

The FUTURE Advisory Panel on *Anthropogenic Influences on Coastal Ecosystems*

AP-AICE Chairman, Dr. Thomas Therriault, welcomed the members (*AP-AICE Endnote 1*) and guests to the meeting of the FUTURE Advisory Panel on *Anthropogenic Influences on Coastal Ecosystems* on October 14, 2012, in Hiroshima, Japan.

AGENDA ITEM 1

Introductions and opening remarks

Low participation continued to be an issue for AP-AICE. At this meeting two member countries (China and Korea) and two Committees (BIO and MONITOR) were not represented. Given the structure of the FUTURE program and the reliance on country/Committee contributions to APs, it is essential for this issue to be resolved. It was noted by a participant at the meeting that each country is represented by two to three individuals on PICES Committees and it was questioned why APs have so few members. It was noted that this was intended to permit efficient communication with Committees. However, participation in AP-AICE has been so low that it has affected its ability to fulfill its mandate.

Action: Participation from Drs. Kang, Ro and Sun has been limited and sporadic so they must be replaced. Further, it is recommended that the AP-AICE be expanded to ensure adequate representation and expertise to deal with the wide variety of coastal issues. BIO and MONITOR need to identify an active participant for AP-AICE to ensure Committee representation and connection with the FUTURE program. In addition, MEQ and BIO should consider additional representation (to deal with the wide range of issues facing this AP). Further, representation by S-CCME and S-HD would complement AP-AICE. Lastly, Dr. Kaeriyama who has been an active member since inception representing BIO and Japan will retire in 2013 and thus FIS will need to identify a representative for AP-AICE. It was noted that Dr. Imai will join MEQ in 2013 and could represent Japan on AP-AICE.

AGENDA ITEM 2

Review and adopt agenda

The draft agenda was reviewed and additional issues raised at the joint FUTURE AP Meeting (October 14, 2012) were added to the agenda for discussion including:

- Providing recommendations to Committees on Topic Sessions for the 2013 Annual Meeting;
- Discussion of the inter-sessional FUTURE workshop (with ISB) in 2013;
- Discussion of options, dates, and venue for the FUTURE Open Science Meeting;
- Discussion and population of the FUTURE Road Map, especially FUTURE products and operationalizing the FUTURE program.

The draft agenda (*AP-AICE Endnote 2*) was adopted after the additions.

AGENDA ITEM 3

Potential Topic Sessions for PICES-2013

In general, AP members were happy with the online system of proposals although only about half actually submitted rankings online. There was discussion about potential improvements to consider for next year including:

- Requesting the PICES Secretariat to send more reminders to encourage ranking submissions;

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- having prior information on the potential number of invited speakers (due to financial considerations),
- confirming that co-convenors had agreed to this role;
- clarifying that when submitting a proposal for a topic session or workshop, identifying co-sponsors is intended to identify external organizations participating in the session;
- individual members' rankings should be secret. Some were troubled by seeing all rankings when logging into the system;

It was noted that the result of members' rankings was intended to initiate discussion. APs or Committees can, if they wish, overrule the results of voting during their meetings, so there is still a role for them.

AP-AICE discussed each of the proposed Topic Sessions and Workshops and identified the ones most closely aligned with AICE activities for suggested support via Committees:

- Proposal 4, Logerwell – *Science needs for offshore oil and gas development in the North Pacific*
- Proposal 6, Perry – *Ecosystem indicators to characterize ecosystem responses to multiple stressors in North Pacific marine ecosystems*
- Proposal 13, Ross – *Status, trends and effects of pollutants in coastal ecosystems: Implications for wildlife and humans* (new)
- Although not directly aligned with AICE activities, the AP liked the idea of the proposed workshop by SG-MP that involved local First Nations and AICE supported *Traditional seafoods of the Snuneymux'w First Nation in Nanaimo, British Columbia: Insight into food, social and ceremonial uses*.

AGENDA ITEM 4

FUTURE inter-sessional Workshop

This item was discussed during the Joint AP Meeting and AICE supported the proposed joint P/ICES inter-sessional Workshop to take place in western Russia in May 2013. AP members were encouraged to participate if possible.

AGENDA ITEM 5

FUTURE Open Science Meeting

AICE supported the idea of an Open Science Meeting (OSM) to showcase PICES FUTURE research/products. The AP felt that a central location such as Hawaii, USA, would be convenient and economical for participants on both sides of the Pacific. It was noted that the PICES/GLOBEC CCCC Program had a very successful meeting in Hawaii in 2006.

