

## 2022 Report of the Marine Environmental Quality Committee

The annual business meeting of the Marine Environmental Quality Committee (MEQ) took place on September 25 (18:00-20:30) and September 28 (14:00-18:00), 2022 in Busan, Korea. All member countries except Russia sent or assigned MEQ members or representatives to attend the meeting. A total of 19 participants included MEQ members (8), representatives from WG 42 (1), S-HAB (2), Japan (1) and China (1), and observers from NOWPAP (2), GESAMP (1), JANUS (2) and the ECOP community (1) (MEQ Endnote 1). The Agenda for the Business Meeting is shown in Appendix 1 and a summary of those who participated on line or in person on each day is shown in Appendix 2.

### Day 1

#### AGENDA ITEM 1

##### **Welcome and adoption of agenda**

MEQ Vice-Chair, Dr. Andrew Ross, welcomed the participants, who briefly introduced themselves, and reviewed the agenda (*MEQ Endnote 2*) for both days of the meeting. He then reviewed the MEQ Mission Statement and current MEQ membership (see Appendix 1), affiliated Expert Groups and membership changes including vacancies within MEQ (1 for the USA) and S-HAB (2 for Canada), and the list of invited Observers (from NOWPAP and GESAMP).

#### AGENDA ITEM 2

##### **Implementation of PICES-2021 decisions**

Dr. Ross reviewed the Implementation of PICES-2021 Decisions, including:

- re-election of both the MEQ Chair Dr. Guangshui Na and Vice-chair Dr. Andrew Ross for a second term,
- an initial 1-year extension for WG 42,
- approval of Topic Sessions S2 (HD/FUTURE/MEQ), S6 (MEQ/FUTURE) and S9 (BIO/MEQ) for PICES-2022 (a 1-day workshop W9 on the expansion of HABs from lower to higher latitudes was also approved but did not take place this year).
- approved proposals for new PICES Expert Groups, including those giving rise to WG 49 on *Climate Extremes and Coastal Impacts*, AP-SciCom (Advisory Panel on *Science Communications*) and associated workshops W4 (ECOP Workshop) and W8 (Science Communications) at PICES-2022, as well as the agenda of the 2022 FUTURE-SSC Inter-sessional Meeting held on-line in April.

#### AGENDA ITEM 3

##### **MEQ Best Presentation award and Best Poster award for PICES-2022**

Dr. Ross reviewed last year's award winners for best Oral and Poster presentation in an MEQ-sponsored session before listing the dates and times of the sessions (S2, S6, S9 and the joint HD-MEQ-P session) eligible for MEQ awards at PICES-2022. Following a brief discussion about who would be available to attend the relevant presentations, several MEQ members/representatives volunteered to judge these presentations and provide the results to Dr. Ross in time for him to inform the Secretariat before the Closing Ceremony on September 30.

AGENDA ITEM 4

**MEQ main achievements**

Dr. Ross briefly reviewed last year's 2021 Virtual MEQ business meeting before listing other MEQ achievements during the past year, including sessions and workshops approved for PICES-2022 (see Agenda Item 2) and the scientific achievements, progress on Terms of Reference, publications, and forthcoming requests to Science Board from each MEQ-affiliated Expert Group (S-HAB, AP-NIS and WG 42) as well as the dates and times of their respective business meetings.

AGENDA ITEM 5

**MEQ 2021–2024 Action Plan review**

Dr. Ross reviewed the current version of the MEQ 2021–2024 Action Plan with MEQ members, including the Mission Statement and Goals 1 to 10. After carefully considering each Goal, Action and Task, a number of suggestions were made with regard to modifying, updating and/or consolidating certain elements of the Action Plan. These included editing/shortening Goals 3, 5, 6, 8 and 9 and deleting Goal 10. The meeting chair undertook to make these changes and to send an updated version to MEQ members prior to Day 2 of the business meeting.

AGENDA ITEMS 6 and 7

**Other business and adjourn**

Having given participants the opportunity for general discussion, Dr. Ross moved to adjourn until September 28.

