BIO Committee Action Plan (2012-2015)

Mission

The Biological Oceanography Committee's mission is to promote and coordinate biological oceanography and interdisciplinary research in the northern North Pacific Ocean. This includes biology and ecology of non-harvested organisms and biogeochemical cycles.

Specific topics of interest to the BIO committee include:

- Dynamics of lower trophic level organisms including krill and micronekton
- Dynamics of marine birds and mammals
- Dynamics of other non-harvested organisms
- Distribution and migration
- Life history
- Physiology
- Food webs and ecosystems
- Variability and long –term trends
- Ecosystem modeling
- Phylogeny and genetics
- Anthropogenic effects
- Biogeochemical cycles

In considering these topics, the BIO committee endeavors to develop new concepts relating to the regulation of marine ecosystems and their component organisms. A common focus is the relationships between anthropogenic factors, climate and ecosystems.

Given the connections between anthropogenic factors, climate and ecosystems, the BIO committee's area of interest intersect those of other PICES committees, PICES FUTURE Advisory Panels and Sections. This Action Plan endeavors to reflect these connections, as well as the PICES Strategic Plan, as revised in 2011.

Strategy of the BIO Committee

To implement its mission, the BIO Committee will address each of the five central themes of the PICES Strategy: (A) Advancing scientific knowledge; (B) Applying scientific knowledge; (C) Fostering partnerships; (D) Developing capacity; and (E) Ensuring a progressive organization. Specific goals, actions and tasks within each of these themes are as follows.

Theme A *Advance scientific knowledge*

Goal 1. Understand the functioning, resilience, and vulnerability of marine ecosystems.

Action 1.1 Improve our understanding of biological oceanography in the North Pacific.

Task 1.1.1 Convene annual BIO paper sessions to foster information exchange on a diversity of BIO topics.

Task 1.1.2 Convene a series of sessions and workshops that examine the dynamics of lower trophic organisms of the North Pacific.

Task 1.1.3 Convene a series of sessions and workshops that examine the dynamics of marine birds and mammals of the North Pacific.

Task 1.1.4 Convene a series of sessions and workshops that examine the dynamics of non- harvested organisms of the North Pacific.

Task 1.1.5 Facilitate and encourage the activity of the BIO Advisory Panels and Working Groups.

Action 1.2 Improve our understanding of ecosystem resilience and vulnerability.

Task 1.2.1 Convene a series of sessions and workshops on development of ecosystem indicators to characterize ecosystem responses to multiple stressors.

Task 1.2.2 Convene a series of sessions and workshops on identifying ecosystems that are vulnerable to natural and anthropogenic forcing.

Goal 2. Understand and quantify how marine ecosystems respond to human activities and natural forcing.

Action 2.1 Evaluate and increase the knowledge and forecasts of climate effects on marine ecosystems of the North Pacific.

Task 2.1.1 Define, coordinate and integrate the research activities needed to understand, assess and project climate change impacts on marine ecosystems.

Task 2.1.2 Review the existing information on carbon cycling in the North Pacific, including, the biological pump, impacts of ocean acidification on marine biota, and possible feedbacks to atmospheric greenhouse gases.

Task 2.1.3 Review the existing regional modeling efforts and assess the requirements for regional ecosystem modeling studies.

Task 2.1.4 Evaluate and select potential ecosystem models for comparison to identify indicators of large-scale ecosystem change.

Action 2.2 Link to FUTURE activities in order to understand and quantify the impacts of human activities and climate on marine ecosystems.

Task 2.2.1 Actively solicit advice from countries, scientists, and stakeholders for what type of information is needed for status reports.

Task 2.2.2 Expand and improve status report synthesis to better explain how the ecosystem functions and provide the relevant evidence for impacts of human activity and climate.

Theme B *Applying scientific knowledge*

Goal 3. Provide scientific advice pertinent to North Pacific ecosystems.

