

Report of the Physical Oceanography and Climate Committee

The Physical Oceanography and Climate Committee (POC) held two meetings during PICES-2018 in Yokohama, Japan, one on Sunday, October 28, 2018, from 1800–2000 h and one on Wednesday, October 31, 2018, from 1400–1800 h. The meetings were chaired by Dr. Emanuele Di Lorenzo. Participants for both meetings are given in *POC Endnote 1*.



POC meeting participants at PICES-2018. Back row, from left: Steven Bograd, Fei Yu, SungHyun Nam, Elena Ustinova, Hiromichi Ueno, Jennifer Jackson, Jim Christian, Fangli Qiao. Front row, from left: Shin-ichi Ito, Diasuke Hasegawa, Manu Di Lorenzo, Hee-Dong Jeong, Yury Zuenko, Chan Joo Jang. Missing from photo: Shoshiro Minobe and Jerome Fiechter.

AGENDA ITEMS 1, 2 and 3

Introductions, membership updates, and agenda

Dr. Di Lorenzo welcomed members and self introductions were made. The draft agenda for both meetings was reviewed and approved and is included as *POC Endnote 2*.

AGENDA ITEM 4

POC Topic Sessions at PICES-2018

POC-sponsored Topic Sessions:

- POC Topic Session (S5) on “*Seasonal to interannual variations of meso-/submeso-scale processes in the North Pacific*”; Convenors: Annalisa Bracco (USA), Sachihiko Itoh (Japan), Elena Ustinova (Russia); Invited Speakers: Yu-Lin Eda Chang (JAMSTEC), Bo Qiu (University of Hawaii at Manoa);

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- POC/FUTURE Topic Session (S7) on “*Ecological responses to variable climate changes and their applicability to ecosystem predictions*”; Convenors: Ryan Rykaczewski (USA), Akinori Takasuka (Japan), Chan Joo Jang (Korea); Invited Speaker: Susan Allen (University of British Columbia);
- POC/FUTURE/MONITOR Topic Session (S8) on “*Internal tides, nonlinear internal waves, and their impacts on biogeochemistry, climate and marine ecosystems via ocean turbulent mixing processes*” Convenors: Shin-ichi Ito (Japan), SungHyun Nam (Korea), Jack Barth (USA), Annalisa Bracco (USA); Invited Speakers: Kristen Davis (University of California Irvine), Yign Noh (Yonsei University, Korea), Ichiro Yasuda (University of Tokyo);
- POC/BIO Topic Session (S10) on “*Ocean acidification and deoxygenation and their impact on ocean ecosystems: Synthesis and next steps*” Convenors: Jim Christian (Canada), Tsuneo Ono (Japan), Silvana Birchenough (ICES); Invited Speakers: Christopher Harley (University of British Columbia), Shoshiro Minobe (Japan).

POC-sponsored Workshops:

- POC/FIS/BIO Workshop (W4) on “*Synthesizing projected climate change impacts in the North Pacific*” Convenors: Anne Hollowed (USA), Shin-ichi Ito (Japan), Jacquelynne King (Canada), Myron Peck (USA); Invited Speakers: William Cheung (University of British Columbia), Taketo Hashioka (JAMSTEC).

AGENDA ITEM 5

Working Group proposals

None.

AGENDA ITEM 6

Publication updates

- 1) Final Report of WG 27 on *North Pacific Climate Variability and Change*.

A draft report was submitted to Science Board in late 2015. Reviews were completed in 2016 by POC members Christian and Ueno. It has taken about 2 years to revise the report due to WG member workloads, but comments were addressed and the final report has been submitted to the Secretariat for technical editing at PICES-2018.

