

2025 Report of the Biological Oceanography Committee

The 2025 Biological Oceanography Committee (BIO) meetings took place from 18:00–21:00 (PDT) on Monday, October 20 (online) and from 18:00–20:30 (JST) on Saturday, November 8 (in person) at PICES-2025 in Yokohama, Japan. The Chair, Dr. Akash Sastri, called the meeting to order and welcomed members and observers. The online meeting was well attended, and the in-person meeting also had a few members attending 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 (two observers). Members from all other PICES member countries were present. The draft agenda was circulated. There were additions offered and the agenda was adopted (*BIO Endnote 2*). Dr. Toru Kobari agreed to act as a rapporteur.

AGENDA ITEM 2

Membership changes

- Dr. Hernan Garcia stepped down as a member of S-CC.
- Drs. Hongsheng Bi, Robert Campbell, Thomas Kelly, David Kimmel, and Julie Keister were appointed members of the WG-54 representing USA.
- Dr. Seung Ho Baek replaced Prof. Wongyu Park as a BIO Committee member representing Korea.
- Dr. Dhugal J. Lindsay and Prof. Kazutaka Takahashi were appointed members of WG-54 representing Japan.
- Drs. Jung-Il Kim, Gi-Seop Lee and Hyunjin Yoon were appointed members of WG-54 representing Korea.
- Dr. Richard A. Feely (USA) stepped down as a member of the S-CC.
- Dr. Yutaka Watanuki (Japan) stepped down as a member of the S-MBM.
- Dr. Motohiro Ito was appointed as a member of S-MBM representing Japan.
- Dr. Toshihide Kitakado was appointed as an *ex-officio* member of S-MBM representing IWC.
- Drs. Toshihide Kitakado and Kazuhiro Oshima were appointed as *ex-officio* members of WG-53 representing NPFC.
- Dr. Vivitskaia Tulloch was appointed as an *ex-officio* member of S-CCME representing BECI (stepped down December 2025)
- Dr. Dongwha Sohn (Korea) replaced Dr. Xiujuan Shan (China) as a Co-Chair of S-CCME.

AGENDA ITEM 3

Annual review of BIO activities

BIO business meetings were convened October 20th (online) and November 8th (hybrid). BIO sponsored/co-sponsored three workshops (W2, W4, and W7) and five sessions (S2, S4, S7, S11, S12, and BIO paper) during the PICES 2025 Annual Meeting.

AGENDA ITEM 4

Nomination and election of BIO chair and vice-chair

Dr. Toru Kobari (Japan) was elected chair and Dr. Julie Keister (USA) was elected vice-chair. The election was based on votes from five member countries (Canada, China, Korea, Japan, and US). Terms for both started at the conclusion of the 2025 PICES Annual Meeting.

AGENDA ITEM 5

Publications

Participants confirmed all publications related with BIO. There were no comments.

(<https://meetings.pices.int/publications//primary-journals/peer-reviewed-individual-papers#2025> ,
<https://meetings.pices.int/publications/primary-journals/peer-reviewed-special-issues#2025>)

AGENDA ITEM 6

Selection of Best ECS presentation for BIO

Judges for BIO-sponsored topic sessions, workshops, and poster session were assigned during the BIO Committee meeting. The best ECOP BIO oral presentation was awarded to Rikuto Hashimoto (Japan) presenting in the BIO Paper Session: *Stage classification of female gonadal development and estimation of egg production rates of Paracalanus orientalis (Copepoda: Calanoida) in Sagami Bay, Japan*. The best ECOP BIO Poster Presentation was awarded to Yuino Senta (Japan) presenting in the BIO Paper Session: *Species-specific characteristics in ammonium excretion rates of large marine copepods revealed by a highly sensitive analytical method*.

