

Report of the Advisory Panel on *Marine Non-indigenous Species*

AP-NIS met for the first time at PICES-2017 in Vladivostok, Russia. Since appointment of membership is incomplete, Dr. Therriault (Canada) agreed to act as interim Chair for this PICES expert group and circulated a draft agenda to members in August 2017. AP-NIS met on Sunday September 24, 2017 from 9:00–12:30. Dr. Therriault called the meeting to order and following introductions, members/observers (*AP-NIS Endnote 1*) adopted the draft agenda (*AP-NIS Endnote 2*).

AGENDA ITEM 2

Review AP-NIS terms of reference

The terms of reference for AP-NIS were reviewed and no changes were suggested at this time (although changes may occur in the future once membership is complete – Russia and USA were not represented).

AGENDA ITEM 3

Review previous PICES engagement on marine NIS

PICES has been very active on NIS issues since the Working Group on Non-indigenous Aquatic Species (WG 21) was created at the 2005 PICES Annual Meeting in Vladivostok, Russia. WG 21 was the longest lived PICES WG, spanning almost 10 years, in part due to a contribution by the Ministry of Agriculture, Forestry and Fisheries (MAFF) of Japan which funded additional WG 21 activities including the development of a NIS database for the North Pacific and resulting Atlas, and the development of demonstration/rapid assessment surveys for NIS both in PICES member countries and developing countries in Southeast Asia. More recently, PICES recently completed the ADRIFT (Assessing the Debris-Related Impacts From Tsunami) project funded by the Ministry of Environment of Japan to look at NIS issues arising from the March 2011 tsunami that followed the Great East Japan Earthquake of March 11, 2011. This project resulted in several legacy products, including special publications conveying important understanding of this unique NIS vector. Further, PICES has established strategic frameworks with both NOWPAP and ICES and both have identified NIS as a topic of mutual interest. Given Dr. Therriault's involvement in WG 21 and ADRIFT, he provided the group an overview/summary of specific previous activities within PICES, including collaborations with other organizations, on NIS issues.

AGENDA ITEM 4

Review previous mechanisms to advance NIS within/beyond PICES

When reviewing mechanisms to advance NIS issues within/beyond PICES Dr. Therriault highlighted previous topic sessions/workshops hosted at PICES Annual Meetings (2005 – Russia; 2008 – China; 2016 – USA), ICES Annual Science Conferences (including 2017 – USA), and several International Conferences on Marine Bioinvasions (including 2009 – USA; 2011 – Spain; 2013 – Canada; 2016 – Australia). In addition, Dr. Therriault has represented PICES at several ICES WG meetings where NIS issues have been discussed, and provided updates on WG 21 activities, and more recently ADRIFT project outcomes. AP-NIS members agreed these were important for fostering collaboration and advancing the science of NIS.

AGENDA ITEM 5

Identification of high priority topics for AP-NIS

AP-NIS had preliminary discussions about priority NIS issues facing PICES member countries. Although specifics varied, topics generally clustered into the following general themes:

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1. Monitoring (either targeted for NIS, harmful algal blooms, jellyfish, or general environmental programs) and early detection (including potential application of eDNA);
2. Biofouling (including potential for PICES to provide input to International Maritime Organization guidelines);
3. Containment/control options for NIS following early detection or impact mitigation for high impact NIS;
4. Risk assessment (including development/application of detailed or screening-level assessments – Dr. Therriault presented a case study of the application of CMIST (Canadian Marine Invasive Screening Tool) to Japanese tsunami marine debris which was conducted under the ADRIFT project).

As this was the first meeting of AP-NIS and membership was incomplete, it is expected additional priority items will arise and be discussed at PICES-2018 in Japan.

