

Report of the Marine Environmental Quality Committee

The business meetings of the Marine Environmental Quality Committee (MEQ) were held on October 19 (18:00-20:00) and October 22 (14:00-18:00), 2014, in Yeosu, Korea. The meeting was attended by 11 members, representing all PICES member countries, and 15 observers (*MEQ Endnote 1*). MEQ Chair, Dr. Chuanlin Huo, called the meetings to order and welcomed all participants. MEQ members and observers were asked to provide self-introductions and a brief statement about their interests and expertise. Thirteen agenda items were completed during the day 1 and day 2 meetings (*MEQ Endnote 2*).

October 19, 2014

AGENDA ITEM 2

Implementation of PICES-2013 decisions

MEQ sponsored or co-sponsored the following topic sessions and workshops at PICES-2014 (see [Session Summaries](#) elsewhere in the 2014 PICES Annual Report).

- MEQ Paper Session: (Oct. 22, ½ day). Co-Convenors: Chuanlin Huo (China) and Darlene Smith (Canada). In view of dwindling themes and contributions for the MEQ-P session, MEQ participants provided suggestions for new topics and direction to make MEQ-P more appealing.
- MEQ Topic Session S8: “*Marine debris in the Ocean: Sources, transport, fate and effects of macro- and micro-plastics*” (Oct. 23, ½ day). Co-Convenors: Won Joon Shim (Korea), Peter S. Ross (Canada), Olga Lukyanova (Russia), Sangjin Lee (NOWPAP), Peter Kershaw (GESAMP) and Jesus Manuel Gago Piñeiro (ICES/Spain). Invited speakers: Marcus Eriksen (5 Gyres Institute, USA), Francois Galgani (IFREMER, France), Sunwook Hong, OSEAN, Korea) and Hideshige Takada (Tokyo University of Agriculture and Technology, Japan).
- MEQ Workshop W3: “*Mitigation of harmful algal blooms: Novel approaches to a decades long problem affecting the viability of natural and aquaculture fisheries*” (Oct. 22, one day). Co-Convenors: Ichiro Imai (Japan), Changkyu Lee (Korea), Charles Trick (Canada) and Mark Wells (USA). Invited Speaker: David Kidwell (NOAA, USA).
- BIO/MEQ Topic Session S3: “*Tipping points: defining reference points for ecological indicators of multiple stressors in coastal and marine ecosystem*” (Oct. 21, 1 day). Co-Convenors: Rebecca G. Martone (USA), Ian Perry (Canada), Jameal Samhoury (USA), Motomitsu Takahashi (Japan), Maciej Tomczak (ICES/Poland) and Chang-Ik Zhang (Korea). Invited Speakers: Phil Levin (NOAA, USA) and Tetsuo Yanagi (Kyushu University, Japan).

AGENDA ITEM 3

Review of main achievements in 2014

Dr. Huo reviewed the main achievements of the Committee over the past year, including:

- the establishment of Working Group (WG 31) on *Emerging Topics in Marine Pollution*;
- Working Group (WG 28) on *Development of Ecosystem Indicators to Characterize Ecosystem Responses to Multiple Stressors* evaluated the impacts of human activities and natural stressors using a habitat-stressors matrix;
- the Section on *Ecology on Harmful Algal Blooms (S-HAB)* developed a new set of terms of reference;
- two topic sessions, one paper session, and one workshop were convened at PICES-2014,
- publication of two PICES Scientific Reports (PICES Sci. Rep. No. 46, Report of the Study Group on Marine Pollutants, P.S. Ross (Ed.) and PICES Sci. Rep. No. 47, Proceedings of the Workshop on Economic Impacts of Harmful Algal Blooms on Fisheries and Aquaculture, V.L. Trainer and T. Yoshida (Eds.)).