Given the potential scope of this OSM, and with several FUTURE-related expert groups now active, it seemed that a 4–5 day meeting would be suitable. In addition, the AP discussed how having a meeting that is open to other international organizations/researchers could be a real asset and that in some cases organizations such as ICES, SCOR, IMBER, NPAFC, *etc.* might want to co-convene joint sessions at a PICES FUTURE OSM.

The AP was somewhat concerned about the short period of time until the proposed date of the OSM and recognized the need to confirm details as soon as possible so that key invited speakers and external organizations could be secured and engaged in a timely fashion.

Recommendations:

- The AP recommends that a Steering Committee for the OSM be formed quickly with members from both APs and Committees. This group should bring a final OSM plan to the ISB meeting in western Russia in May 2013 (although sooner would be more desirable, perhaps by e-mail).

- The AP had considerable discussion about how this proposed OSM would contribute to the FUTURE program and identified the need to apply knowledge gained from this meeting to help identify a specific path for the FUTURE program as it enters the second half of its life cycle. A small expert group should be identified to remain at the meeting location (2–3 days) to summarize FUTURE advancements and develop an Action Plan to refine the rest of the FUTURE program and present to Science Board at PICES-2014.

AGENDA ITEM 6

FUTURE roadmap

At the joint AP meeting a draft version of the FUTURE roadmap was presented for discussion. The AP Chair quickly reviewed the major elements of the roadmap and provided some background on developments since the inter-sessional FUTURE Workshop (Busan, Korea, May 24–25, 2012) where this roadmap was initially discussed. Many AICE participants attended the meeting in Busan and were familiar with the general process.

AICE spent considerable time drawing connections between FUTURE products listed in the hard copy of the roadmap provided for discussion and current/potential expert groups and the questions identified in the FUTURE Implementation Plan. Key points of this discussion are captured below but it is important to recognize that additional discussion will be required and the roadmap updated almost routinely if it is to be used to its full potential in implementing the FUTURE program.

There was considerable discussion about the topic of ecosystem resilience and vulnerability, given the prominence of this topic in the FUTURE program, especially under Theme 1. However, there remains a lot of uncertainty about what this means for the implementation of FUTURE. Although the idea of ecosystem resilience is not new, it remains poorly understood, if not ill defined, at least for PICES applications. For FUTURE to address Theme 1 adequately, additional guidance/clarification on ecosystem resilience and vulnerability is needed. Thus, PICES will need to consider the development of a new expert group to address this topic. Although it is premature to recommend a new expert group to Science Board at this meeting, PICES needs to plan for the creation of this group, potentially as early as the 2013 Annual Meeting in Nanaimo. Perhaps a Study Group could conduct a review of ecosystem resilience and vulnerability to provide a gap analysis on what would be required to implement this element of FUTURE. The AP discussed potential sources of information in conjunction with noted major ecosystem shifts such as the change in Eastern Canada from a cod dominated ecosystem to a crab/shrimp dominated one. In addition, a retrospective-type analysis could be conducted to look at ecosystem shifts in response to major stressors (*e.g.*, aquatic invasive species, overfishing, climate change). Ultimately, AICE feels that a Working Group on ecosystem resilience and vulnerability will be needed in PICES.

Several elements of FUTURE Theme 2 are being addressed by newly created expert groups but its scope and scale could pose major challenges when trying to generalize or synthesize. Question 2.1 can be addressed with time series of status and trend indicators (see below on NPESR). Similarly, Question 2.4 could be addressed by new indicators being developed by WG 28 and S-HD, Question 2.6 could be addressed by various climate model outputs from either WG 27, WG 29 and/or S-CCME. Lastly, in order to address Question 2.7, an analysis of what goods and services are being affected by ecosystem change will be needed to properly address how societies are affected by these changes.

FUTURE Theme 3 is very relevant to AICE (and S-HD). The AP discussed some of the probable indicators of change in response to multiple stressors being developed by WG 28 that should address much of Question 3.1 and potentially most of Question 3.3. However, the current suite of PICES expert groups is not able to address much, if any, of Question 3.2. Much more work will be required to address Question 3.4. The group discussed the need to better understand the linkages between coastal ecosystems and terrestrial and offshore systems, especially in the context of anthropogenic stressors. Although S-HD is just getting underway within PICES, this expert group will contribute substantial information in support of Question 3.5. For example, it is

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expected that this group will be able to identify thresholds for when management intervention should take place and identify mechanisms to apply risk-based approaches to fisheries/ecosystem management.

