

# Physical Oceanography and Climate (POC) Committee 2023 Annual Report

Prepared by Lei Zhou and Jennifer Jackson

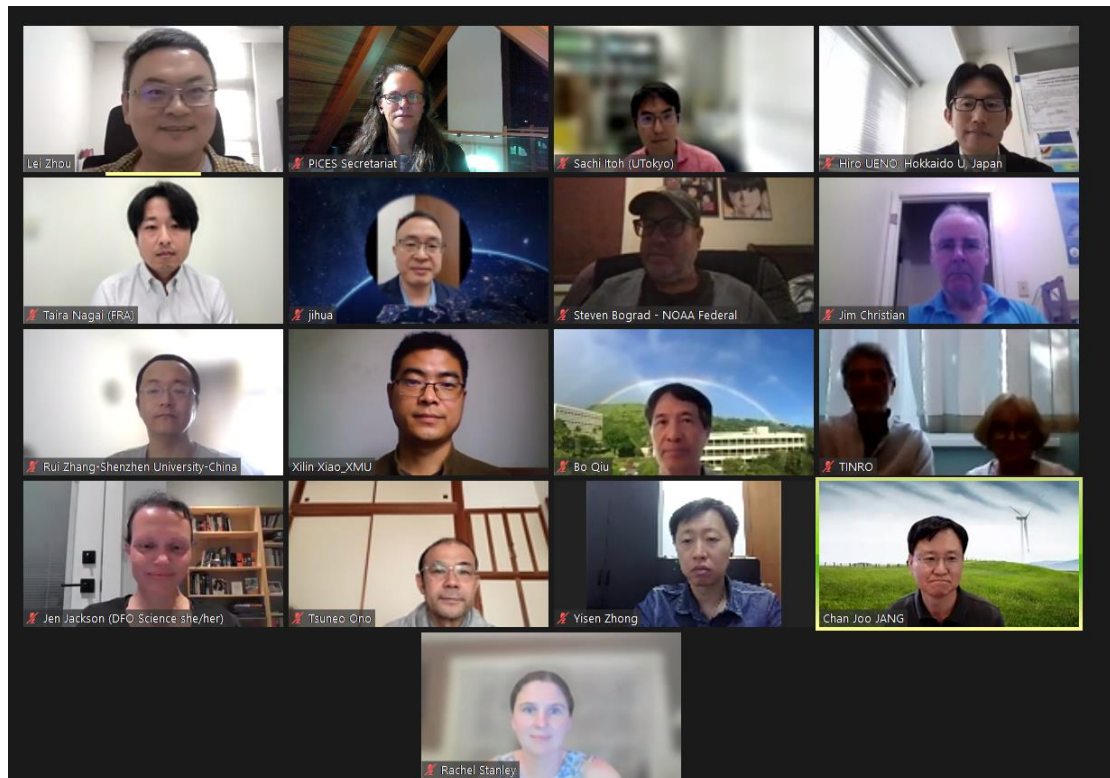
The POC committee had two business meetings in hybrid format on the following dates:

**DAY 1 October 10<sup>th</sup>, 7:00pm - 8:30pm, online meeting, PDT**

**DAY 2 October 22<sup>th</sup>, 6:00 pm - 8:30 pm, Seattle local time**

## **DAY 1 Business Meeting (1.5 hours)**

<https://us02web.zoom.us/j/8725754976> (zoom link)



1. Welcome, self-introduction, and Icebreaker (10 min)
2. S-CC Report (Tsuneo Ono) (10 min)

- Correction of metadata for domestic coastal ocean acidification/deoxygenation monitoring sites is about to finish
- Prompted a session on ocean acidification and deoxygenation in PICES 2023 meeting

### 3. WG46 Report (Rui Zhang) (10 min)

- Develop long-term stations for monitoring carbon biogeochemical cycle in Xiamen Bay and a few other places
- Join Global ONCE actively
- Present research results and support several published papers
- A workshop in PICES 2023 meeting
- The base for a newly proposed WG