- 2) Final Report of WG 29 on *Regional Climate Modeling*

Publication date: January 2018

<https://meetings.pices.int/publications/scientific-reports/Report54/Rpt54.pdf>

- 3) AP-CREAMS PICES Scientific Report on Oceanography of the Yellow and East China Seas (EAST-II region)

A full draft is ready for review. MONITOR will assign its members to review. POC members, Yury Zuenko, Chan Joo Jang and Shin-ichi Ito volunteered to review. Date for submitting comments to the editors is mid-December.

- 4) S-CC PICES Special Publication on Basin-wide Ocean Acidification and De-oxygenation

S-CC has been working on this publication for the last 3 years. It still needs some tweaking and tuning and addition of a few graphics. The intent is to send it for general community review in the next few weeks, and the aim is to publish in early 2019.

AGENDA ITEM 7

Publication proposals in 2018 and beyond

Working Group (WG 38) on *Mesoscale and Submesoscale Processes* – synthesis review paper to be submitted to a peer-reviewed journal (WG 38 requests a 1-year extension to analyze a dataset for the paper)

AGENDA ITEM 8

Participation in IQOE

Not discussed.

AGENDA ITEM 9

Upcoming meetings relevant to POC

- **OceanVisions2019 – Climate Summit**
April 1–4, 2019, Atlanta, Georgia, USA
Abstract submission deadline: November 15, 2018

The OceanVisions2019 - Climate Summit “Successes in resilience, adaptation, mitigation, and sustainability” is co-organized by researchers at Georgia Tech, Stanford University, Scripps Institution of Oceanography, and the Smithsonian Institution in coordination with the IOC-UNESCO, the Ocean Conservancy and Georgia Aquarium. The goal is to highlight ocean-based science and engineering successes in the areas of resilience, adaptation, mitigation and sustainability and promote scalable solutions across human, climate and ecological dimensions.

Sponsors/Organizers: Georgia Tech, IOC-UNESCO, Ocean Conservancy
<http://oceanvisions.org/oceanvisions19>

- **Second NPAFC-IYS Workshop**
May 18–20, 2019
Portland, Oregon, USA
Abstract submission deadline: January 15, 2019
- **OceanObs19**
September 16–20, 2019
Honolulu, Hawaii, USA
Abstract submission deadline: March 15, 2019
- **PICES-2019**
October 16–27, 2019
Victoria, British Columbia, Canada
Session proposal deadline: October 29, 2019

AGENDA ITEM 10

Priority of items with funding implications

See Agenda Item 15.

POC – 2018

AGENDA ITEM 11

POC Best Presentation and Poster Awards, Early Career judgment for POC

POC was tasked by the Science Board Chair, Dr. Hiroaki Saito, to judge early career scientist oral presentations and posters for Topic Sessions S5, S8, POC Paper Session, and POC-relevant topics in the General Poster Session at PICES-2018.

- Best Oral Presentation: Yu-Lin Eda Chang (JAMSTEC) for her report on “Potential impact of ocean circulation on Japanese eel larvae migration” in POC Topic Session (S5) on “*Seasonal to interannual variations of meso-/submeso-scale processes in the North Pacific*”
- Best Poster: Sang-Chul Cha (Jeju University, Korea) for his presentation on “*Climate-related decadal sea level and heat content shifts in the tropical Pacific*”.

AGENDA ITEM 12

Review of POC messaging board, documenting business meetings, topic sessions and workshops

Not discussed.

AGENDA ITEM 13

Planning for PICES-2019 and POC Action Items – Part I

See Agenda Item 20.

AGENDA ITEMS 14 and 15

Expert Group progress reports and requests

1. Joint PICES/ICES Section on *Climate Change Effects on Marine Ecosystems* (S-CCME)

Dr. Shin-ichi Ito presented S-CCME activities in 2018.