*Day 2*

AGENDA ITEM 8

**Welcome and adoption of agenda**

Dr. Thomas Therriault chaired Day 2 of the MEQ business meeting. He welcomed participants, including Early Career Ocean Professional, Nour Ayache (Observer), and Matt Savoca (WG 42 member), invited to attend by the MEQ Vice-chair during W4 on September 25, and reviewed the agenda before asking available representatives from each Expert Group to provide an update for the Group.

AGENDA ITEM 9

**Reports from MEQ Expert Groups**

1. Section on *Ecology of Harmful Algal Blooms in the North Pacific (S-HAB)*

The S-HAB business meeting was held virtually on September 15 (Western Pacific time) with 17 members participating. Country representatives provided detailed summaries of HAB occurrences in their respective countries. Additional discussion focused on two particularly unusual and severe events (one in Russia, one on the US West coast). Publication of a paper co-authored by S-HAB Co-Chair Mark Wells and the attendance of several S-HAB members at the 20th International Conference of Harmful Algae (ICHA) meeting in Hiroshima next Fall (2023) were also noted. Proposals for new activities for the 2023 PICES Annual Meeting were presented and discussed, and a vote held on presenting requests to Science Board, including travel funding for one S-HAB member to attend the IOC International Program on Harmful Algal Blooms (IPHAB) meeting in Paris next year. Plans for PICES-2023 include a proposed international

workshop on solutions to control HABs in marine and estuarine waters and a topic session on oceanographic, ecological and societal impacts arising from extreme weather and climatic events in coastal regions, the latter being intended to foster linkages between S-HAB, the new WG 49 (Climate Extremes and Coastal Impacts in the Pacific) and the HD Committee. It was noted that Canadian representative Andrea Locke has retired and that the appointment of a replacement should be requested. Drs. Mark Wells and Charles Trick (subsequently proposed to replace Andrea Locke as a Canadian member of S-HAB), presented an update on the progress to date, and revised plans for the PICES-MAFF project “*Building capacity for coastal monitoring by local small-scale fishers in Indonesia*”.

Following these updates it was noted that Nicola Haigh, another former Canadian S-HAB member, had also retired recently and that Svetlana Esenkulova (Pacific Salmon Foundation), who regularly attends PICES Annual Meetings, would be a suitable replacement. This suggestion was subsequently endorsed by S-HAB and MEQ members present at the MEQ meeting, and her nomination was brought to Science Board on September 30.

## 2. Advisory Panel on *Marine Non-indigenous Species* (AP-NIS)

The AP-NIS business meeting was held in person in Busan on September 24. Members continue to gather, verify, and enter records of NIS from around the North Pacific into AquaNIS database. AP-NIS organized a Topic Session (S6) on “*Using eDNA to assess and manage Non-indigenous species in the North Pacific*” at PICES-2022 and a less formal workshop to exchange ideas and information at KIOST (attended by MEQ Vice-Chair Andrew Ross and proposed S-HAB member Svetlana Esenkulova). Extensive planning is also underway for two additional activities on eDNA and NIS with NOWPAP (a capacity building workshop) and ICES (a strategic and technical workshop) with both expected to take place in 2023. Requests to Science Board include a 1-day Topic Session on “*The complex reality of managing non-indigenous species (NIS) in the North Pacific*” at PICES-2023, along with travel support for one invited internationally recognized speaker/participant. AP-NIS also requests travel support for ECOP and AP-NIS member to participate in a joint PICES-ICES Workshop on advancing eDNA methods to be held in conjunction with the 11<sup>th</sup> International Conference on Marine Bioinvasions being planned for May 2023 in Baltimore, USA. In addition, AP-NIS suggests that Science Board consider active participants from China and Russia, and is considering adding a co-chair from the western Pacific. Proposed candidate is Dr. Aibin Zhan, Research Centre for Eco-Environmental Sciences (RCEES), Chinese Academy of Sciences, Beijing, China.