AGENDA ITEM 6

Mechanisms to address high priority topics

Several options/opportunities for hosting PICES-sponsored/co-sponsored sessions/workshops at upcoming meetings were discussed. AP-NIS members heard from Dr. Lianggen Wang (China) about the development of a PICES-sponsored workshop for the Marine and Freshwater Invasive Species Conference to be hosted in Beijing in May 2018 (<http://conferences.aehms.org/mfis-china/>). Given the meeting location in Asia, many AP-NIS members/observers felt that this would be an opportunity to have a good PICES presence. Dr. Therriault reviewed previous PICES engagement in ICMB conferences (<http://www.marinebioinvasions.info/>) but noted the meeting location in Argentina could prove difficult for many AP-NIS members.

Action:

- Request to MEQ to provide travel support for an Asian PICES workshop convenor pending acceptance of proposal by conference organizers and AP-NIS Chair (5K);
- Request to MEQ to provide partial travel support for ICMB-X SSC member representing PICES (Dr. Therriault) (2K).

AGENDA ITEM 7

Mechanisms to exchange information on NIS

AP-NIS discussed the importance of exchanging information on NIS and how records might be archived/stored in a database. Currently, most PICES member countries have some internal domestic capacity related to NIS databases but most/none are publically available at this time. AP-NIS discussed several international options including reviving the WG 21 database (if possible) or contributing to existing global databases like AquaNIS (EU/ICES – can accept global records), NEMISIS (USA – unclear if it can accept global records). AP-NIS members agreed to spend some time reviewing these and other databases which will be discussed further at the next meeting at PICES-2018. To advance the exchange of information among AP-NIS members on NIS occurrences, program/management/policy updates, *etc.*, Dr. Therriault agreed to develop a reporting template for AP-NIS members inter-sessionally via correspondence.

AGENDA ITEM 8

Draft Workplan for AP-NIS

Not discussed.

AGENDA ITEM 9

Other business

As FUTURE SSC liaison to AP-NIS, Dr. Therriault provided a FUTURE update, highlighting several areas where AP-NIS could make contributions to FUTURE science in the future.

AP-NIS recognizes the need for membership to be finalized as soon as possible.

AP-NIS Endnote 1**AP-NIS participation list**Members

Masaya Katoh (Japan)
 Weol-Ae Lim (Korea)
 Thomas Therriault (Canada, acting Co-Chair)

Observers

Kwang-Sik Albert Choi (Korea)
 Yumi Okochi (Japan)
 Lianggen Wang (China)
 Rui Zheng (China)

Members unable to attend

China: Lijun Wang, Li Zheng
 Korea: Keun-Hyung Choi, Kyoungsoon Shin

AP-NIS Endnote 2**AP-NIS meeting agenda**

1. Welcome, introductions, opening remarks
2. Review AP-NIS ToR
3. Review previous PICES engagement on Marine NIS
 - a. WG 21 (which included funding from Japanese MAFF)
 - b. ADRIFT Project (funded by Japanese MOE)
 - c. Engagement with NOWPAP and ICES
4. Review previous mechanisms to advance NIS within/beyond PICES
 - a. PICES AM, ICES ASC, ICMB workshops/topic sessions, *etc.*
 - b. Joint publications/scientific advice
 - c. Rapid Assessment Surveys/Demonstration Workshops
5. Identification of high priority topics for AP-NIS
 - a. Roundtable of current situation and most important issues involving Marine NIS in PICES member countries
6. Mechanisms to address high priority topics identified above
 - a. Host workshop/topic session at PICES-2018 (Japan), ICMB-X (Argentina), or Marine and Freshwater Invasive Species Conference (China) with or without joint sponsorship from ICES/NOWPAP/*etc.*
7. Mechanisms to exchange information on NIS, including distribution/impact
 - a. Need to revive WG 21 database? Other global databases (*e.g.*, AquaNIS)?
 - b. ADRIFT/SERC life history database
 - c. PICES reporting template?
 - d. Others?
8. Develop draft Workplan for AP-NIS
9. Other business
10. Adjourn