### 4. WG50 Report (Yisen Zhong) (10 min)

- Got the 2023 Google Carbon Removal Research Award
- Host a session in the PICES 2023 meeting

### 5. Proposal to new WG (Xilin Xiao) (10 min)

- Solid research supports
- Exciting motivation for negative carbon emission
- Will closely cooperate with Global ONCE and have high exposure
- Prepared all required materials

### 6. Requests from and to existing ExGs (10 min)

- None

## DAY 2 Business Meeting (2.5 hours)



### Attendees:

- 1) Steven Bograd (USA)
- 2) Jim Christian (Canada)
- 3) Xigui Ding (China)
- 4) Jerome Fiechter (USA)
- 5) Charles Hannah (Canada)
- 6) Daisuke Hasegawa (Japan)
- 7) Kirstin Holsman (USA)
- 8) Sachi Itoh (Japan)
- 9) Jennifer Jackson (Canada)
- 10) Nianzhi Jiao (China)
- 11) Chan Joo Jang (Korea)
- 12) Joon-Soo Lee (Korea)
- 13) Yanli Lei (China)
- 14) Taira Nagai (Japan)
- 15) Sunghyun Nam (Korea)
- 16) Jae Hun Park (Korea)
- 17) Gwang Ho Seo (Korea)
- 18) Rachel Stanley (USA)
- 19) Hiromichi Uemo (Japan)
- 20) Elena Ustinova (Russia)
- 21) Siyuan Ye (China)
- 22) Lei Zhou (China)
- 23) Yuri Zuenko (Russia)

Venue:

In person: The Westin Seattle, St Helens 2F

Online: <https://us02web.zoom.us/j/8725754976>

7. Welcome and introductions remarks and agenda updates (5 min)

8. Membership updates (5 min)

Prof. Sachihiko Itoh is a newly appointed member of POC Committee replacing Prof. Shinichi Ito.

- Prof. Itoh is a physical oceanographer with an interest in fisheries and submesoscale processes.

Dr. Taira Nagai is a newly appointed member of POC Committee replacing Dr. Daisuke Hasegawa.

- Dr. Nagai is a physical oceanographer interested in internal gravity waves and numerical modeling. He is also interested in the impact on fisheries.

9. Publications updates (5 min)

- o Final Report of WG 46
  - i. WG 46 has made great progress. Approximately 20 publications have come out of WG46 (according to Prof. Jiao).
- o Any additional publications
  - i. WG38 published review paper mesoscale processes in *Progress in Oceanography* 2023.

10. POC Sessions at PICES 2023 (5 min)

- o See Appendix 1

11. POC Best Presentation and Poster Awards, ECOP judges for POC (5 min)

- o See Appendix 2

The volunteers are:

- Session 5 – Jen, Hiromichi
- Session 7 – Jen, Jerome
- Posters – Taira Nagai, Steve
- Session 3 - Joo Chan Chang, Steve
- Session 2 – Charles

12. More discussion on the new proposal to a new WG (Nianzhi Jiao)  
(15 min)

- Old working group:
  - i. Focusing on the knowledge gap for the ocean we want
  - ii. Developing the international program Global-WISE which is a new deliverable (UNDOS)
  - iii. 33 countries are part of Global-WISE
  - iv. Will write a report and at least 2 more papers (some papers published already)
- New working group – it is important to extend this because of decade-long support from the international community and China
  - i. Program is already approved, and PICES should be part of this long-term work
  - ii. PICES working group is the core of the UNDOS program
- Chan Joo Jang asked for clarification for the motivation of the new working group
  - i. Five missions in the new program centered on knowledge gaps and new mechanisms

