thus far with 8 accepted). They have requested a one-year extension to write a perspective paper, to publish the special issue and to expand discussions on key questions. WG 41 reviewed methodology for assessing marine ecosystem services (MES) and circulated a web-based survey on economic valuation of marine ecosystem services. They also have requested a one-year extension to complete their work, due to unexpected delays. SSC members discussed ways to facilitate greater collaboration and synergy between Working Groups, as was done at PICES-2019 when the SSC hosted a joint meeting of the Chairs of WGs 36, 40 and 41.

AGENDA ITEM 6

Presentations from IMBeR and APN (or Potential collaboration with IMBeR and APN)

IMBeR (Integrated Marine Biosphere Research) is a large global research project which focuses on ocean sustainability in the context of global change. Dr. John Claydon (Executive Director) introduced the structure of IMBeR, and its Science Plan and Implementation Strategy during 2016–2025 in conjunction with UN Decade of Ocean Science (UNDOS). He also presented the analysis of cost-benefits of IMBeR becoming involved in UNDOS and suggested future cooperation.

APN (Asia-Pacific Network for Global Change Research) is an intergovernmental network of 22 countries working towards an Asia-Pacific region that is successfully addressing the challenges of global change and sustainability. Dr. Linda Anne Stevenson (Head of Knowledge Management) introduced the recent activities of APN and its direction during 2020–2024. The SSC discussed the potential participation of APN to a joint UNDOS proposal and Pacific-wide approach that would include participation from the Southern Hemisphere.

AGENDA ITEM 7

FUTURE and PICES engagement in UN Ocean Decade

A key objective of this meeting was to discuss ways in which FUTURE, and PICES more generally, can engage with and provide leadership to UNDOS. The discussion began with a review of the 2019 regional planning workshop in Tokyo and an update on UN Ocean Decade planning and timeline. Dr. Fangli Qiao informed the SSC that the first call for Decade Actions will open October 15, 2020 to January 15, 2021, with decisions in the first quarter of 2021.

Based on the work of an *ad hoc* group of ICES and PICES members, PICES and ICES have prepared a proposal for a joint Study Group on UNDOS. The SSC had a lengthy discussion on the direction of SG-UNDOS and potential areas of cooperation. Dr. King informed that the Section on *Climate Change and Marine Ecosystems* (S-CCME) has established its fourth implementation plan (2021–2025) in conjunction with UNDOS, because goals of the S-CCME align well with most of the Decade societal goals.

AGENDA ITEM 8

Potential new Expert Groups to meet FUTURE and UN Ocean Decade goals

Before broader discussion on new expert groups, the SSC reviewed the ideas on “the ocean we want” which the SSC conducted during its inter-sessional meeting in April 2020. Three potential new expert groups were reviewed: (1) Joint PICES-ICES Study Group on *UN Decade of Ocean Science*, (2) Study Group on *Early Career Ocean Professionals* (ECOP), (3) Study Group on *Science Communications* (SG-SciCom) and (4) Working Group(s) on *Climate Extremes and Coastal Impacts*.

The Joint PICES-ICES Study Group on the *UN Ocean Decade* (SG-UNDOS) will consolidate a Strategic Plan to bring about transformational science during the UN Decade of Ocean Science for Sustainable Development by building upon our long history of successful partnerships in advancing marine science. The SG will also facilitate broader participation from PICES, ICES, and other partners to expand organizational reach. The FUTURE SSC supports the proposed SG, with minor revision to broaden its scope and align more strongly with FUTURE activities.

The success of the Organization relies on the inclusion of Early Career Ocean Professionals. The SSC discussed the development of capacity building, engagement of ECOP and potential partnership with APN. SG-ECOP aims to utilize input from the PICES community through workshops and surveys, and to develop an engagement plan for ECOP in PICES and within the context of relevant partner organizations and international processes, such as the Ocean Decade. The FUTURE SSC supports the proposed SG with revision to ToR.

Improved science communication has long been emphasized within PICES, and the importance of communication is growing. SG-SciCom will enhance broader communication of PICES sciences, especially within the context of the UN Ocean Decade. The FUTURE SSC supports the proposed SG in principle.

