

Report of the Marine Environmental Quality Committee

The business meetings of the Marine Environmental Quality Committee (MEQ) were held on Sunday, November 6 and Wednesday, November 9, 2016, in San Diego, USA. All countries were represented except Russia. A total of 27 participants attended the meeting (*MEQ Endnote 1*). MEQ Chair, Dr. Chuanlin Huo called the meetings to order and welcomed all participants. MEQ members and observers were asked to give self-introduction and to provide a brief statement about their interests and expertise. After the meeting agenda was reviewed by MEQ members, it was adopted without revisions (*MEQ Endnote 2*).



MEQ participants at PICES-2016; back row, from left: Taichi Yonezawa, Naohisa Kanda, Wonjoon Shim, Chuanlin Huo, Yusheng Zhang, Staci Simonich, Hideaki Maki, Genki Terauchi, Takafumi Yoshida; front row, from left: Wu Men, Minkyu Choi, Toyomitsu Horii, Darlene Smith, Kathryn Higley, Guangshui Na

November 6, 2016

AGENDA ITEMS 2, 3

Implementation of PICES-2015 decisions; Review of the main achievement of MEQ – 2016

Dr. Huo introduced the main work and achievements of MEQ 2015-2016. The MEQ has a wide range of interests spanning from regular research area to emerging marine environmental issue. At PICES-2016, MEQ sponsored or co-sponsored the following topic sessions and workshops. (Summaries of the topic sessions and workshops can be found in the 2016 PICES Annual Report at <http://meetings.pices.int/publications/annual-reports/2016>.)

- MEQ Contributed Poster Session, 8 poster presentations
Convenors: Chuanlin Huo (China), Darlene Smith (Canada), total 8 posters presented.
- MEQ Topic Session (S3): *Source, transport and fate of hydrocarbons in the marine environment*
Convenors: Hideaki Maki (Japan), Staci Simonich (USA), Robert Duce (GESAMP, Texas A&M University), total 6 oral presentations and 1 poster.

- MoE/MEQ/TCODE Topic Session (S8): *The Effect of Marine Debris caused by the Great Tsunami of 2011*
Convenors: Cathryn Clarke Murray (Canada), Nancy Wallace (USA), Hideaki Maki (Japan), Thomas Therriault (Canada), total 15 oral presentations and 8 posters.
- MEQ Workshop (W2): *Conditions promoting extreme Pseudo-nitzschia events in the eastern Pacific but not the western Pacific*,
Convenors: Vera Trainer (USA), Polina A. Kameneva (Russia), total 11 oral presentations were presented.
- MEQ Workshop (W10): *Distribution and risk analysis of radionuclides in the North Pacific*
Convenors: Yusheng Zhang (China), Kathryn A. Higley (USA), total 11 oral presentations and 2 posters.

AGENDA ITEM 4

MEQ past activities review and future direction discussion

Dr. Hideaki Nakata (former MEQ Vice-Chair), Dr. John Stein (former MEQ Chair), Dr. Mitsutaku Makino (former Acting Chair) and Dr. Vera Trainer (S-HAB Co-Chair) presented their reviews of past MEQ challenges, achievements and thoughts on what MEQ should focus on in the future. Finding a common approach was viewed as the major challenge in the past (and future) for MEQ work due to the large spatial scale of the PICES region, human impacts directly related to the economic benefits of each member country, difficulties in establishing common data bases and methods for analysis and synthesis and finally, and finding topics of common interest amongst all 6 countries.

Eight areas were identified for future work by MEQ and its expert groups:

- Marine environmental monitoring,
- Climate change and multiple stressors,
- A focus on pressures that can be directly addressed,
- Interactions between climate and other anthropogenic pressures,
- Time series to assess status and trends,
- Seafood safety and food security (HAB/AIS ecology and forecasts),
- Back to contaminants but not all the way (marine debris, microplastics),
- Ecological chemistry (trophic interactions, feeding ecology, habitat use).

S-HAB was discussed as a model of a successful MEQ expert group. S-HAB started as a working group (WG 15) that focused initially on single species. However, after being established as a Section, its approach has evolved over the past 16 years to include practical training workshops, ecosystem health and human well-being, climate change implications for HAB events, and comparison of East/West differences.

In view of the past challenges and successes of MEQ, a way forward was proposed for the following elements:

- Recognize that there are spatial differences both environmental and human;
- Focus on commonalities such as impacts of MEQ stressors on fisheries;
- Incorporate climate change implications/effects for MEQ stressors;
- Include spatial comparisons in MEQ expert group terms of reference, and work closely with Human Dimensions.

AGENDA ITEM 5

Other business

None.

November 9, 2016

AGENDA ITEM 6

Reports from MEQ expert groups

Members from all expert groups under MEQ attended the MEQ Committee meeting. The Co-Chairs from each group reported on their work and progress in 2016. Proposals of new topics and direction were also discussed for the development of MEQ.