13. SOLAS Report (Rachel Stanley) (15 min)

- SOLAS meant to bring together atmospheric, oceanographic, and cryosphere scientists.
- Launched SOLAS Early Career Scientists Committee in 2023
- Launched SE Asia Regional Panel in 2023
- Developing regional panel in Latin America
- SOLAS Fire Initiative – how fires impact the ocean
- Eddy Covariance Initiative – SOLAS putting together best practices plan
- SOLAS modelling initiative
- SOLAS postdoc program on marine CO<sub>2</sub> removal
- Special issue coming out in *Elementia*
- Open science conference happened in 2022
- SOLAS summer school 2023 happened in Cabo Verde
- Many upcoming events (e.g., seminar, conference, summer school, side event UN Ocean decade)
- SOLAS beyond 2025 – The current mandate ends in 2025. Potential shift to science for solutions (linked to ONCE)
  - i. Draft being written right now will be finalized in 2024
- Lei Zhou - There could be a good overlap between SOLAS and ONCE and POC with eddy covariance
- Jennifer Jackson - Bringing in industry partners could be important for SOLAS for CDR
- Chan Joo Jang – air-sea fluxes need to consider wind and waves since they are big uncertainties

#### 14. IAPSO Report (Jae Hun Park) (15 min)

- IAPSO is one of 8 associations of the IUGG
- Biennial scientific assemblies, support working groups, have several committees, commissions, and services

- Information is given about
  - i. Joint IAPSO/SCOR/IAPWS committee on properties of seawater (JCS) – TEOS-10
  - ii. Joint Tsunami Commission – collaboration with seismology, volcanology, and meteorology
  - iii. Permanent service for mean sea level (PSMSL) formed in 1933
    - 1. Includes 70 000 station years of global information with more than 300 records that are 60 years or longer
- Involved in SCOR Working Group proposal evaluation
- Hosts Best Practice Study Groups since 2019
  - i. Tidal Analysis
  - ii. Mapping methods in reconstruction ocean heat content and thermosteric sea level
- Supports Early Career Scientists (ECS) working group
- Awards 3 different medals every 2 years
- 2025 and 2027 IAPSO/IUGG meetings in Korea
- Chan Joo Jang – how many ECS are from English-speaking countries? The answer is that there are many.
- We should encourage networking between IAPSO ECS and PICES ECOP

#### 15. AP-CREAMS update (Sunghyun Nam)

- 2 intersessional meetings (one online, one in person) in 2023
- Annual business meeting in Seattle 2023
- Workshop 4 in Seattle 2023
- Preliminary website of AP-CREAMS is under preparation
- Develop template for metadata for CREAMS cruises

- Propose 30th-year AP-CREAMS session
- For PICES 2024:
  - i. Scientific session
  - ii. Intersessional workshop (2-3 days, Korea July 2024)
- Large turnover of members, 1 new member from China, 1 from Japan, 2 from Korea
- A new member from Canada is needed

#### 16. S-CCME Report (Kirstin Holsman) (10 min)

- Few new members from Korea; only 1 member from Canada; a new member from Canada is needed
- Goals are shifting from research to solutions and operational advice on how to plan for risks
- Sponsored a session in PICES 2022, workshop at ECCW05, W10 at PICES 2023, Sessions at other ICES meetings
- Co-chairs have been meeting monthly and participated in ICES workshop (WKCLIMAD)
- Members are active in national and international programs that give climate change advice and planning
- Large-scale integrated modeling projects or assessments
- Currently in phase 4, updating ToR, participation in IPCC and national climate assessments
- No upcoming publications from this group
- Proposed session PICES 2024 – build of ECCOW workshop to look at tipping points for marine ecosystems

#### 17. Meetings relevant to POC (5 min)

- None

#### 18. Review of POC Action Plan 2023-2026 (20 min)

- See Appendix 4



- If any member intends to propose any modifications, please contact Lei and Jen directly.

