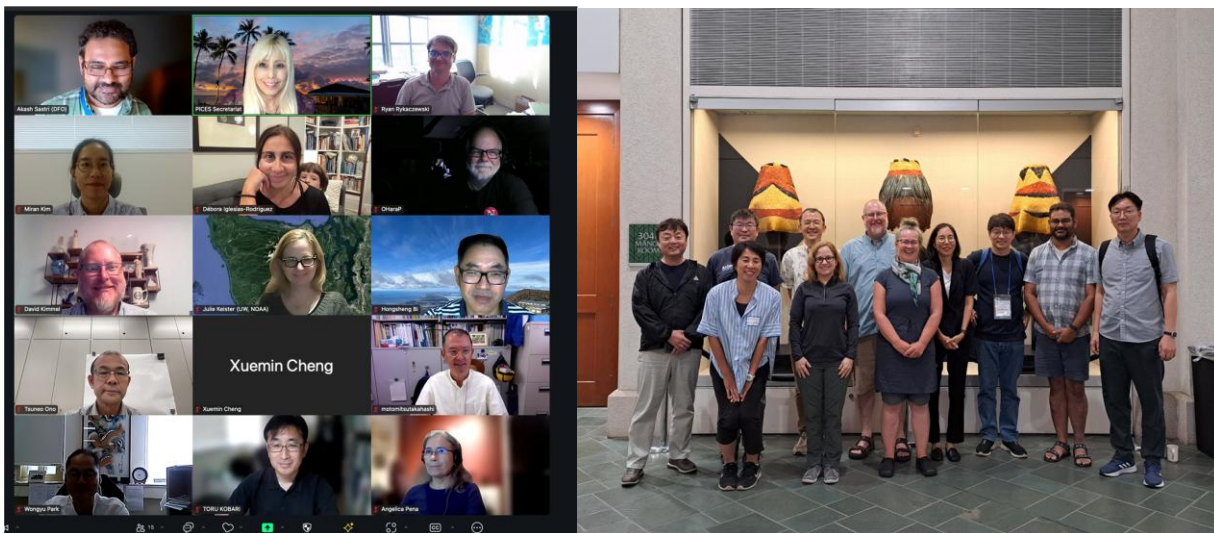


## BIO Committee 2024

### 2024 Report of the Biological Oceanography Committee

The 2024 Biological Oceanography Committee (BIO) meetings took place from 18:30–21:00 (PDT) October 9, 2024, online and from 18:00–20:30 (HST) on Saturday, October 26, 2024, in person at PICES-2024 in Honolulu, USA. The Chair, Dr. Akash Sastri, called both meetings to order and welcomed members and observers. Most participants attended the second meeting in person, however, some attended via Zoom (*BIO Endnote 1*). All members in attendance introduced themselves and absent members were noted. The Chair reviewed membership changes and noted that there was no official representation from Russia. Members from all other PICES member countries were present. The draft agenda was circulated prior to both meetings. There were no additions offered, and the agenda was adopted (*BIO Endnote 2*). Dr. Toru Kobari agreed to act as a rapporteur.



BIO participants online, top left to bottom right: Akash Sastri, Sanae Chiba, Ryan Rykaczewski, Miran Kim, Debora Iglesias-Rodriguez, Patrick O'Hara, David Kimmel, Julie Keister, Hongsheng Bi, Tsuneo Ono, Xuemin Cheng, Motomitsu Takahashi, Wongyu Park, Toru Kobari, and Angelica Peña. In person participants, front row from left: An Yong-rock, Kaoru Hattori, Julie Keister, Janelle Curtis, back row from left: Tsutomu Tamura, Motomitsu Takahashi, David Kimmel, Miran Kim, Taewon Kim, Akash Sastri, Gi-Young Chae.