- March 12–16, 2018: PICES S-CCME member Anne Hollowed, (USA) attended as member of the Research Advisory Board at the CERES (Climate Change and European Aquatic Resources) Annual Meeting in Olhão, Portugal. Progress was reviewed on future scenarios for EU fisheries and vulnerability assessments.
- June 4-8, 2018: Several S-CCME members attended the Fourth International Symposium on “*The effects of climate change on the world’s oceans*” co-sponsored by PICES, ICE, IOC and FAO. Shin-ichi Ito (PICES/S-CCME), Jason Link (ICES SICCME), Manuel Barange (ICES SICCME, Italy/FAO), and Veronique Garçon (CNRS) were the lead convenors, S-CCME was represented on the Scientific Steering Committee including Anne Hollowed (PICES S-CCME, USA), Myron Peck (ICES SICCME, Germany), John Pinnegar (ICES SICCME, UK), Angelica Peña (PICES S-CCME, Canada), Kirstin Holsman (PICES S-CCME, USA), and Motomitsu Takahashi (PICES S-CCME, Japan).
- June 9, 2018: S-CCME held an ICES-PICES Workshop on “*Political, economic, social, technological, legal and environmental scenarios used in climate projection modelling*” following the symposium. A synthesis paper based on 20 projects was initiated.
- September 25, 2018: PICES/ICES S-CCME members attended the ASC 2018 (September 24–27) Opening Session on “Do you know more about marine climate change issues than the wider European populace?” chaired by John Pinnegar (ICES SICCME, UK) and Myron Peck (ICES SICCME, Germany).
- October 25–November 4, 2018: a S-CCME workshop (W4) on “*Synthesizing projected climate change impacts in the North Pacific*” was convened October 28 at PICES-2018 by Anne Hollowed (PICES S-CCME, USA), Shin-ichi Ito (PICES S-CCME, Japan), Jackie King (PICES S-CCME, Canada) and Myron Peck (ICES SICCME, Germany).

- July 2018: FAO Fisheries and Aquaculture Technical Paper 627 chapters were published: Manuel Barange (FAO, ICES S-CCME) led an FAO publication titled: Fisheries and Aquaculture Technical Paper 627: Climate change implications for fisheries and aquaculture: Synthesis of Current Knowledge, Adaptation and Mitigation Options. Myron Peck (ICES SICCME, Germany) and John Pinnegar (ICES SICCME, UK) contributed Chapter 5 on “North Atlantic and Atlantic-Arctic Marine Fisheries” (pp. 87–111) and Kirstin Holsman (PICES S-CCME, USA), Anne Hollowed (PICES S-CCME, USA), Jackie King (PICES S-CCME, Canada) and Shin-ichi Ito (S-CCME, Japan) contributed Chapter 6 on “North Pacific and Pacific-Arctic Marine Fisheries” (pages 112– 138).

Activities in 2019

- January 2019 – IPCC WG II cut off for submitted papers to AR6 is 1 July 2020; accepted papers by May 1, 2021. Workshops and working sessions are planned to put papers together;
- March 10–13, 2019: Scenarios Forum 2019, Denver, Colorado, USA;
- March 11–15, 2019: Next CERES meeting will take place in Bordum, Turkey. Anne Hollowed, (PICES S-CCME, USA) and William Cheung (ICES SICCME, Canada) are members of the Research Advisory Board;
- September 9–12, 2019: ICES ASC 2019, Gothenburg, Sweden;
- October 16–27, 2019: PICES-2019, Victoria, Canada.

Requests:

- ½-day meeting at PICES-2019;
- Additional Russian members from BIO and/or FIS to S-CCME membership;
- Travel support for an invited speaker for Topic Session on “*Trends in ocean and coastal ecosystems and their services and its future*” and Topic Session on “*Creating more effective Integrated Ecosystem Assessments (IEAs) in PICES countries*” at PICES-2019;
- Travel support for an invited speaker to attend an ICES-PICES inter-sessional Workshop on “*Physical and biogeochemical projections for regional seas*”.

2. Section on *Carbon and Climate* (S-CC)

Dr. James Christian (Co-Chair of S-CC) presented on S-CC activities for 2018.