AGENDA ITEM 7

Proposals of BIO new working group

a) Comprehensive understanding of ocean acidification in the North Pacific

Dr. Masahiko Fujii (Japan) provided an overview of a proposed working group entitled, *Comprehensive understanding of ocean acidification in the North Pacific* with BIO and POC as parent committees. Six ToR related to fostering collaboration among scientists and summarizing the present status and changing rate of ocean acidification were proposed. Some comments and suggestions for improvements were provided to the WG proposal, including the relationships to other expert groups. PICES Science Board (SB) and Governing Council (GC) discussed and evaluated this new WG proposal during their annual business meeting.

b) Deep sea connectivity with focus on seamount ecosystems

Dr. Donald Kobayashi (USA) gave an overview of a proposed working group on *Deep sea connectivity with focus on seamount ecosystems* to be parented by BIO and FIS committees. This WG aims to advance understanding of seamount ecosystem connectivity by integrating biological and physical data pertaining to relationships between the reproductive biology of deep-sea species and flow fields on and around seamounts. Specifically, it will compile information on seamount taxa relevant to propagule transport, assess circulation models around seamounts, and conduct biophysical connectivity modelling in the North Pacific to identify key source areas and inform global management. The terms of reference were developed to build upon PICES's six strategic goals and on the achievements of previous working groups, WG47 *Ecology of Seamounts* and WG32 *Biodiversity of Biogenic Habitats*. Some comments for improvements (e.g., greater ECOP involvement) were provided by BIO to the primary WG proponent. SB and GC discussed this new WG proposal at their respective 2025 annual business meetings.

c) Zooplankton production and assessment and management fisheries resources

Dr. Hui Lui presented an overview of a new working group entitled *Bridging zooplankton production and assessment and management fisheries resources in changing oceans* (WG-BZF). This WG term was proposed to BIO and FIS as potential parent committees. They proposed seven ToR, to bridge gaps between zooplankton ecology and fisheries assessment by fostering communication among oceanographers, modelers, and managers. The group will review data and models, develop protocols for integrating zooplankton into stock assessments, evaluate model performance, build collaborative networks, and promote international cooperation. WG activities will build, in part, on WG37 and WG43 achievements and will have some relationship with WG48 and WG53 (current). Some comments for improvements (e.g., involving modelers and ECOPs) were provided to the WG

proposal. SB recommendation and GC evaluation of this proposal is anticipated for the 2026 intersessional business meetings.

d) Oceanic Finescale Processes: Impacts and Parameterizations

Dr. Zhiwei Zhang (China) proposed a new working group on oceanic fine scale processes (*Oceanic Finescale Processes: Impacts and Parameterizations*). This WG was proposed for POC and BIO as parent committees. They proposed seven ToR focused on advancing understanding of dynamical ocean finescale (horizontal scale: 0.1–100 km) processes, including mesoscale and submesoscale processes. This WG was proposed to integrate high-resolution observations and simulations, assess their roles in North Pacific ecosystems and climate, and evaluate and improve model parameterizations. Building on the achievements of WG 38 (*Mesoscale and submesoscale processes*) and WG 50 (*Submesoscale processes and marine ecosystems*), this WG will address remaining gaps, particularly regarding internal waves and parameterization, to strengthen modelling, projection, and international collaboration on ocean-climate interactions. This WG will also include discussion and arguments from S10 in PICES-2025 into its ToR. SB and GC discussed this new WG proposal during their PICES-2025 business meetings.

Progress reports and future plans of BIO active groups

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

WG co-chair, Dr. Takahashi introduced PICES/ICES working group on Sustainable Pelagic Forage Communities (WG53). WG53 consists of 164 members from 30 PICES and ICES countries. WG53 co-convened four topical sessions (S2, S4, S11, S12) at PICES-2025. Dr. Takahashi reported progress on ToR and the related publications (including two special issues). WG53 is planning to convene the *Small Pelagic Fish International Symposium (SPF)* intersessional symposium in La Paz, Mexico, in May 2026. WG53 requested a 2-day business meeting following the SPF intersessional symposium (including travel funding for two EG members) and one session or workshop at PICES-2026.