19. Requests from and to existing ExG, if there are more (10 min)

- None

20. Other business (10 min)

- No other items

21. Adjourn

# Appendices

## 1. POC Sessions and Workshops at PICES 2022

### S2: [BIO/POC/TCODE](#) Topic Session

#### Applications of Deep Learning Systems in Marine Science

##### Convenors:

Hongsheng Bi (USA), corresponding

Haiyong Zheng (China)

Julie Keister (USA)

David Kimmel (USA)

##### Invited Speakers:

Jean-Olivier Irisson

### S3: [FIS/TCODE/FUTURE/POC/MONITOR](#) Topic Session

#### Responses of Small Pelagic Fish to Extreme Events in Pacific Ecosystems

##### Convenors:

Ryan R. Rykaczewski (USA), corresponding

Haruka Nishikawa (Japan)

Sukgeun Jung (Korea)

##### Invited Speakers:

[Sukgeun Jung](#)

(Jeju National University, Korea)

[Toru Miyama](#)

(Japan Agency for Marine-Earth Science and Technology (JAMSTEC), Japan)

### S5: [POC/MONITOR](#) Topic Session

#### Multi-scale ocean processes and their impacts on marine ecosystems

##### Convenors:

Yisen Zhong (China), corresponding

Bo Qiu (USA)

Sung Yong Kim (Korea)

Tetjana Ross (Canada)

##### Invited Speaker:

[Changming Dong](#)

(School of Marine Sciences, Nanjing University of information Science and Technology (NUIST), China)

### S7: [BIO/POC/MONITOR](#) Topic Session

#### Ocean acidification and deoxygenation in ocean margin ecosystems: causes and consequences for ecosystems and fisheries

**Convenors:**

Tsuneo Ono (Japan), corresponding  
Alexander Kozyr (USA)

**W4: [FUTURE/HD/POC](#) Topic Workshop**

**Changing social-ecological-environmental system of the North East Asian  
Marginal Seas: New challenges for integrative marine science**

**Convenors:**

Vyacheslav Lobanov, Russia (AP-CREAMS, MONITOR), corresponding  
SungHyun Nam, Korea (AP-CREAMS, POC)

Mitsutaki Makino, Japan (HD)

Takafumi Yoshida, Japan (MEQ)

**Invited Speaker:**

[Hiroaki Saito](#)

(AORI, Tokyo University, Japan)

**W10: [FIS/BIO/POC/TCODE/FUTURE](#) Topic Workshop**

**Towards climate-informed ecosystem-based fisheries management by  
building international collaborations and standardizing indicators**

**Convenors:**

Kirstin Holsman (S-CCME; USA, AFSC -NOAA), corresponding

Alison L. Deary (NOAA, USA), corresponding

Lewis Barnett (NOAA, USA)

Xiujuan Shan (S-CCME, China)

Kathy Mills (ICES, SICCME, USA, GMRI)

Alan Baudron (ICES, SICCME, Scotland)

Sukgeun Jung (Jeju National U, Korea)

**Invited Speakers:**

[Kathy Mills](#)

(Gulf of Maine Research Institute, GMRI, USA)

[Kalei Shotwell](#)

(Alaska Fisheries Science Center, NOAA, USA)

## 2. ECOP Presentations and POC Judges

- Each Committee will select **One Best Oral** and **One Best Poster** presentations among all Topic/Paper Sessions/WS that the Committee sponsors (Please include Workshop Presenters only if that is possible, but you can exclude them if it's difficult).
- Please find 2~3 volunteers to judge ECOP presentations. The judging sheet has been emailed to all members.
- ECOP posters are marked as so.

- No need to select one if there are no qualified presentations.
- Chairs will email the **awardees and runners-up** to the Secretariat. The award ceremony will take place immediately after Paper Sessions.