- Major accomplishments to date include: CO₂ Best Practices guide, PACIFICA data synthesis, topic sessions /workshops at every PICES Annual Meeting from 2007–2018 except (2008, 2011, 2017);
- Current product is PICES Special Publication “*Ocean Acidification and Deoxygenation in the North Pacific Ocean*” expected for publication in early 2019. (Schedule was behind because of the need to obtain funds for a graphic designer.);
- A workshop on ocean sensor technology, sponsored by Ocean Networks Canada, was held February 7–8, 2018 in Victoria, Canada (S-CC members Christian and Miller (Canada) and Nakoaka and Ono (Japan) attended. Output from the workshop will be submitted in a paper to *Frontiers in Marine Science* in 2019, and a sensor experiment is set for 2020;
- An International Symposium on “*Ocean acidification - Dialogues between scientists and stakeholders*” was held October 28, 2018 in Tokyo. S-CC members, Richard Feely (USA) and Masao Ishii (Japan) were keynote speakers; Tsuneo Ono moderated a panel discussion and James Christian was a panel participant.

Request:

- ½-day meeting at PICES-2019.

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3. WG 38: Working Group on *Mesoscale and Submesoscale Processes*

Dr. Hiromichi Ueno (Co-Chair of WG 38) reported on WG 38 activities.

Activities in 2018

- WG 38 held a Topic Session (S5) on “*Seasonal to interannual variations of meso-/submeso-scale processes in the North Pacific*” at PICES-2018; Convenors: Annalisa Bracco (USA), Sachihiko Itoh (Japan), Elena Ustinova (Russia), 17 presentations, 4 posters.

Activities in 2019

- A synthesis paper on submesoscale processes to be submitted to a peer-reviewed journal
 - Lead author: Hiromichi Ueno; outline includes mean state/trend analysis of satellite data section, regional summaries, and a synthesis section;
 - Analysis of high-resolution model output has been delayed due to problems outside the WG’s control.

Requests:

- A 1-year extension to complete the synthesis paper;
- Travel support for an invited speaker for a Topic Session on “*Impacts of meso-/submeso-scale processes on heat/material transport and on marine ecosystems*” at PICES-2019;
- ½-day meeting at PICES-2019.

4. WG 40: Working Group on *Climate and Ecosystem Predictability*

Dr. Masami Nonaka (PICES Co-Chair of WG 40) presented on the activities of WG 40.

Activities in 2018

- WG 40 and ICES WGS2D co-organized a Topic Session (S2) on “*From prediction to projection: the role of seasonal to decadal forecasts in a changing climate*” at the Fourth International Symposium on “The effects of climate change on the world’s oceans” (June 2018, Washington, DC, USA), Convenors: Mark Payne (ICES/Denmark), Erica Ombres (NOAA), Mike Jacox (PICES/USA), Masami Nonaka (PICES/Japan)
- Topic Session (S7) on “*Ecological responses to variable climate changes and their applicability to ecosystem predictions*”, co-sponsored by CLIVAR, at PICES-2018;
- Work is continuing on a census of existing marine ecosystem forecasting efforts (~15) in the North Pacific.

Requests:

- Travel support for an invited speaker for a Topic Session on “*Advances in North Pacific marine ecosystem prediction*” at PICES-2019;
- Travel support for 1 or 2 scientists to attend a WG 40 inter-sessional workshop on “*Towards an integrated approach to regional ecosystem forecasting efforts in the North Pacific*”, spring 2019, Boulder, Colorado or Princeton, New Jersey, USA;
- 1-day meeting at PICES-2019.

5. AP-CREAMS: Advisory Panel for a *CREAMS/PICES Program in East Asian Marginal Seas*

Dr. Yury Zuenko reported on AP-CREAMS activities. The main tasks are to coordinate research between China, Japan, Korea and Russia in East Asian Seas.