b) WG 54: Joint PICES/ICES Working Group on Best Practices for Using Deep Learning in Processing Plankton Images

Not discussed as co-chairs were unable to join either the online or in-person meeting. However, WG-54 held its kick-off meetings on October 20 and 27, 2025, officially launching its activities. Members discussed the overall structure and outline of the planned review paper on best practices for applying deep learning in plankton image analysis, establishing a clear framework for collaborative writing. Proposed membership has been largely approved by each national GC representative. The WG also explored opportunities to coordinate with related international efforts, including the AQUA project and ICES working groups, to ensure complementary outcomes and broader impact. The next meeting is tentatively planned for January, with the expectation that U.S. federal participants will be able to attend and contribute to the discussions.

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

Co-chair Dr. O'Hara introduced annual activities based on their online and in-person business meetings, convened on September 11, 2025 (Zoom) and November 8, 2025 (Yokohama, Japan), respectively. He reported progress on ToR and workshops convened in 2024. S-MBM convened a workshop (W7, *Response of Top Predators to Unusual Oceanographic, Climatic and Anthropogenic Events in the North Pacific*) and topical session (S12, *Understanding the Linkages Between Forage Species and Top Predators and How They May Affect Resilience in North Pacific Ecosystems*) at the PICES 2025 Annual Meeting. S-MBM will propose a topical session for PICES-2026. Dr. O'Hara also noted interesting discussions about AI approaches on monitoring for marine birds and mammals

(e.g., image analysis and distribution). They were keen to establish working relationships with WG54 on Deep Learning/Image Analysis. There is no report from IWC this year because of its biennial meeting. Finally, S-MBM has started drafting a new action plan for the upcoming 2026-2030 period.

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

Dr. Holsman highlighted the annual activities using a pre-recorded file, due to the postponed in-person business meeting. S-CCME organized three sessions (S2, S6, S8) and one workshop (W1) at PICES-2025 and two sessions at ICES 2025 Annual Science Conference. S-CCME reported the recent activities from the 5-year implementation plan activities and milestones, including: 1) to identify, coordinate, and integrate the research activities needed to understand, assess, and project climate change impacts on marine ecosystems; 2) to review various strategies for sustaining the delivery of ecosystem goods and services based on predictions that quantify estimates of uncertainty; 3) advance efforts to define and quantify the vulnerability and sustainability of marine ecosystems to climate change, including the cumulative impacts and synergetic effects of climate and marine resource use, to support global ocean prediction frameworks. S-CCME will propose two sessions at PICES-2026 and one workshop in spring 2026 and will request travel funding for 2 S-CCME members to this workshop.

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

Co-chair Dr. Tsuneo Ono reviewed annual activities of S-CC. The S-CC convened one workshop (W4) at PICES-2025. S-CC supported a new working group on ocean acidification in the North Pacific to analyze S-CC data collections. BIO business meeting participants recommended the revision of the ToR in S-CC to strengthen the significance of this new working group. He reported progress on ToR, including current findings and questions on ongoing studies and projects in PICES nations. S-CC will propose both a session and workshop on mCDR (marine Carbon Dioxide Removal) at PICES-2026.

AGENDA ITEM 8

FUTURE Program

Dr. Ju introduced recent activities and their related information of FUTURE Science Program. PICES Science Board will request a review of activities and legacies on ToR from FUTURE members as they explore the next flagship of FUTURE.

AGENDA ITEM 9

PICES data policy and inventory

Not discussed.