#### AGENDA ITEM 3 (Virtual)

##### Membership Changes

- Prof. Andrew G. Dickson (USA) stepped down as a S-CC Member.
- Dr. Yuichiro Takeshita was a new S-CC member from Japan replacing Dr. Burke Hales.
- Prof. Toru Kobari (Japan) was elected as the new Vice-Chair of BIO Committee replacing the interim Vice-Chair Dr. David G Kimmel (USA).
- Dr. Yu Kanaji was a new S-MBM member from Japan replacing Dr. Kaoru Hattori.
- Dr. Morohito Ito is a new S-MBM member from Japan replacing Dr. Yutaka Watanuki.
- Dr. Philina English (Canada) was appointed as a member of the S-CCME.
- Dr. Satoi Arai (Japan) was appointed as a member of WG-47.
- Working Group 53 membership:
  - China: Yue Jin, Shuyang Ma, Yongjun Tian, Wei Yu, Hui Zhang, Kui Zhang
  - Korea: Haeyoung Choi, Minje Choi, Hwansung Ji, Heejoong Kang, Dongwha Sohn
  - Russia: Dmitriy Antonenko, Nikita Dederer, Vladimir I. Radchenko

- USA: Brad Erisman, Isaac Kaplan, Ryan Rykaczewski, Margaret Siple, Matthew Baker, Richard Brodeur, Tim Essington
- Japan: Sachihiko Itoh, Tatsuya Sakamoto, Akinori Takasuka, Motomitsu Takahashi (WG-53 PICES Co-Chair), Mikio Watai, Hiroomi Miyamoto
- Canada: Jennifer L. Boldt, Jaclyn Cleary, Hannah Murphy, Chris Rooper (WG-53 PICES Co-Chair), Brian Hunt, Francis Juanes

#### AGENDA ITEM 3 (In-person)

##### **Annual Review of BIO Activities**

BIO business meetings were convened 9 October (online) and 26 October (hybrid in-person and online). BIO sponsored 2 workshops (W1 and W9) and 6 sessions (S2, S4, S7, S8, S13, and BIO paper) during PICES-2024. The BIO chair and vice-chair reviewed the draft WG46 scientific report.

#### AGENDA ITEM 4 (In-person)

##### **Publications**

Not discussed

#### AGENDA ITEM 4 (Virtual)/ AGENDA ITEM 5 (In-person)

##### **Selection of Best ECS Presentation for BIO**

Judges for BIO-sponsored topic sessions, workshops, and poster session were assigned during the BIO Committee online and in-person meetings. The best ECOP BIO oral presentation was awarded to Katherine Dale (USA) presenting in Session 7: *Eastern Pacific fish spawning patterns demonstrate mixed spatiotemporal trade-offs in response to environmental changes*. The best ECOP BIO Poster Presentation was awarded to Hikari Ozawa (Japan): *The intra- and inter-specific overlaps of foraging sites and diet in sympatric seabirds breed on the colonies in the Tsugaru strait, Japan*.

#### AGENDA ITEM 5 (Virtual)/ AGENDA ITEM 6 (In-person)

##### **Progress Reports and Future Plans of BIO Active Groups**

##### **a) WG46: PICES/ICES Ocean Negative Carbon Emissions (ONCE)**

WG46 submitted a draft of their final scientific report and a proposal for new working group (*Ocean Negative Carbon Emissions for Carbon Neutralization: OCN*) to the PICES secretariat. BIO committee reviewed and recommended approval of the revised proposal and scientific report drafts to Science Board.

##### **b) WG 47: Ecology of Seamounts**

Co-chair Dr. Janelle Curtis reported on annual activities and achievements from Year 1 to Year 3. The working group met online on September 23, 2024 to discuss anticipated contributions to each of the Terms of Reference (ToR) and the final scientific report. The working group held an in-person meeting on October 31, 2024 during PICES-2025. Dr. Curtis provided BIO with an overview of the nine ToR and associated activities covered during each of three years. Highlighted activities included gathering of data on: the distribution and life history of seamount associated pelagic, demersal, and benthic taxa; and associated environmental data. These data sets were prepared for submission to biodiversity databases and for modelled prediction of pelagic, demersal, and benthic distributions associated with North Pacific seamounts. Additional activities of note were a productive a two-day workshop on *Distributions of pelagic, demersal, and benthic species associated with seamounts in the North Pacific Ocean and factors influencing their distributions*, convened during PICES 2022 in Busan, Korea and a one-day session on the “Pelagic, demersal, and benthic species associated with

seamounts” convened during PICES 2023 in Seattle, USA. All ToR were completed except the use available data to predict climate induced changes in the distributions of seamount fauna. The WG is currently preparing, reviewing, and revising the final report in advance of submission by PICES 2025. They are also considering proposing a follow-up working group.