Activities in 2018

- Joint Korea-Japan-China cruise and Korea-Russia ferry boat monitoring

- AP-CREAMS inter-sessional meeting held May 4–5, 2018 in Hangzhou, China
- CREAMS EAST-II report (East China and Yellow Seas) draft completed
 - 3 reviewers were selected from POC and MONITOR, and their reviews are due December 2018;
 - The report will be revised, based on their comments, and submitted to the Secretariat for technical editing by April 2019.

Activities in 2019

- NPESR3 region 19 is being prepared;
- Inter-sessional meeting to take place April 2019 in Gangneung, Korea;
- CREAMS-III Basin Scale Survey planned for 2019–2020;
- Proposal for a workshop on “*Circulation, biogeochemistry, ecosystem, and fisheries of the western North Pacific marginal seas: Past and future of CREAMS (Circulation Research of East Asian Marginal Seas)*” at PICES-2019
- PICES/CREAMS Summer School on “*Ocean turbulence: From observing to research*” planned for August 2019 on Qingdao, China.

Request:

- ½-day meeting at PICES-2019;
- Travel support for an invited speaker for a Workshop on ““*Circulation, biogeochemistry, ecosystem, and fisheries of the western North Pacific marginal seas*” at PICES-2019.

AGENDA ITEM 16

FUTURE updates

Not discussed.

AGENDA ITEM 17

Relationships with other international organizations/programs

Argo (presented by Toshio Suga)

- Expects increased collaboration between Argo and PICES in the future;
- Nearly 4,000 operational floats;
- Since 2005, Argo deployments are stable (about 890 per year);
- New target is 6-year lifetime;
- 6th Argo science workshop will be held October 22–24, 2018 in Tokyo, Japan to prepare for OceanObs 19
- Plans for evolution, growth, and technical advances:
 - Important gaps: high latitude/seasonal ice zones, marginal seas, equatorial oceans, WBCs; enhancements for gaps don't yet have support,
 - Development of biogeochemical sensors,
 - Deep Argo currently have about 70 floats,
 - Biogeochemical Argo – Proposed to have 6 sensors (Oxygen, Nitrate, pH, fluorescence, particle abundance, downwelling irradiance), most are deployed under specific projects and not in an operational way (e.g. , SOCCOM, aim for 200 floats in Southern Ocean),
 - Big hole for biogeochemical floats is North Pacific.
- Argo vision for 2020 – one array (combine BGC, deep, regular Argo), global extent, full depth, multidisciplinary;
- Need to build greater support and awareness for Argo2020 for operational users; reach out to new research users (fisheries, ecosystem, deep ocean physics/ chemistry/ biology); and work more closely with PICES.

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CLIVAR (presented by Shoshiro Minobe)

- Several WGs are relevant to PICES:
 - Eastern boundary upwelling systems (similar to SCOR working group),
 - EBUS needs members from the western Pacific.
- WCRP grand challenge is to understand carbon feedbacks in the climate system.

ICES (presented by Cornelius Hammer)

ICES dissolved its oceanography committee in 2007 and this was considered a mistake. With the development of the integrated ecosystem assessment it became clear that physical oceanography is needed. As a consequence, ICES is trying to reinvigorate physical oceanography, and supported the WG on oceanography; in 2013, a WG on oceanographic hydrography was established. The second step is to now have a new science plan where physical oceanography is an integral part of this plan. The hope is that physical oceanographers will become more active in ICES.

Machine learning is becoming an issue at ICES. This should be a classical theme for cooperation between PICES and ICES. Contact persons for ICES/PICES liaison and collaboration are Heddin Valdimarsson and Rafael Gonzalez-Quiros.