AGENDA ITEM 10

Relation with other international organizations/programs

- International Whaling Commission (IWC)
 - There is no report from IWC due to their biennial business meetings. IWC activities will be biennially reported to S-MBM by Dr. Toshihide Kitakado as PICES liaison to IWC.
- North Pacific Fisheries Commission (NPFC)
 - Not discussed.
- Surface Ocean Lower Atmosphere Study (SOLAS)
 - Dr. Dinasquet reported joint SOLAS activities in 2024-2025. She introduced the mission, objectives (i.e., themes), activities, and relationships to PICES. Scientific plans for the next

decade (2026-2035) were described. An upcoming event for 2026 (Summer School 2026) is organized in Brazil.

AGENDA ITEM 9

Planning PICES 2026 Annual Meeting

- Session and workshop proposals submissions for PICES-2026 are now open. Deadline: November 24, 2025.
- BIO committee members should note that scoring happens via email shortly after the deadline. After scoring, BIO members will discuss which session and workshop should be supported by BIO committee.

AGENDA ITEM 10

PICES-sponsored conferences and symposia in 2025 and beyond

- Small Pelagic Fish International Conference. May 4-8, 2026. La Paz, Mexico. Sponsors/Organizers: PICES, ICES, FAO
- PICES 2026 Annual Meeting. November 7-16, 2026. Nanaimo, Canada. Sponsors/Organizers: PICES, DFO

AGENDA ITEM 11

Other business

EG chairs should submit their business meeting summary (S-CCME, S-CC, S-MBM, WG53, WG54) to the secretariat within a month of the annual meeting.

BIO Endnote 1

BIO participation list

Members

Akash Sastri (Canada, Chair)
 Toru Kobari (Japan, Vice Chair)
 Angelica Pena (Canada)
 Zijun Xu (China)
 Xuelei Zhang (China)
 Kaoru Hattori (Japan)
 Motomitsu Takahashi (Japan, WG53)
 Seung Ho Baek (Korea)
 Se-Jong Ju (Korea)
 Taewon Kim (Korea)
 Julie Keister (USA)

PICES

*Sanae Chiba (PICES secretariat)

Observers

Tsuneo Ono (S-CC Co-chair)
 Kristin Holsman (S-CCME Co-chair)
 Dongwha Sohn (S-CCME Co-chair)
 Miran Kim (S-MBM Co-chair)
 Patrick O'Hara (S-MBM Co-chair)
 Masahiko Fujii (Proposing WG Co-chair)
 Hui Liu (Proposing WG Co-chair)
 Donald Takahashi (Proposing WG Co-chair)
 Zhiwei Zhang (Proposing WG Co-chair)
 Julie Dinasquet (SOLAS)
 Dongwha Sohn (S-CCNE)
 Anne Hollowed (S-CCNE)
 Aleksandra Malysheva
 Kirill Kivva