MEQ-2014

AGENDA ITEM 4

Relations with other groups/organizations

Dr. Huo discussed MEQ progress on cooperation with other groups and organizations, such as NOWPAP. Dr. Takafumi Yoshida (NOWPAP) talked about the work his organization was involved in, and on collaboration with PICES on marine environmental issues, especially on the priorities of the two organizations, such as harmful algal blooms and marine pollution.

AGENDA ITEM 5

Other business (New items)

The midpoint review of FUTURE highlighted the need for change in governance and the creation of a Science Steering Committee (SSC) recommended by Science Board. Dr. Won Joon Shim (MEQ) will be one of the Korean members of the SSC. Dr. Huo asked MEQ members to suggest other candidates for the new SSC.

October 22, 2014

AGENDA ITEM 6

Reports from MEQ expert groups

All expert groups under MEQ were represented at the MEQ Committee meeting, and the Chair/Co-Chair from each group reported their work and progress in 2014 (see *MEQ Endnote 3* for proposals and funding requests). MEQ member (and Chair of the Study Group on *Biodiversity Conservation* (SG-BC)), Dr. Janelle Curtis, presented her report on SG activities and recommended the establishment of a Working Group on *Biodiversity and Biogenic Habitats* to investigate coral and sponge ecosystems.

Working Group (WG 28) on *Development of Ecosystem Indicators to Characterize Ecosystem Responses to Multiple Stressors*

- The group is making good progress on its TORs;
- A paper on “*Developing ecosystem indicators for responses to multiple stressors*” (lead author: Jennifer L. Boldt) has been accepted in *Oceanography* and will be published in late 2014 or early 2015;
- A review of several frameworks to address cumulative impacts of human activities and natural stressors on marine ecosystems in the North Pacific is being done;
- Multiple stressors are common, and the WG is considering the impacts of 20–50 stressors on 20 ecosystem types;
- A final report outline has been produced. A number of recommendations for further work are anticipated:
 - i. Dr. Perry noted that WG 28 will provide a list of topics for Working Group on *Emerging Topics in Marine Pollution* (WG 31) to address, and there will be recommendations for other expert groups as well (*e.g.*, S-HAB),
 - ii. A draft final report will be produced in 2015 as expected,
 - iii. Final report will be submitted at ISB-2016.

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

- A 2-day meeting was held on October 17–18, 2014 with 8 of the 13 members in attendance.
- Good progress is being made on terms of reference, and the WG is conducting field monitoring and circulation modeling;
- WG 30’s work plan for 2015 is to:
 - i. Submit a paper to a journal (TBD).
 - ii. Conduct a workshop at PICES-2015 to discuss data gaps with invitations to SCOR, IAEA + ICRP.
 - iii. WG 30 member, Dr. John Smith, is also a member of the SCOR Working Group on Radioactivity in the Ocean, and PICES has been invited to participate. This could cost \$10k for travel.

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

- S-HAB is contributing to the North Pacific Ecosystem Status Report by providing information on mechanisms underlying HAB occurrence and environmental changes.
- Proceedings of the Workshop on Economic Impacts of Harmful Algal Blooms on Fisheries and Aquaculture (V.L. Trainer and T. Yoshida (Eds.)) was published in 2014 in PICES Scientific Report No. 47.
- An article on S-HAB contribution to FUTURE and on the “Mitigation of HABs – the way forward” in PICES Press (2015).

AGENDA ITEM 7

Introduction of a new working group (WG 31)

Dr. Won Joon Shim, Co-Chair of Working Group on *Emerging Topics in Marine Pollution* (WG 31) provided a brief background and terms of reference of the WG, which was established after PICES-2013. Ten out of 17 WG members and several observers were able to attend its first business meeting. Main achievements thus far are:

- A 1-day MEQ Topic Session (S8) in 2014 meeting, entitled “*Marine debris in the ocean: Sources, transport, fate and effects of macro- and micro-plastics*” was held at PICES-2014. There were 17 oral presentations and 10 posters. Marine debris in the Ocean: Sources, transport, fate and effects of macro- and micro-plastics: Total 17 oral and 10 poster presentations on 23 October 2014;
- A Report of the Study Group on Marine Pollutants P.S. Ross (Ed.) was published as PICES Scientific Report No. 46 in 2014;
- The WG will commit to promoting the MEQ paper session at PICES-2015 to ensure better success.
- WG 31 proposes a 1-day Topic Session on “*Indicators of emerging pollution issues in the North Pacific Ocean*” and 1-day workshop on “*Marine environment emergencies: Detection, monitoring and response*” workshop at PICES-2015.
- next steps:
 - i. Discussed data compilation of marine pollution indicators,
 - ii. Proposing topic sessions for PICES 2015 and PICES 2016,
 - iii. Biomarkers possible subject for the topic session,
 - iv. Publication special issue on micro-plastics.

AGENDA ITEM 8

Proposals for new topics and direction

None.

AGENDA ITEM 9

Topic sessions and workshop proposals for PICES-2015

1. 1½-day Topic Session on “*Marine resource and environment carrying capacity and sustainable development*” (MEQ) [later merged with the Science Board Symposium on “*Change and sustainability of the North Pacific*”];
2. 1-day Topic Session on “*Indicators of emerging pollution issues in the North Pacific Ocean*” co-sponsored by NOWPAP (WG 31);
3. 1-day workshop on “*Marine environment emergencies: Detection, monitoring and response*” (WG 31);
4. 1-day workshop on “*Monitoring and assessment of environmental quality of radioactivity in the North Pacific*” [later renamed “*Monitoring and assessment of environmental radioactivity in the North Pacific*”] (WG 30);
5. 1½-day PICES/NOWPAP Workshop on “*Contrasting conditions for success of harmful raphidophyte species in the western and eastern Pacific –A comparative ecosystem approach*” [later renamed as “*Contrasting conditions for success of fish-kill flagellates in the western and eastern Pacific – A comparative ecosystem approach*”] (S-HAB).

AGENDA ITEM 10

Items with financial implications for 2015

Application of financial support from expert groups was discussed during the meeting. Chair of each expert group presented their requirement for activities in 2015, and members were encouraged to vote online for sessions and workshops. Results from discussion are listed as below.

Financial requests from MEQ

Group	Topic Session	Invited speaker (E/W)	Fund
WG 28	None	–	–
WG 30	None	–	–
WG 31	<i>Indicators of emerging pollution issues in the North Pacific Ocean</i>	2	3000
S-HAB	None	–	–
MEQ	<i>Marine resource and environment carrying capacity and sustainability</i>	2 (1 from China)	2000

Group	Workshop	Invited speaker (E/W)	Fund
WG 28	None	–	–
WG 30	<i>Monitoring and assessment on environmental radioactivity in the North Pacific</i>	3	4500
WG 31	<i>Marine environment emergencies: Detection, monitoring and response</i>	2	3000
S-HAB	<i>Contrasting conditions for success of fish-kill flagellates in the western and eastern Pacific — A comparative ecosystem approach</i>	2	2500

AGENDA ITEM 11

MEQ Best Oral Presentation and Poster award at PICES-2014

Presentation type	Presenter	Country	Paper ID	Paper title
Oral	Andrew Jin Yi Loh*	Korea	MEQ-9544	<i>Comparison of oil exposure methods to filter feeding bivalve</i>
Poster	Mi Jang*	Korea	S8 – P2	<i>Expanded polystyrene buoy as a moving source of toxic chemicals to marine life: Enrichment of hexabromocyclododecanes in mussels</i>

*ECS – Early Career Scientist

AGENDA ITEM 12

Relations with other groups/organizations

A joint NOWPAP/MEQ Workshop was proposed, contrasting conditions for success of harmful raphidophyte species in the western and eastern Pacific—a comparative ecosystem approach.