AGENDA ITEM 18

NPESR update - North Pacific Ecosystem Status Report

WG 35 (*North Pacific Ecosystem Status Report*) Co-Chair, Peter Chandler provided an update on Ecosystem Time Series Observations (ETSO) for the third NPESR. A PICES classification for regional assessments was established. The North Pacific was broken down into 14 different regions, with lead scientists assigned to each region. ETSOs were collected and are available online as an archived searchable database. There has been a lack of ETSO submissions, largely because of the uncertainty of who is responsible to contribute to ETSOs, and also because of confusion for lead authors on how to proceed given the lack of ETSOs. A revised plan is to set up a series of fundamental ETSOs. A person needs to be identified who will be dedicated to submitting ETSOs to a database.

Revised schedule:

- April/May 2019 – Synthesis workshop and writing of NPESR3 just prior to ISB-2019,
- October 2019 – Present NPESR3 at PICES-2019.

AGENDA ITEM 19

Future directions of POC

Dr. Minobe reported on a new funding opportunity announced by the Belmont Forum. Funding has been contributed by Russia, Japan and the USA, Canada, China and Korea can add to the proposal at their own expense (i.e., get money from a different funding sources). Two topics to be addressed by the Belmont Forum are: 1) Finding pathways towards a sustainable and equitable use of oceans and 2) Accounting for and minimizing impacts of global change. Likely funding will be an enhancement for those already working on the topics. The funding can be used for small or large groups (3 people minimum). S-CCME is considering submitting a proposal for funding.

POC members and participants presented the following ideas for the future direction of POC:

- Yury Zuenko – POC is focused on physical oceanography that is focused on ecosystems. He proposed a deeper understanding of the connections between physical mechanisms (that are important for productivity) and biology.

- Jennifer Jackson – POC should look at complex coastlines, *i.e.*, understand the physical mechanisms of these regions and how these mechanisms influence production.
- Jim Christian – What will replace FUTURE? Will it be extended for another 10 years? Maybe we should wait a few years and carefully evaluate what FUTURE achieved before having another integrated science program. Scientifically, look at the more complex problems (*e.g.*, modeling population dynamics interactions between organisms that have fundamentally different temporal and spatial scales).
- Chan Joo Jang – PICES should not be in a hurry to have another integrated science program. However, PICES needs more physics topics (*e.g.*, mixing, internal waves, tidal mixing, mesoscale mixing, wave induced mixing – these are important for physics and biology). We need to improve our understanding of mixing so that it can be used for ecosystems and forecasts.
- Sunghyun Nam – We need to look at the goals of PICES in advancing scientific knowledge and fit POC in with those goals, but also think about future science directions. Mechanisms are important, especially at processes at different scales, including climate, mixing, long term trends. POC should support human intelligence instead of artificial intelligence.
- Elena Ustinova – We should concentrate on interdisciplinary science (phytoplankton, ocean acidification, *etc.*). The chemistry of the open ocean is still not well known. We should increase the use of biochemical Argo sensors and data, have inter-sessional workshops on physical and chemical projections, topic sessions on submesoscale processes, including chemistry. We should look at the comparability of data collection and methods. We should also promote capacity building, *i.e.*, training the next generation of scientists.
- Shoshiro Minobe – More interdisciplinary research is needed. We should look on how to attract young scientists to it but the problem is that they must focus on their own discipline – interdisciplinary work is for more established scientists.
- Fangli Qiao – Physics is the key for model development and improving our predictions. POC should be involved in model development-related physics where mixing and the air-sea flux are key components. POC should provide operational services for the PICES community and member countries (*i.e.*, scientific support for management), and communication regarding POC and the marine ecosystem should be enhanced at the government level.
- Jerome Fiechter – Determine whether trends can be reliably identified from the natural variability of the systems.
- Steven Bograd – Look to making advances in predictability and forecasting (an area of rapid development, and a lot of interest from governments) *e.g.*, WG 40. Providing operational forecasts is likely beyond the scope of PICES but could be a good goal for the future.
- Hiromichi Ueno – POC should continue to support the physical component for marine ecosystems. Process studies are important.
- Shin-ichi Ito – Focus on Mesoscale–submesoscale processes, mixing (it is the biggest knowledge gap in ocean physics), and extreme events (*e.g.*, marine heatwaves).
- Masami Nonaka – Predictability is an important aspect as well as air-sea flux and interactions.
- Daisuke Hasagawa – Look at biogeochemical cycles from a physical oceanographer’s point of view, and look at understanding specific processes through observations.
- Olga Trusenkova – Look at small-scale processes, which are very important for biota.