Many ideas for an Expert Group on Climate Extremes and Coastal Impacts were discussed, including research on the forcing, predictability, attribution, and ecosystem/societal impacts in coastal areas. A plan was proposed to have two or three expert groups looking at different aspects of this topic, or a large trans-disciplinary working group. The SSC will continue discussions to further develop these ideas and communicate with PICES entities.

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AGENDA ITEM 9

Plans for FUTURE 2022 Open Science Meeting

Dr. Bograd reviewed the motivation and initial plans to hold a FUTURE Open Science Meeting (*FUTURE SSC Endnote 4*). The objective is to highlight and synthesize accomplishments of the FUTURE Phase II (2014–2020) Science Program and related activities, including from other international organizations. A key theme of the Open Science Meeting would be the application of the SEES approach, and initiation of the UN Decade of Ocean Science for Sustainable Development (UNDOS). Our aim is to hold the OSM in March or April 2022. Hawaii (perhaps Kona) and Jeju have been recommended as possible venues. The FUTURE SSC will serve as the OSM Organizing Committee and Co-Conveners would be the FUTURE SSC and representatives from potential co-sponsors. Meeting format will be similar to the previous (2014) OSM. An SSC sub-group has been formed to coordinate logistics of the 2022 OSM.

AGENDA ITEM 10

FUTURE Product Matrix and Phase II Final Report completion and dissemination

The Product Matrix will link products developed by PICES Expert Groups to specific objectives and questions of the FUTURE Science Program, allowing for an easily accessed catalogue of FUTURE-relevant products, as well as a synthesis of products and a gap analysis of unmet objectives. The SSC discussed the option of having a PICES intern to help with this work. Drs. Bograd, Kang, Boldt, and Therriault expect to complete the product matrix by April 2021, as a component of the FUTURE Phase II Final Report.

Dr. Bograd briefly introduced the outline of the planned FUTURE Phase II Final Report. It will include the development and implementation of the SEES approach, summary of Expert Group activities, and the FUTURE Product Matrix.

AGENDA ITEM 11

FUTURE SSC 2021 Action Plan

See *FUTURE SSC Endnote 5*.

AGENDA ITEM 12

FUTURE recommendations and requests for Science Board

See *FUTURE SSC Endnote 6*.

The meeting was adjourned at 21:10 PDT, October 28, 2020.

FUTURE SSC Endnote 1

FUTURE participation list

Members

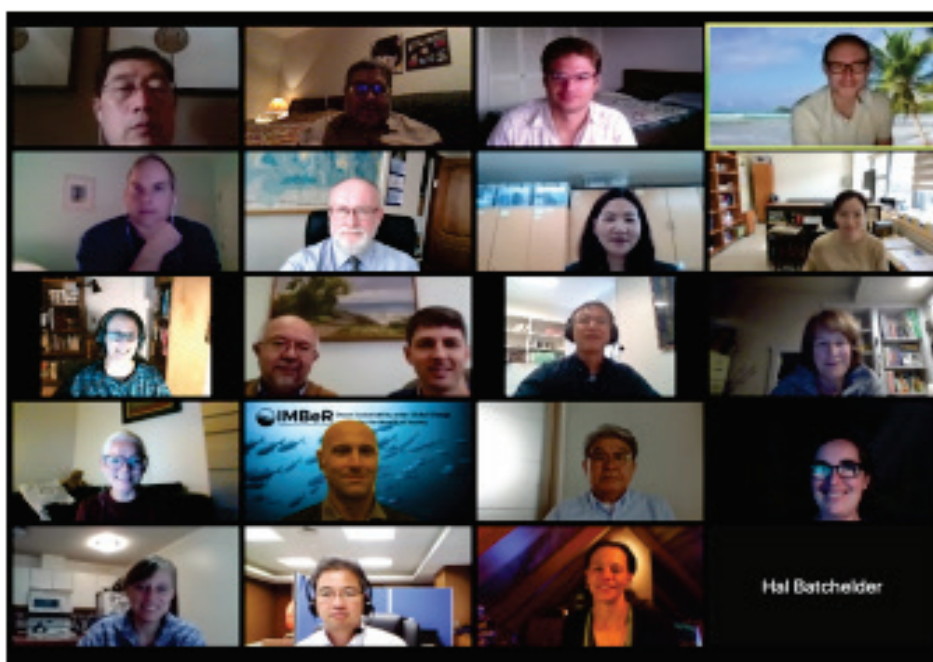
Steven Bograd (USA, Co-Chair)
 Sukyung Kang (Korea, Co-Chair)
 Jennifer Boldt (Canada)
 Emanuele Di Lorenzo (USA)
 Tetsuo Fujii (Japan)
 Oleg Katugin (Russia)
 Jacquelynne (Jackie) King (Canada)
 Vyacheslav Lobanov (Russia)
 Mitsutaku Makino (Japan)
 Hanna Na (Korea)
 Fangli Qiao (China)
 Ryan Rykaczewski (USA)
 Thomas Therriault (Canada)