**c) WG 48: *Towards Best Practices Using Imaging Systems for Monitoring Plankton***

Co-chair Dr. Kimmel summarized the working group’s annual activities and achievements during the online BIO business meeting. The working group held their online WG business meeting on October 3, 2024. Dr. Kimmel highlighted participation of WG48 membership co-convening the topical session, *Get it from the image: In situ imaging and spatially detailed observations of zooplankton for ecosystem studies*, at the 7<sup>th</sup> Zooplankton Production Symposium in 2024 and the session, *Rapid plankton assessment for ecosystem assessment* (S13) at PICES 2024 Annual Meeting. A full draft of a review paper entitled *A primer for underwater plankton imaging systems* has been completed and WG members are now in the process of reviewing and editing. The WG will request consideration of the MS for submission as a review paper to *Annual Reviews in Marine Science* in spring 2025. This review paper will also serve as core material for the WG final scientific report with planned submission in advance of PICES-2025. WG48 members have also developed and plan to submit a new WG proposal, *Best Practices for Using Machine Learning in Processing Plankton Images*.

**d) WG 53: *Joint PICES/ICES Working Group on Sustainable Pelagic Forage Communities***

Co-chair Dr. Takahashi introduced a newly established ICES/PICES working group on *Sustainable Pelagic Forage Communities* (WG53; 2024-2026). The PICES co-chairs are Drs. Chris Rooper (Canada) and Motomitsu Takahashi (Japan). This new working group was developed from a joint ICES/PICES Working Group on Small Pelagic Fish (WGSPF and WG43). Dr. Takahashi introduced a motivation and framework for the new WG based on observations of anchovy and sardine stock fluctuations and associated environmental changes in the Pacific Ocean. The WG has a three-year workplan to address seven ToR which include: fostering international and interdisciplinary collaboration; identifying and prioritizing research needed to forecast ecosystem response to change in forage species; and organizing symposia and workshops focused on the dynamics of forage species in ecosystems and their impact on higher trophic levels. The WG has two task forces: i) ecological process knowledge; ii) and translating process knowledge. WG53 convened a session, *Advanced tools to monitor, observe, and assess small pelagic fish populations in support of ecosystem based fisheries management and maintaining ecosystem services* (S3) during PICES-2024. WG53 is planning to convene an intersessional meeting in Lisbon, Portugal in February 2025 and requested travel fundings for two PICES participants. The working group is also organizing a joint symposium for 2026 in La Paz, Mexico.

**e) S-MBM: *Section on Marine Birds and Mammals***

Co-chairs Drs. Miran Kim and Patrick O’Hara joined both BIO business meetings. Dr. O’Hara introduced annual activities based on their business meetings (4 September, 26 October). Dr. Tsutomu Tamura updated S-MBM on International Whaling Commission (IWC) activities and the IWC Scientific Committee Annual Meeting. (He has recently been replaced by Dr. Toshihide Kitakado as PICES liaison to IWC.) S-MBM members participated in two international symposia, the Pacific Seabird Group Annual Meeting (21-23 February 2024, Seattle, USA) and the IWC Scientific Committee Meeting held in Bled, Slovenia (22 April–3 May 2024). Dr. O’Hara revisited the S-MBM 2022-2025 Activity Plan, “Interaction between MBMs and other ecosystem components and stressors”. S-MBM convened a workshop, *Puffin diet samples as indicators of forage nekton availability and community structure in the North Pacific* (W9); and a topic session, *Social, economic and ecological implications of recoveries, range expansions and shifting distributions of*