New proposals for expert groups, workshops, symposia, conferences

1) Study Group on *IEA of the Northern Bering-Chukchi Seas* (SG-NBCS)

FIS is the proponent of this proposal. If this SG is established and if a working group is established later, Dr. Zuenko asked to be nominated as Co-Chair so that POC will have representation.

2) Study Group on *Submesoscale Processes and Marine Ecosystem*

Dr. Yisen Zhong (Shanghai Jiao Tong University, China) noted that knowledge of submesoscale processes in the North Pacific is becoming increasingly more important in understanding the marine ecosystem, and proposed a new Study Group on *Submesoscale Processes and Marine Ecosystem*. An eventual working group coming out of the SG recommendations would be a natural and timely transition from a mesoscale-centered WG (WG 38) to a submesoscale-focused one. POC members commented that such a group would need to state clearly in its terms of reference what scale of the marine ecosystem the submesoscale processes would be linked to. The POC Committee did not support establishment of this new group at this time, and recommended that WG 38 complete its TORs first. Dr. Zhong was thanked for his interest in forming a new group and POC encouraged him to join WG 38 as a member.

3) PACON – 26th International Conference on Marine Science and Technology for Sustainable Development, July 16-19, 2019, Vladivostok, Russia

Request for PICES co-sponsorship – support for advertising and organizing sessions, early career scientists, invited speakers, session convenors, but specifically travel support for 5 early career scientists and 3 session convenors.

4) SOLAS Open Science Conference, April 21–25, 2019

Dr. Lisa Miller presented a short overview of SOLAS. PICES continues to be a supporter of SOLAS activities. PICES provided travel funds for 2 early career scientists (from Canada) to attend the 7th International SOLAS Summer School in Cargèse, France in 2018.

Request for PICES co-sponsorship – travel support for 2-3 early career scientists to attend the OSC, and support for running an Early Career Scientist Day (April 21).

So far, no POC member plans to submit anything to the SOLAS OSC.

5) PICES-2019

POC gave highest rankings for proposals in the following categories:

Topic Sessions:

- Proposal 2: *Marine heatwaves in the North Pacific: Predictions and impacts in coastal regions* (proposed by Jennifer Jackson; there was a suggestion to merge this with proposal 3 but POC members decided this would not be preferable; co-sponsorship requested from BIO, HD and MONITOR);
- Proposal 3: *Coastal ocean modelling in the North Pacific* (proposed by Laura Bianucci; many coastal models of many coastal regions and this session will help everyone learn together; idea is to start this off as a session and then eventually put a workshop together; to be co-sponsored with BIO);
- Proposal 5: *Trends in ocean and coastal ecosystems and their services and its future* (proposed by Shin-ichi Ito; sponsorship requested from other committees);
- Proposal 13: *Impacts of meso-/submeso-scale processes on heat/material transport and on marine ecosystems* (proposed by Hiromichi Ueno);
- Proposal 17: *Advances in North Pacific marine ecosystem prediction* (proposed by Mike Jacox; to be co-sponsored with FUTURE).

Workshops:

- W 4: *Circulation, biogeochemistry, ecosystem, and fisheries of the western North Pacific marginal seas: Past and future of CREAMS (Circulation Research of East Asian Marginal Seas)* (proposed by SungHyun Nam).