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

S-HAB Co-Chair, Dr. Vera Trainer, reported on S-HAB achievements in 2016. At PICES-2016, S-HAB organized a Workshop (W2) on “*Conditions promoting extreme Pseudo-nitzschia events in the eastern Pacific but not the western Pacific*”, and held a 1-day meeting on November 4, with 30 participants. Members from all PICES member countries attended. The following requests were presented:

- 1-day business meeting at PICES-2017;
- 1½-day joint S-HAB/NOWPAP/GlobalHAB workshop on “*Long-term changes in HAB occurrences in PICES nations: the Eastern vs. Western Pacific*” PICES-2017, led by Drs. Mark Wells, Vera Trainer (USA) and Paolina Kameneva (Russia)
- Funding for 2 invited speakers (Dr. Nicholas Bond, USA and Dr. T. Nishikawa, Japan). NOWPAP and GlobalHAB may fund an additional 1 speaker each;
- Travel support for 1 PICES member (Trainer) to attend the Global HAB Scientific Steering Committee meeting (March 2017, Naples, Italy);
- Travel support for 2 PICES S-HAB members (Wells, Trick) to attend a mini-workshop to develop a “Best Practices Manual” for HABs and Climate Change research to be held after the IPHAB meeting (May 2017, Paris, France). Funding is also requested for this workshop from NSF, NOAA and IOC;
- Publication of PICES Scientific Report on “*Contrasting cases of Pseudo-nitzschia in the eastern vs. western Pacific*” (tentative completion: Summer 2017);
- Addition of a new S-HAB member, Polina Kameneva.

2. *Working Group on Assessment of Marine Environmental Quality of Radiation around the North Pacific (WG 30)*

WG 30 Co-Chair, Dr. Yusheng Zhang, reported WG 30 achievements in 2016. The WG organized a Workshop (W10) on “*Distribution and risk analysis of radionuclides in the North Pacific*”, and held a 1-day meeting on November 4 at PICES-2016; about 30 participants attended. A joint WG 30/SCOR WG 146 paper was published online in the [Annual Reviews of Marine Science in 2016](#). The following requests were presented:

- 2-day business meeting at PICES-2017;
- Extension of one year to complete its Terms of Reference to (see **WG 30 Endnote 4**):
 - ✓ To collect more data on radioactivity to support the conclusion on the risk assessment of the radionuclides from the FNA in the North Pacific for its final report, as the Fukushima-associated release continues to evolve across the North Pacific;
 - ✓ To improve the numerical simulation method for modeling the transportation of radioactive material in the Northwest Pacific;
 - ✓ To complete dosimetry solutions to biota in ecosystems of the North Pacific;
 - ✓ To complete a scholarly publication on monitoring and assessment of the radioactivity in the Northwest Pacific, and a short brochure summarizing the results to come out of WG 30;
 - ✓ To collaborate with SCOR Rio 5 in August 2017;
 - ✓ To complete the final report of WG 30.

The full proposal for extension of WG30 can be found in *MEQ Endnote 3*.

3. *Working Group on Emerging Topics in Marine Pollution (WG31)*

WG 31 Co-Chair, Dr. Wonjoon Shim, reported WG 31 achievements in 2016. The WG organized a Topic Session (S3) on “*Source, transport and fate of hydrocarbons in the marine environment*”, and held a 1-day

meeting on November 4 at PICES-2016. No members from Canada, Russia and the U.S. the WG 31 meeting in at PICES-2016. A special issue of ‘Oil Spills’ from W4 on “*Marine environment emergencies: Detection, monitoring, response, and impacts*” (PICES-2015) and on ‘Maine Pollution Indicators’ from S4 on “*Indicators of emerging pollution issues in the North Pacific Ocean*” are in preparation in the journal *Archives of Environmental Contamination and Toxicology*, with expected date of publication in spring 2017. A special issue on ‘Hydrocarbons in the Marine Environment’ from S3 is also anticipated. WG 31 collected 26 ETSO reports for NPESR3. WG 31 requested the following:

- 1-day business meeting for PICES-2017;
- Proposal for a topic session on “*Microplastics in marine environments: Fate and effects*”, co-sponsored by GESAMP and NOWPAP, at PICES-2017;
- A 1-year extension to complete WG 31’s Terms of Reference. The rationale for the extension is to publish three remaining peer-review special journal issues for ‘Oil Spills’, ‘Marine Pollution Indicators’ and ‘Hydrocarbons in the Marine Environment’, to complete pollution status and trend reports for NPESR3, and to complete the final report of WG 31. See **WG 31 Endnote 4** for the complete extension proposal.

AGENDA ITEM 7

Proposals of new topics and direction

A small subgroup of MEQ members, to be led by Staci Simonich, was formed to develop a detailed proposal for future MEQ work. The proposal will be presented to Science Board for consideration at ISB-2017.