Observers

John Claydon (IMBeR)
 Sung Yong Kim (MONITOR Chair)
 Erin Satterthwaite (NCEAS, ECOP)
 Linda Anne Stevenson (APN)
 Gen Tsukada (APN)
 Fang Zuo (IMBeR)

PICES

Chul Park (PICES Chair)
 Vera Trainer (Science Board Chair)
 Harold (Hal) Batchelder (PICES Deputy
 Executive Secretary)
 Sonia Batten (PICES Executive Secretary)
 Lori Waters (PICES Secretariat)



FUTURE SSC Endnote 2

FUTURE meeting agenda

Day 1, October 4/5, 2020

1. Introductions and nomination of a rapporteur
2. Adoption of agenda
3. Changes in membership, revision of liaison table
4. SSC general business and updates
 - Review of 2020 Action Items
 - Update on Early Career Researcher SEES Award
 - Plans for 2021 Inter-Sessional and Annual Meetings

FUTURE SSC – 2020

- Update/revision of Liaison Table
 - Update/revision of FUTURE Schematic
5. Updates from children: WG 35, WG 36, WG 40, WG 41

Day 2, October 5/6, 2020

6. Presentations from IMBeR (Claydon) and APN (Stevenson)
7. Discussion on FUTURE and PICES engagement in UN Ocean Decade
- Update on UN Ocean Decade planning and timeline
 - Review of ICES-PICES joint activities in UN Ocean Decade
 - Update from HD including WG on Science Communication
 - Map PICES Expert Groups onto UN Ocean Decade societal goals
 - Ideas for communication, capacity building, stakeholder engagement
8. Potential new Expert Groups to meet FUTURE and UN Ocean Decade goals
- Joint ICES-PICES Study Group on UN Ocean Decade
 - Study Group on Early Career Ocean Professionals
 - Working Group on Climate Extremes (forcing, predictability, attribution, ecosystem/societal impacts)

Day 3, October 6/7, 2020

9. Plans for FUTURE 2022 Open Science Meeting
10. FUTURE Product Matrix and Phase II Final Report completion and dissemination
11. Develop FUTURE SSC 2021 Action Plan
12. Develop list of FUTURE recommendations and requests for Science Board
- Adjourn

FUTURE SSC Endnote 3

**Updated FUTURE SSC Liaison Table
(Revised October 5, 2020)**

	Committee	WG	Section	AP/SG
Jacquelyne King	FIS	WG-45*, WG-communication	S-CCME*	
Guangshui Na	MEQ	WG-42*	S-HAB	
Fangli Qiao	TCODE*, POC	WG-40	S-CC	CREAMS
Mitsutaku Makino	HD*	WG-41*, WG-44, WG-communication*		
Tetsuo Fujii	MEQ	WG-45	S-HAB*	
Sukyung Kang	FIS*		S-CCME	
Hanna Na		WG-46		NPCOOS*, SG-ECOP
Oleg Katugin	FIS, HD		S-MBM*	
Vyacheslav Lobanov	MONITOR*			CREAMS*/NPCOOS
Emanuele Di Lorenzo	POC*	WG-40, WG-46*		
Steven Bograd	POC	WG-44*	S-CC*, S-MBM	
Ryan Rykaczewski	BIO*, TCODE	WG-40*, WG-43		
Tom Therriault	MEQ*			NIS*. SG-ECOP*
Jennifer Boldt	MONITOR	WG-43*		
*Primary liaison members				