*marine birds, mammals and fish (S7) during PICES-2024 and proposed a workshop, *Response of top predators to unusual oceanographic, climatic and anthropogenic events in the North Pacific* for PICES-2025. S-MBM is seeking to balance membership between marine bird and marine mammal expertise among the PICES countries. With the retirement of Dr Yutaka Watanuki, S-MBM has been searching for a seabird biologist from the Western Pacific as a replacement. Finally, S-MBM is seeking guidance for playing a greater role developing the upcoming PICES Scientific Programme (post-FUTURE).*

**f) S-CCME: Section on Climate Change Effects on Marine Ecosystems**

Co-chair Dr. Kristin Holsman updated BIO on the S-CCME annual activities with a pre-recorded presentation. BIO was updated on new membership from Canada and Korea. The terms for both PICES co-chairs have now extended beyond three years and Dr. Xiujuan Shan will be replaced this year and Dr. Holsman is set to be replaced in 2025. Continued S-CCME support of UNDOS programs and projects including: Ocean to Climate Seamless Forecasting System (China); Ocean Negative Carbon Emission (China); SMARTNET; SUPREME; Fish SCORE; SG-UNDOS; BECI; and IPOD. S-CCME/SICCME Chairs Mills and Holsman both participated in the UN Law of the Sea Panel in Washington, DC, USA in spring 2024. Integrated modelling activities in 2024 included continued coordination with the NOAA Climate Ecosystem and Fisheries Initiative (CEFI). S-CCME/SICCME Chairs Mills, Baudron, and Holsman led a session at the ICES ASC 2024: Theme Session P: *Climate impacts and adaptation responses in marine fishery systems*. S-CCME (PICES) convened its online business meeting on October 16, 2024 and convened two topical sessions at PICES-2024: *Innovation in using integrated approaches to detect and manage for the effects of climate change tipping points and critical thresholds in marine ecosystems (S2)*; and *Impacts of warming-induced changes in body sizes on marine fish (S11)*. Dr. Holsman reported on progress on their Phase IV ToR. S-CCME requested 1) membership change of chairs, 2) travel funds for two ECOPs from PICES to attend ICES session, *Marine fisheries and ecosystem management in the context of species distributions shifts*, and 3) session or workshop proposal for PICES 2025 Annual Meeting.

**g) S-CC: Section on Carbon and Climate**

Co-chair Dr. Tsuneo Ono introduced annual activities of S-CC. Dr. Ono reviewed major scientific achievements, submissions of metadata of coastal and domestic ocean acidification and/or deoxygenation monitoring site to GOA-ON data portal. S-CC convened topic session, *Changing ocean carbon cycle and its consequences for the ocean environment: Detection, prediction and mitigation (S8)* during PICES-2024. S-CC members attended to Global-ONCE forum (June 26, 2024, Shanghai), as the progress on the ToR. S-CC have proposed a workshop, *Building framework for cross-community conversation between natural carbon cycles and marine carbon dioxide removal* for PICES-2025.

**AGENDA ITEM 6 (Virtual)**

**FUTURE Program**

Dr. Ryan Rykaczewski introduced annual activities of FUTURE Science Program. FUTURE received new ECOP members, Drs. Mackenzie Mazur, Hitomi Oyaizu, Seongbong Seo, and Erin Vera Satterthwaite. Dr. Rykaczewski provided an overview of a draft review paper, entitled, “On the development of a transdisciplinary international science program to advance ocean sustainability: the PICES FUTURE program”. This review paper aimed to evaluate successes of FUTURE in addressing Science Plan. An example of these results was a comparison of CCCC targeting basic marine science and fisheries science and FUTURE focussing on applied marine science and marine environment science. The FUTURE symposium was convened during PICES-2024 with the goal of

reviewing its past, assessing the present, and discussing the future of FUTURE to “better observations, improved awareness of mechanisms of change, and ultimately science for sustainability along with the United Nations Decade of Ocean Science for Sustainable Development”.