Action 3.1 Provide the PICES Science Board and Governing Council with information necessary for PICES actions and endorsement regarding management of North Pacific resources.

Task 3.1.1 Provide input to the Science Board on FUTURE Implementation Strategy.

Action 3.2 Promote the use of the PICES North Pacific Ecosystem Status Report (I and II) to understand the functioning of marine ecosystems.

Task 3.2.1 Contribute to produce the next reports.

Task 3.2.2 Evaluate the report and the process used to create it.

Goal 4. Ensure that PICES products are relevant, timely, and broadly accessible.

Action 4.1 Publish products related to the FUTURE Science Plan and ongoing BIO activities in the PICES.

Task 4.1.1 Routinely publish products of BIO activities, such as papers from BIO topic sessions, in special issues of peer-reviewed journals and working group reports.

Action 4.2 Link published products to the PICES website.

Task 4.2.1 Provide web links with information on recent publication.

Theme C. *Foster partnerships*

Goal 5. Collaborate with organizations and scientific programs relevant to PICES.

Action 5.1 Develop formal linkages with ICES, SCOR, SOLAS, IMBER, IWC, ESSAS and other organizations on biological oceanography.

Task 5.1.1 Periodically sponsor PICES scientists to join organizing committee and to give presentations in international symposia of mutual interest.

Task 5.1.2 Invite scientists from other international organizations to participate in PICES BIO sponsored workshops and topic sessions of mutual interest.

Task 5.1.3 Formalize PICES participation in symposia held with other organizations.

Goal 6. Strengthen communication and engagement with users of PICES scientific products.

Action 6.1 Understand, quantify and broadly communicate the impacts of human activities on marine ecosystems, and how these impacts result in consequences for humans.

Task 6.1.1 Work with the PICES Secretariat and other PICES committees to assure broad BIO outreach to the public.

Theme D. *Develop capacity*

Goal 7. Advance methods and tools to improve and enhance scientific activities.

Action 7.1 Develop new methods for use of accumulated data.

Task 7.1.1 Convene a series of topic sessions and workshops on the development of methods and metadata associated with BIO Working Groups.

Action 7.2 Provide a recommendation on ecosystem models by inter-comparison.

Task 7.2.1 Convene MEMIP (Marine Ecosystem Model Inter-comparison Project) related workshops and topic sessions.

Action 7.3 Develop or recommend methods of measuring secondary production.

Task 7.3.1 Convene a series of topic sessions and workshops to develop or recommend methods for measuring growth or production of krill and other zooplankton.

Goal 8. Foster collaboration among scientists within PICES.

Action 8.1 Improve opportunities for early carrier scientists.

- **Task 8.1.1** Add links to the BIO website announcing graduate student opportunities in PICES member countries.
- **Task 8.1.2** Maintain BIO Paper session at PICES Annual Meeting to foster participation of early carrier scientists in PICES.
- **Task 8.1.3** Continue to sponsor and promote PICES/ICES Early Career Scientist Symposia.

Action 8.2 Improve participation of all member countries in BIO activities.

- **Task 8.2.1** Select topics for working groups and topic sessions of broad interest among all PICES member countries and maintain broad representation among co-conveners.

Goal 9. Create education and training opportunities.

Action 9.1 Promote training courses and summer schools in relation to biological oceanography in the Pacific rim.

Theme E. *Ensure a progressive organization*

Goal 10. Provide an effective infrastructure to support PICES activities.

Action 10.1 Create and oversee expert groups to support FUTURE and other scientific activities.

- **Task 10.1.1** Make recommendations to the Science Board on the establishment of new expert groups to support FUTURE and other scientific activities.
- **Task 10.1.2** Delegate representatives as members of the FUTURE Advisory Panels to effectively communicate with the FUTURE Advisory Panels.
- **Task 10.1.3** Oversee and coordinate the activities of the daughter expert groups through communication with the FUTURE Advisory Panels.