Dr. Therriault reported on the main activities of AP-NIS in 2021, including the AquaNIS database, and policies and trends in aquatic indigenous species spread and abundance. AP-NIS intends to host an MEQ/FUTURE-sponsored topic session (S6) on “*Using eDNA to assess and manage non-indigenous species in the North Pacific*” at PICES-2022 to complement a related virtual session. In addition, AP-NIS asked MEQ to support a request to Science Board that the USA Governing Council delegates consider a replacement for AP-NIS member Jeanette Davis as soon as possible.

## 3. Working Group on *Indicators of Marine Plastic Pollution* (WG 42)

The WG 42 business meeting was held on September 12 (Eastern Pacific time) with 9 members and 2 observers participating. Two WG members (Matt Savoca and Co-Chair Jennifer Lynch) also participated in the 7<sup>th</sup> International Marine Debris Conference in Busan just prior to PICES-2022. Three review papers have been published by WG 42 in 2022, including those by Savoca *et al.*, Shim *et al.*, and Uhrin. *et al.* while a manuscript by Tanaka *et al.* and two manuscripts by Lynch *et al.* are in preparation. With future plans as yet undecided WG 42 is seeking a further 1-year extension to finish some of the on-going work (manuscript writing) and to recruit more members to prepare for the continuation of work on marine plastic debris and more collaboration with other groups and organizations including, potentially, GESAMP (as discussed further during Observer presentations under Agenda Item 9).

Following this update there was some discussion as to the rationale for further extending WG-42. Although it was ultimately decided to bring forward the request for a further 1-year extension to Science Board, MEQ members noted the importance of making this conditional upon completion of a Final Report in time for review at the 2023 Inter-sessional Science Board Meeting. Such a report should propose future scenarios for continuing work on marine (micro)plastic pollution. These could include a Study Group to identify key issues, an Advisory Panel with broader scope, or another Working Group or a Section (already discussed amongst WG 42 members) with 3-year TORs to consider the most pressing issues. A Working Group or Section would require active engagement from all 6 PICES member countries, whereas an Advisory Panel requires the support of a sub-set of member states for whom such longer-term issues are important. Dr. Savoca will consult with other WG 42 member on these options.

### **MEQ meeting decisions**

Following these updates Dr. Therriault reviewed the requests made by each Expert Group in the Reports that they submitted to Science Board prior to PICES-2022. Following some discussion, MEQ members in attendance agreed to support these requests on certain conditions (*e.g.*, that WG 42 provides the MEQ Committee with a draft Final Report for review prior to ISB-2023, and that the S-HAB member for whom travel funding is requested to attend the 2023 IPHAB meeting be unspecified).

Dr. Therriault also reviewed the list of Topic Sessions and Workshops proposed for PICES-2023, for which the MEQ Vice-Chair had solicited input from representatives of the five member countries present at the meeting (Korea, China, Japan, Canada and USA). The combined MEQ input ranked Topic Session proposals 16 (The oceanographic, ecological and societal impacts arising from extreme weather and climatic events in coastal regions), 2 (Occurrence and ecological impact of emerging pollutants in the coastal marine environment) and 14 (The complex reality of managing Non-indigenous Species (NIS) in the North Pacific) and Workshop proposals 4 (Bio-indicators of meso to global scale marine pollution: techniques for integration and standardization), 5 (Developing an integrative conceptual framework of urban impacts on marginal ocean ecosystems) and 11 (Solutions to control HABs in marine and estuarine waters) as the top three proposals in each category. These results were subsequently forwarded to Science Board.

### AGENDA ITEM 10

#### **Relations with other groups/organizations**

##### *NOWPAP*

The Northwest Pacific Action Plan (NOWPAP) was established in 1994 as part of the UN Environmental Program (UNEP) Regional Seas Program. The presentation was given by Dr. Ning Liu, who described many areas where the interests and activities of NOWPAP overlap with those of MEQ and PICES, including:

- the assessment of tidal flats and salt marsh distribution,
- updated information on a HAB Reference Database,
- improvements to the NOWPAP Eutrophication Assessment Tool (NEAT),
- 5<sup>th</sup> NOWPAP Training Course on Remote Sensing Data Analysis,
- an Annual Summary of Major Marine Environmental Data available in member states (China, Japan, Russia, Korea),
- a Collection of Information and Data on Endangered Species,
- preparation of the third State Of the Marine Environmental Report (SOMER-3),
- Microplastics Abundance in River Runoff of the NOWPAP Region.