#### AGENDA ITEM 7 (In-person)

##### **Relation with Other International Organizations/Programs**

- Ecosystem Studies of Subarctic and Arctic Seas (ESSAS)  
Dr. Saito introduced upcoming ESSAS open science meeting in Japan in 2025. He requested BIO members communicate the meeting specifics to PICES colleagues.
- International Whaling Commission (IWC)  
Dr. Tamura reported annual activities and business issues of IWC based on annual committee meeting in April 2024. Assessments of abundance were discussed as well as effects of noise and pollution. Other topics were whale watching, endangered dolphins, and bycatch. The IWC Scientific Committee meeting is convened once every two years.
- North Pacific Fisheries Commission (NPFC)  
Dr. Curtis reported joint NPFC-PICES activities in 2023-2024 and an updated PICES-NPFC framework proposal to continue collaborations between PICES and NPFC. With respect to previous annual activities, NPFC co-sponsored and participated in WG47 topic session, *Pelagic, demersal, and benthic species associated with seamounts* during PICES-2023; NPFC and PICES representatives attended each others' annual meetings in 2023. The PICES Executive Secretary presented information about the Basin Scale Events to Coastal Impacts (BECI) project to NPFC's Scientific Committee in 2023. NPFC received an invitation from PICES to co-sponsor and participate in the joint ICES/PICES/FAO symposium on forage species. This request will be considered by NPFC's Scientific Committee in December 2024. NPFC is also represented on the new ICES/PICES working group on sustainable pelagic forage communities (WG53).

#### AGENDA ITEM 7 (Virtual)

##### **Planning PICES 2025 Annual Meeting**

Session and workshop proposals submissions for the PICES 2025 Annual Meeting were open October 1 to November 15, 2024. BIO committee members were reminded that scoring happens via email shortly after the deadline.

#### AGENDA ITEM 8 (Virtual)

##### **PICES-Sponsored Conferences and Symposia in 2024 and Beyond**

- SOLAS Open Science Conference will be held November 10-14, 2024 in Goa, India. Sponsors and organizers are SCOR, PICES, and CSIR.
- PICES 2025 Annual Meeting will be held in Yokohama, Japan. Sponsors and organizers are PICES and Japan FRA.

#### AGENDA ITEM 8 (In-person)

##### **Other Business**

All expert WG should submit annual reports by the end of November 2024.

## ***BIO Endnote 1***

### **BIO participation list**

#### Members

Akash Sastri (Canada, Chair)  
Toru Kobari (Japan, Vice-Chair)  
Janelle Curtis (Canada)  
Patrick O'Hara (Canada)  
Angelica Peña (Canada)  
Kaoru Hattori (Japan)  
Motomitsu Takahashi (Japan)  
Se-Jong Ju (Korea)  
Wongyu Park (Korea)  
Debora Iglesias-Rodriguez (USA)  
Julie Keister (USA)  
David Kimmel (USA)

#### Members unable to attend

China: Zijun Xu, Xuelei Zhang, Ping Zhang  
Russia: Alexei Orlov

#### Observers

Tsuneo Ono (S-CC Co-chair)  
Miran Kim (S-MBM Co-chair, Korea)  
Hongsheng Bi (WG48 Co-Chair)  
Xuemin Cheng (WG48, Co-chair)  
Ryan Rykaczewski  
(FUTURE)  
Sei-ich Saito (ESSAS)  
Tsutomu Tamura (IWC)  
Kirill Kivva (Russia)  
Gi-Young Chae (Korea)  
An Yong-rock (Korea)

#### PICES

Sanae Chiba (PICES secretariat)

## **BIO Endnote 2**

### **BIO committee meeting agenda**

*Day 1 (online): Wednesday, October 9, 2024, 18:30-21:00 PDT*

1. Welcome, introductions, opening remarks
2. Adoption of agenda and appointment of rapporteur
3. Membership changes
4. Selection of Best ECOP presentations for BIO
5. Progress reports and future plans of BIO active groups
6. FUTURE program
7. Planning PICES 2025 Annual Meeting
8. PICES-sponsored conference/symposia in 2024 and beyond

*Day 2 (in-person and online): Saturday, October 26, 2024, 18:00-20:30 (Waikiki, HI, USA, PDT)*

1. Welcome, introductions, opening remarks
2. Adoption of agenda and appointment of rapporteur
3. Annual review of BIO activities
4. Publications
5. Selection of Best ECOP presentations for BIO
6. Progress reports and future plans of BIO active groups
7. Relation with other international organizations/programs
8. Other business