FUTURE SSC Endnote 4**Plans for next FUTURE Open Science Meeting****The motivation for holding a 2nd FUTURE OSM is to:**

1. Highlight and synthesize accomplishments of the FUTURE Phase II (2014–2020) Science Program and related activities, including from other international organizations, and introduce FUTURE Phase III
2. General theme of the Meeting is the application of Social-Ecological-Environmental (SEES) frameworks to marine issues
3. Highlight and strategize initial activities of the UN Decade of Ocean Science for Sustainable Development, particularly within the North Pacific
4. Results from Meeting will help set the course of North Pacific marine science over the UN Ocean Decade (2021–2030)

Propose OSM structure and logistics comparable to the 1st FUTURE OSM:

1. Aim for MARCH/APRIL 2022
2. Location options are Hawaii (perhaps Kona again); Jeju, Korea
3. FUTURE SSC will serve as OSM Organizing Committee; Co-Conveners would be FUTURE SSC Co-Chairs & potential representatives from co-sponsors
4. PICES will be principal sponsor; could seek co-sponsorship from ICES, IOC/WESTPAC, CLIVAR, APN, IMBER
5. Similar meeting format (4-days, topic sessions) and general costs as OSM 2014
6. Aim for ~200 participants
7. SSC sub-group formed to coordinate logistics ...

FUTURE SSC Endnote 5**FUTURE SSC 2021 Action Plan***Action plan*

- FUTURE SSC Report to ISB [Chairs; OCT 2020]
- Submit FUTURE SSC Annual Meeting report to Secretariat [Chairs; NOV 2020]
- Proposals/recommendations for new PICES Expert Groups [All; OCT 2020-APR 2021]
- Progress on 2022 Open Science Meeting [Chairs; OCT 2020-APR 2021]
- Update FUTURE SEES schematic [All; APR 2021]
- Produce new FUTURE videos [All; APR 2021]
- Finalize and disseminate FUTURE Phase II Final Report & Product Matrix [All; OCT 2020-APR 2021]
- PICES/(ICES) UN Decade of Ocean Science Activity proposal(s) [All; OCT 2020-SEP 2021]

Future SSC Sub-Groups

- FUTURE OSM: Steven, Sukyung, Ryan, Manu, Jackie, Hanna, Vera
- Product Matrix completion: Steven, Sukyung, Tom, Jennifer
- SG-UNDOS revisions: Steven, Sukyung, Fangli, Tom, Vera
- SG-ECOP revisions: All to provide edits
- WG-Climate Extremes development: Steven, Sukyung, Manu, Ryan, Makino, Vera, John Claydon (IMBeR), Linda Stevenson (APN)

FUTURE SSC Endnote 6

PICES-2019 FUTURE SSC recommendations and requests to Science Board

Expert Groups and meeting requests:

- Support WG 40 and WG 41 one-year extensions to October 2021,
- Request publication cost support for WG 36 (\$3000 CAD),
- Endorse plan for completion of FUTURE Phase II Final Report (April 21),
 - Hire student/intern on FUTURE funds to complete Product Matrix,
 - Request new Expert Groups to map activities and products on Product Matrix,
- Support online distribution of FUTURE Phase III Science and Implementation Plans (endorsed at ISB-2020),
- Support online distribution of revised FUTURE liaison table and FUTURE schematic,
- 3-day Inter-sessional meeting in April/May 2021; in person if possible, likely associated with ISB-2021,
- 2-day business meeting at October 2021 Annual Meeting,
- Postponement of FUTURE-supported Topic Sessions and Workshops to October 2021 Annual Meeting.

Recommendations for WG and SG proposals:

- SG-UNDOS: support with revision to broaden scope and align more strongly with FUTURE activities,
- SG-ECOP: support with revisions to ToR,
- SG-SciCom: support in principle,
- WG(s)-Climate Extremes: support development.