Dr. Liu also mentioned provisional support from NOWPAP for the proposed MEQ-sponsored topic session on non-indigenous species (NIS) during PICES-2023.

*GESAMP*

This presentation was given by Dr. Peter Kershaw, former Chair of the UN joint Group of Experts on Scientific Aspects of Marine Protection (GESAMP), established in 1969, and current Co-Chair of GESAMP WG40. GESAMP works in partnership with other organizations and establishes working groups to tackle particular issues. These working groups provide technical recommendations, produce technical reports, support management and policy decisions, and address science gaps. There are currently 9 GESAMP working groups, including:

- WG40: Sources, fate and effects of marine plastics and microplastics.
- WG41: Ocean interventions for climate change mitigation.
- WG45: Climate change and greenhouse gas related impacts on contaminants in the ocean.

These working groups have potential relevance for proposed PICES-2023 topic sessions relating to ecological impacts in coastal marine environments and to future plans regarding marine debris and (micro)plastics within PICES (see Agenda Item 9: S-HAB and WG 42).

## AGENDA ITEM 11

**Other business**

During the general discussion it was proposed by the MEQ Vice-Chair that ECOP and WG 42 member Dr. Savoca be nominated to fill the vacancy for a USA representative on the MEQ Committee. The proposal was endorsed by the MEQ Chair, Dr. Na, and other MEQ members, and subsequently forwarded to Science Board for consideration. A suggestion was also made to establish if the current MEQ members from Russia are still active or if other members should be nominated, and to inform Science Board accordingly. Finally, revisions made to the MEQ Action Plan following the meeting on Day 1 were reviewed and approved by MEQ members.

The 2022 MEQ meeting was adjourned at 17.25.



Participants on Day 1 of the 2022 MEQ hybrid meeting held in Busan on September 25.

**MEQ Endnote 1**

**MEQ participation list**

Members

Guangshui Na (China, Chair, on-line)  
Andrew Ross (Canada, Vice-Chair)  
Thomas Therriault (Canada)  
Kazuhiko Mochida (Japan, Day 2 on-line)  
Seongjin Hong (Korea)  
Tae-Hoon Kim (Korea)  
Jeong Hee Shim (Korea, Day 1 in person,  
Day 2 on-line)  
Misty Peacock (USA)

Members unable to attend

Canada: Peter Ross  
China: Chuanlin Huo, Chunhou Li  
Japan: Akihide Kasai, Hideaki Maki  
Russia: Tatyana A. Belan, Elena  
Maximovna Latkovskaya  
USA: Staci Simonich

Observers

Nour Ayache (USA, ECOP)  
Ruijing Li (China)  
Ning Liu (NOWPAP)  
Peter Kershaw (GESAMP)  
Yoichi Miyake (Japan)  
Yumi Okochi (Japan NUS Co., Ltd.)  
Tatsuki Oshima (F&A)  
Matthew Savoca (USA, WG 42)  
Pengbin Wang (S-HAB Co-Chair/China)  
Kosui Watanabe (Japan NUS Co., Ltd.)  
Takafumi Yoshida (NOWPAP)

**MEQ Endnote 2**

**MEQ meeting agenda**

*Sunday, September 25, 2022 (18:00 – 20:30)*

1. Welcome, introduction, and adoption of agenda (Ross)
2. Implementation of PICES-2021 decisions (Ross)
3. MEQ Best Presentation award and Best Poster award for PICES-2022 (Ross)
4. Review of main achievements of MEQ in 2022 (Ross)
5. MEQ 2021–2014 Action Plan review (All)
6. Other business (All)
7. Adjourn

*Wednesday, September 28, 2022 (14:00 – 18:00)*

8. Welcome and adoption of agenda (Therriault)
9. Reports from MEQ Expert Groups and discussion (S-HAB, AP-NIS, WG 42)
10. Relations with other groups/organizations
11. Other business
12. Adjourn