AGENDA ITEM 8

Topic sessions and workshops for PICES-2017 (Sponsors or other delegates)

MEQ reviewed 12 proposed Topic Sessions and 6 proposed Workshops for PICES-2017 and gave the highest priority ranking for MEQ sponsorship to Topic Sessions on:

- *Microplastics in marine environments: Fate and effects*;
- *Adverse impacts on coastal ocean ecosystems: How do we best measure, monitor, understand and predict?*;
- *Marine ecosystem health and human well-being: a social-ecological systems approach*;
- *Emerging issues in understanding, forecasting and communicating climate impacts on north pacific marine ecosystems.*

and Workshops on:

- *Coastal ecosystem services in the North Pacific and analytical tools/methodologies*;
- *Linking oceanographic conditions to the distribution and productivity of highly migratory species and incorporation into fishery stock assessment models*;
- *Long-Term Changes in HAB Occurrences in PICES Nations; the Eastern vs. Western Pacific.*

AGENDA ITEM 9

Items with financial implications for 2017

See the AGENDA ITEM 6.

AGENDA ITEM 10

Explanation of NPESR

Dr. Hiroya Sugisaki, member of Study Group on *North Pacific Ecosystem Status Report*, reported on the progress of NPESR3 and welcomed any requests or questions from MEQ members.

AGENDA ITEM 11

MEQ Best Oral Presentation award at PICES-2016

MEQ members and other participants discussed early career scientist candidates for the MEQ Best Oral Presentation award for MEQ-sponsored topic sessions. Dr. Tanika Ladd (USA) was awarded the MEQ Best Oral Presentation for her report on “*Physiological responses of marine phytoplankton to oil exposure in the context of the 2015 oil spill in the Santa Barbara*” in S3. The Best Poster Presentation Award was given to Ms. Kirsten Moy from S8, for her presentation on “*Synthesizing the state of debris in Hawaii from 2015 aerial imagery and spatial analysis data*” (S8).

AGENDA ITEM 12

Relations with other groups/organizations

Mr. Genki Terauchi, representing NOWPAP, introduced the work of his organization, especially on the cooperation with PICES on marine environmental issues. He related the topic priorities agreed upon between the two organizations at PICES-2014, and opportunities for the future direction of MEQ. There was also discussion on ensuring participation at each other’s meetings and workshops to increase PICES-NOWPAP collaboration.

AGENDA ITEM 5

Other business

None.

MEQ Endnote 1

MEQ meeting participants

Members

Minkyu Choi (Korea)
Toyomitsu Horii (Japan)
Chuanlin Huo (China, Chair)
Hideaki Maki (Japan)
Wonjoon Shim (Korea)
Staci Simonich (USA)
Darlene L. Smith (Canada, Vice-Chair)
Thomas W. Therriault (Canada)

Members unable to attend

Canada: Peter Ross
China: Chunhou Li, Dexing Wu
Japan: Ichiro Imai
Korea: Weol-Ae Lim
Russia: Tayana Belan, Elena Maximovna
Latkovskaya, Olga Lukyanova
USA: Durrelle Patricia Smith, Gina Ylitalo

Observers

Tara Donaghy (Canada)
Jinqiu Du (China)
Jianhua He (China)
Kathryn Higely (USA, WG 30 Co-Chair)
Dong-Woon Hwang (Korea, WG 31)
Naohisa Kanda (Japan)
Hyung Chul Kim (Korea)
Mitsutaku Makino (Japan, Acting Chair, 2012)
Wu Men (China)
Guangshui Na (China, WG 31)
Hideaki Nakata (Japan, Vice-Chair, 2005–2006)
Dr. John Stein (USA, Chair, 2000–2006)
Hiroya Sugisaki (SG-NPESR3)
Genki Terauchi (NOWPAP)
Vera L. Trainer (USA, S-HAB Co-Chair)
Mark Wells (USA, S-HAB)
Zijun Xu (China, WG 31)
Taichi Yonezawa (Japan Nus Co. Ltd)
Takafumi Yoshida (NOWPAP CEARAC, S-HAB,)
Yusheng Zhang (China, WG 30 Co-Chair)

MEQ Endnote 2

MEQ meeting agenda

Sunday, November 6, 2016

1. Welcome and adoption of agenda (Chuanlin Huo)
2. Implementation of PICES-2015 decisions (Chuanlin Huo)
3. Review of the main achievement of MEQ-2016 (Chuanlin Huo)
4. MEQ past activities review and future direction discussion (Hideaki Nakata, Mitsutaku Makino, John Stein)
5. Other business (All)

Wednesday, November 9, 2016

6. Reports from MEQ Expert Groups and discussion (S-HAB, WG30, WG31)
7. Proposals of new topics and direction (All)
8. Statement about sessions and workshops for PICES 2017 (Sponsors or other delegates)
9. Items with financial implications for 2017 (Topic sessions, Workshops, etc.) (All)
10. Explanation of NPESR (Hiroya Sugisaki)
11. MEQ Best Oral Presentation award for PICES 2016 (All)
12. Relations with other groups/organizations (All)
13. Other business (All)