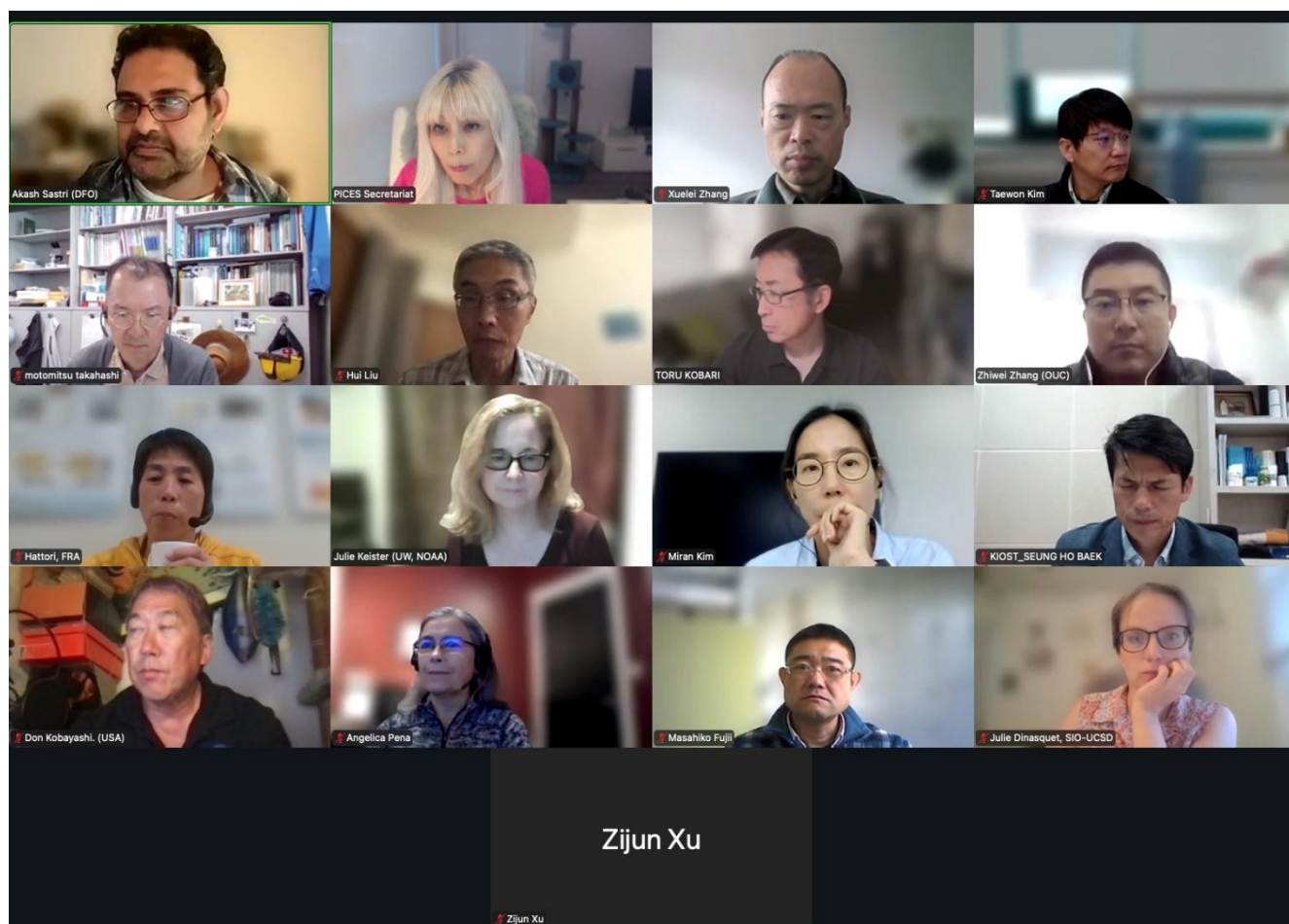
BIO Endnote 2**Agenda for BIO committee meeting**

Day 1 (online): Monday, October 20, 2025, 18:00-21:00 PDT

1. Welcome, introductions, opening remarks
2. Membership changes
3. Adoption of agenda and appointment of rapporteur
4. Annual review of BIO activities
5. Nomination and election of BIO chair and vice-chair
6. Publications
7. Selection of Best ECOP presentations for BIO
8. Proposals of BIO new working group
9. Progressive reports and future plans of BIO active groups
10. PICES data policy and inventory
11. Relation with other international organizations/programs
12. Planning PICES 2026 Annual Meeting
13. PICES-sponsored conference/symposia in 2025 and beyond
14. Other business
15. Adoption of BIO report and recommendations to Science Board

Day 2 (in-person and online): Saturday, November 8, 2025, 18:00-20:30 (Yokohama, Japan, JST)

1. Welcome, introductions, opening remarks
2. Progressive reports and future plans of BIO active groups
3. Annual review of BIO activities
4. Selection of Best ECOP presentations for BIO
5. FUTURE program
6. Other business
7. Adoption of BIO report and recommendations to Science Board



Day 1 (online): Monday, October 20, 2025, 18:00-21:00 PDT



Day 2 (in-person and online): Saturday, November 8, 2025, 18:00-20:30 (Yokohama, Japan, JST)