AGENDA ITEM 13

Other business

None

MEQ Endnote 1**MEQ meeting participants**Members

Janelle Curtis (Canada, SG-BC Chair)
 Chuanlin Huo (China, Chair)
 Toyomitsu Horii (Japan)
 Ichiro Imai (Japan)
 Hideaki Maki (Japan)
 Won Joon Shim (Korea, WG 31 Co-Chair)
 Gina M. Ylitalo (USA)
 Olga N. Lukyanova (Russia, WG 31 Co-Chair)
 Darlene L. Smith (Canada, Vice-Chairman)
 Thomas W. Therriault (Canada)
 Minkyu Choi (Korea)

Observers

Karin Baba (Japan)
 Peter Kershaw (GESAMP)
 Takafumi Yoshida (NOWPAP, SG-SCOOP)
 R. Ian Perry (Canada, WG 28 Co-Chair)
 Yusheng Zhang (China, WG 30 Co-Chair)
 Andrea Looke (Canada)
 Tao Yu (China)
 Wen Yu (China, WG 30)
 Guangshui Na (China, WG 31)
 Kosuke Ishimaru (Japan)
 Vera L. Trainer (USA, S-HAB Co-Chair)
 Mark Wells (USA, S-HAB)
 Kathryn Higley (USA, WG 30 Co-Chair)
 Francois Galgani (IFREMER)
 Jae Ryoung Oh (Korea)

MEQ Endnote 2**MEQ meeting agenda***Sunday, October 19, 2014*

1. Welcome and adoption of agenda (Huo)
2. Implementation of PICES-2013 decisions (Huo)
3. Review of main achievements in 2014 (Huo)
4. Relations with other groups/organizations (All)
5. Other business (All)

Wednesday, October 22, 2014

6. Reports from MEQ expert groups (WG 28, WG 30, S-HAB, SG-BC)
7. Introduction of a new working group (WG 31) (co-chairs)
8. Proposals for new topics and direction (All)
9. Topic sessions and workshop proposals for PICES-2015 (Co-sponsors or other representatives)
10. Items with financial implications for 2015 (Topic Sessions, Workshops, *etc.*) (All)
11. MEQ Best Oral Presentation and Poster award at PICES-2014 (All)
12. Relations with other groups/organizations (All)
13. Other business (All)

MEQ Endnote 3

MEQ proposals and requests to Science Board

1. S-HAB proposal for a 1½-day joint PICES/NOWPAP workshop on “*Contrasting conditions for success of fish-kill flagellates in the western and eastern Pacific — A comparative ecosystem approach*” at PICES-2015 and request for funding of \$2500 for two speakers to attend. (NOWPAP may also fund speakers);
2. S-HAB request for funding of \$1000 for publication of a paper on “*HABs and climate change*” resulting from the 2013 PICES/ICES/GEOHAB workshop on “*Harmful algal blooms in a changing world*” in the journal *Harmful Algae*;
3. S-HAB proposal for a ½-day on “*The human dimension of harmful algal blooms*” (no funding requested)
4. S-HAB request for a 1-day meeting at PICES-2015;
5. WG 28 request for a 2-day meeting at PICES-2015 and has no funding requests for 2015;
6. WG 30 proposal for a 1-day workshop on “*Monitoring and assessment on environmental radioactivity in the North Pacific*” at PICES-2015 and request for funding of \$4500 for 3–4 speakers to attend;
7. WG 30 request for a 1-day meeting at PICES-2015;
8. WG 31 proposal for a 1-day Topic Session on “*Indicators of emerging pollution issues in the North Pacific Ocean*”, co-sponsored by NOWPAP, at PICES-2015 and request for funding of \$3000 for two invited speakers to attend;
9. WG 31 proposal for 1-day workshop on “*Marine environment emergencies: Detection, monitoring and response*” and \$3000 for two invited speakers to attend;
10. WG 31 request for a 1-day meeting at PICES-2015;
11. WG 32 request for a 2-day meeting at PICES 2015.
12. MEQ proposal for a 1½-day Topic Session on “*Marine resource and environment carrying capacity and sustainable development*” and \$2000 for 2 invited speakers (one from China) to attend.