AICE discussed what should be added or considered for the next edition of the North Pacific Ecosystem Status Report. Ideally a suite of ecosystem indicators can be identified by WG 28 but a mechanism is required to insure that these would be generated beyond the 3-year lifespan of a Working Group. Thus, it seems reasonable that this task could be undertaken by PICES Committee(s) or an *ad hoc* group tasked with this.

The human dimension of ecosystem change is becoming an increasingly timely topic within PICES and elsewhere and it would be desirable to see some related indices in the next NPESR.

Although critical biological/environmental data are available within existing NPESR reports, it would be beneficial to identify what critical/key data are needed (in part to generate potential indices but also as stand alone pieces of information) and identify a mechanism to ensure these are available when needed in a sustainable way. The means to take an aggregate view of time series across ecosystems for nutrients, temperature, salinity, dissolved oxygen, carbon, chlorophyll, zooplankton, biomass (including changes in productivity/distributions), *etc.* is needed. By standardizing variables it will be easier to make cross-ecosystem comparisons.

AGENDA ITEM 7

Expert group activities relevant to AICE

At the Joint AP meeting, almost all expert groups relevant to FUTURE made presentations. This allowed all AP members to hear the common message about progress, issues, and results. There were no AICE-specific issues that were raised during the AP-AICE meeting.

AGENDA ITEM 8

AICE Action Plan

It was unclear if an AICE-specific Action Plan was required. No plan was developed in advance of this meeting and time constraints prohibited extensive discussion of this.

AGENDA ITEM 9

Identification of high priority topics for FUTURE and potential mechanisms to address these

AICE discussed the need for additional membership to better advance AP discussions/issues/recommendations (see Agenda Item 1). The AP suggested that there is considerable work still required to make the FUTURE roadmap operational. Thus, continuing to establish connections/linkages within the roadmap should be a priority for any inter-sessional activities.

AGENDA ITEM 10

Linkages to other FUTURE-APs, Committees and PICES scientists

The presentation that was developed by the three FUTURE AP Chairs provided a common, consistent message to Committees and seems to have improved the relationship between FUTURE APs and Committees. Additional participation from Committee members at the Joint AP Meeting would strengthen this relationship.

AGENDA ITEM 11

Membership and rotation of FUTURE AP Chairs

At PICES-2009, Science Board determined that the term of an AP Chair should be 3 years, except for the initial appointments that would extend and be staggered to avoid simultaneously replacing all chairmen after 2012. At ISB-2012, Science Board decided that SOFE Chairman, Robin Brown, would be replaced after PICES-2012. The AICE and COVE Chairmen would be replaced in subsequent years. No specific decision was made about the next potential AP-AICE Chair and no volunteers were forthcoming.

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

Thomas Therriault (Canada, Chairman; MEQ)
Igor Shevchenko (Russia; TCODE)
Steven J. Bograd (USA; POC)
Masahide Kaeriyama (Japan; FIS)

Absent

Young Shil Kang (Korea)¹
Young-Jae Ro (Korea)
Song Sun (China)

Observers

Toyomitsu Horii (Japan)
Katsuyuki Abo (Japan)
Yoichiro Ishibashi (Japan)
Karin Baba (Japan)
Hideaki Maki (Japan)
Suam Kim (Korea)
Darlene Smith (Canada)

¹ Notified in advance

AP-AICE Endnote 2**AP-AICE meeting agenda**

1. Welcome, introductions, opening remarks
2. Review and adopt agenda
3. Potential Topic Sessions at 22nd Annual PICES Meeting, Nanaimo (2013)
4. Potential inter-sessional FUTURE meeting with ICES (Spring 2013)
5. FUTURE Open Science Meeting in 2014
6. Discussion of FUTURE roadmap from Busan ISB meeting
7. Review and discuss expert group activities relevant to AICE
 - a. WG 28
 - b. S-CCME
 - c. S-HD
 - d. others
8. Develop/Review AICE Action Plan
9. Identification of high priority topics for FUTURE and potential mechanisms to address these (AP activities, national programs, symposia, new Ex Groups, *etc.*)
10. Linkages to other FUTURE-APs, committees and PICES scientists
11. Membership, rotation of FUTURE AP Chairs
12. Implementing FUTURE, developing a plan for AICE-AP
13. Other issues (Roundtable)