### 3. Active POC Experts Groups

**S-CCME:** Joint PICES/ICES Section on *Climate Change Effects on Marine Ecosystems* (PICES-2011 - PICES-2025), (also reports to BIO and FIS)

**AP-CREAMS:** *Advisory Panel for a CREAMS/PICES Program in East Asian Marginal Seas* (PICES-2005 – PICES-2024), (also reports to MONITOR)

**S-CC:** Section on *Carbon and Climate* (PICES-2005 – PICES-2027), (also reports to BIO)

**WG 46:** Joint PICES/ICES Working Group on *Ocean Negative Carbon Emissions (ONCE)* (PICES-2020 – PICES-2023), (also reports to BIO)

**WG 50:** Working Group on *Sub-mesoscale Processes and Marine Ecosystems* (PICES-2021 - PICES-2024)

### 4. POC Action Plan 2023-2026

#### POC Action Plan 2023–2026

##### POC Mission Statement

*To promote and coordinate research on ocean climate variability and change from weather to climate timescales and micro to basin space scales, and its impacts on living marine resources and human societies, and to facilitate the exchange of data products that support ocean services for decision making.*

##### **Goal 1: Foster collaboration among scientists within PICES and with other multinational organizations focusing on the U.N. Ocean Decade**

- Coordinate research and communication among international organizations and programs focusing on climate-ecosystem interactions, including WCRP, CLIVAR, PACON, WESTPAC, APN, and IOC through implementation of the UN Decade of Ocean Science.
- Facilitate partnerships with organizations and programs, within and outside the PICES region, with interests in understanding Pacific climate processes and impacts.
- Establish active collaboration with tropical and South Pacific institutions and colleagues as part of contribution to the SMARTNET Program.
- Engage with Ocean Decade DCCs and Programs that focus on ocean and climate services, modeling, innovative observing technologies, and systems.

**Goal 2: Understand and communicate the status and trends of ocean & climate, and its impacts on marine ecosystems**

- Communicate the status and trends of North Pacific climate conditions to the PICES and broader scientific communities.
- Promote coordinated activities dedicated to understanding physical and chemical processes in the North Pacific, their impacts on ecosystems, and their current status and trends.
- Facilitate the development of observing and modeling frameworks to improve climate and ecosystem predictability.
- Guide research and communication about the drivers and impacts of extreme events.

**Goal 3: Understand and quantify how marine ecosystems respond to natural forcing and human activities**

- Lead PICES efforts for improving understanding and advancing predictability of North Pacific climate variability and change, through guidance of collaborative research projects, parenting of Expert Groups, and organizing sessions and workshops.
- In the near term, a primary research focus is on understanding the drivers, impacts, and predictability of climate extreme events and diagnosing the links between coastal ecosystems and large-scale climate with a focus on multi-scale processes.

**Goal 4: Advance methods and tools that enhance PICES ability to study social–ecological–environmental systems**

- Advance the development of regional to basin-scale models of North Pacific physics and biogeochemistry, including subseasonal-to-seasonal (S2S) forecasts, and multi-decadal projections.
- Develop modeling toolkit to facilitate research and operational forecasts throughout the North Pacific.
- Promote advanced observational technologies and the rapid dissemination of data to the PICES community and other stakeholders.
- Promote the use of artificial intelligence (AI) to better understand ocean and climate dynamics and its interactions with social-ecological systems.
- Work with other PICES committees and expert groups to identify stakeholder needs that inform the delivery of ocean and climate services for decision making.

**Goal 5: Publish scientific knowledge and data that is pertinent to North Pacific ecosystems**

- Provide data, products, and information on North Pacific oceanographic conditions and climate variability and change to the PICES and broader scientific community through peer-reviewed publications and other PICES communication outlets.
- Contribute to a publication of a special journal issue on North Pacific climate and ecosystem

predictability, the North Pacific Ecosystem Status Reports, and contribute to other special issues on emerging issues of interest to PICES.

**Goal 6: Engage with early career ocean professionals (ECOP) to sustain a vibrant and cutting-edge PICES scientific community**

- Promote the engagement of ECOP in the work and leadership of POC and PICES, including the organization of Summer Schools on ocean processes, climate variability and change, methods of ocean modeling and observing, data analysis and management, and impacts of extreme events.
- Work through PICES partners to support the participation and involvement of ECOP in PICES meetings and projects.
- Support AP-ECOP in the creation of professional development programs.