Inter-sessional workshops:

- *Towards an integrated approach to understanding ecosystem predictability in the North Pacific* (proposed by Ryan Rykaczewski);
- *NPESR3 Synthesis Workshop*;
- ICES-PICES Workshop on *Physical and biogeochemical projections for regional seas* (proposed by Myron Peck).

AGENDA ITEM 18

Planning for PICES-2019 and POC Action Items - Part II

See Agenda Item 20.

AGENDA ITEM 19

Other business

None.

POC Endnote 1

POC participation list

Members

Steven Bograd (USA)
 James Christian (Canada)
 Emanuele Di Lorenzo (USA, Chair)
 Jerome Fiechter (USA)
 Daisuke Hasegawa (Japan)
 Shin-ichi Ito (Japan)
 Jennifer Jackson (Canada)
 Chan Joo Jang (Korea)
 Shoshiro Minobe (Japan)
 SungHyun Nam (Korea)
 Fangli Qiao (China)
 Hiromichi Ueno (Japan)
 Elena Ustinova (Russia)
 Yury Zuenko (Russia, Vice-Chair)

Members unable to attend

Canada: Michael Foreman
 China: Fan Wang, Lei Zhou
 Korea: Hee-Dong Jeong
 Russia: Vyacheslav Lobanov

Observers

Annalisa Bracco (USA, WG 38 Co-Chair)
 Cornelius Hammer (ICES)
 Lisa Miller (SOLAS)
 Masami Nonaka (Japan, WG 40 Co-Chair)
 Toshio Suga (Japan/Argo)
 Fei Yu (China, Co-Chair AP-CREAMS)
 Yisen Zhong (China)

POC Endnote 2

POC meeting agenda

Sunday, October 28, 6:00pm–8:00pm

1. Welcome and introductions
2. Membership updates
3. Changes to, adoption of, agenda and appointment of rapporteur
4. POC Sessions at PICES-2018
5. WG proposals
 - SOLAS
 - Submesoscale and ecosystem dynamics
6. Publication updates
 - Final Report of WG 27 on North Pacific Variability and Change
 - Final Report of WG 29 on Regional Climate Modeling
 - AP-CREAMS Scientific Report on Oceanography of the Yellow and East China Seas (EAST II region), waiting chapter supplement
 - S-CC Special Report on Basin-wide ocean acidification and de-oxygenation
7. Publication proposals in 2018 and beyond
8. Participation to IQOE
9. Upcoming meetings relevant to POC
10. Priority of items with funding implications
11. POC Best Presentation and Poster Awards, Early Career judgment for POC
12. Review of POC messaging board, documenting business meetings, topic sessions and workshops
13. Planning for PICES-2019 and POC Action Items – Part I

Wednesday, October 31, 2:00pm–6:00pm

14. ExGs Progress Reports and future plans of POC active groups
 - S-CCME: Joint PICES/ICES Section on Climate Change Effects on Marine Ecosystems (Jan 2012–2017)
 - S-CC: Section on Carbon and Climate (Oct 2003–2016, still continuing)
 - WG 38: Working Group on Mesoscale and Submesoscale Processes (Nov 2016–Oct 2019)
 - WG 40: Working Group on Climate and Ecosystem Predictability (Jul 2017– Oct 2020)
 - AP-CREAMS: Advisory Panel for a CREAMS/PICES Program in East Asian Marginal Seas (Oct 2015–Oct 2019)
 15. Requests from and to existing ExGs
 16. FUTURE updates
 17. Relationships with other international organizations/programs
 18. NPESR update - North Pacific Ecosystem Status Report
 19. Panel Discussion on future directions of POC and PICES Science Plan
 20. New proposals for ExGs, meetings, workshops, symposia, conferences
 - Proposal for new PICES ExGs (*e.g.* WG, SG, Sections)
 - Ranking of PICES 2019 proposals
 - SCOR proposal recommendation and outcomes
 21. Planning for PICES-2019 and POC Action Items - Part II
 22. Other business
- Adjourn