

**Address to ICES' session of national Delegates, from PICES
on the occasion of ICES' Centenary**

Dr. Hyung-Tack Huh, Chairman, North Pacific Marine Science Organization

It is my great pleasure to extend the congratulations of the North Pacific Marine Science Organization to you, the International Council for the Exploration of the Sea, on the celebration of your Centenary. One hundred years of marine science in the North Atlantic is truly an unparalleled achievement, and one to which other international marine science organisations can only aspire. In fact, some of you may wonder why the name of our organisation is the "North Pacific Marine Science Organization", yet our nick-name is "PICES": P-I-C-E-S. It stands for "Pacific-ICES", which clearly indicates which organisation the founders of PICES had in mind when we began 10 years ago!

So many of the most significant discoveries and advances in the marine sciences have occurred in the North Atlantic and within ICES over the past 100 years that it is difficult to imagine the marine sciences without ICES. Concepts such as the "classical" dynamics of spring plankton blooms, processes controlling the recruitment and population dynamics of marine fishes, and the design and co-ordination of international marine research programs, among many others, were all nurtured within ICES and its member nations. The ability for ICES to continue functioning when its funding comes from the member nations is also an achievement which indicates sensitivity to the needs and interests of these members.

As Dr. Perry will show, PICES has many similarities with ICES – some by design, and some by the nature of the current problems in the marine sciences. But there are also some differences, perhaps reflecting the differences between the Atlantic and Pacific Oceans, and the cultural differences among the member nations. Ultimately, however, these similarities and differences provide rich material for ICES and PICES to develop common and collaborative efforts to explore, and solve, at least some of the significant marine sciences problems of our times; problems such as the combined impacts of climate and human activities on marine ecosystem, and the consequences and interactions of marine ecosystem changes to human society. In the process, I am certain that we will discover new and unforeseen, but exciting, challenges.

The ICES vision is indeed worth sharing: "an international scientific community that is relevant, responsive, sound, and credible, concerning marine ecosystems and their relation to humanity".

Congratulations!

Dr. Ian Perry, Chair, Science Board, North Pacific Marine Science Organization

I will describe PICES: its goals and objectives; organisational structure; activities; and suggest ways in which ICES and PICES might interact more closely.

The purposes of PICES as defined in our convention are:

- (a) to promote and coordinate marine scientific research in order to advance scientific knowledge of the area concerned and of its living resources, including but not necessarily limited to research with respect to the ocean environment and its interactions with land and atmosphere, its role in and response to global weather and climate change, its flora, fauna and ecosystems, its uses and resources, and impacts upon it from human activities; and
- (b) to promote the collection and exchange of information and data related to marine scientific research in the area concerned.

These translate to the operational functions of:

- 1) Identify and prioritise relevant scientific research;
- 2) Promote and co-ordinate scientific research that facilitates an integrated evaluation of the status of the North Pacific and its ecosystems;
- 3) Promote the collection and synthesis of data;
- 4) Promote the exchange of scientific information and data; and
- 5) Capacity building

The PICES convention was signed in 1992, and presently there are 6 members: Canada, China, Japan, Korea, Russia, and the United States.

Organisationally, PICES is structured with a

- Governing Council, whose members represent and are appointed by National Governments; under which is the
- Science Board, which is charged with overseeing the scientific work of PICES. Under the Science Board are
 - 4 Standing Scientific Committees:
 - Physical Oceanography and Climate
 - Biological Oceanography
 - Fishery Science
 - Marine Environmental Quality
 - a Technical Committee on Data Exchange; and currently
 - one Scientific Program; the Climate Change and Carrying Capacity (CCCC) Program.

The Scientific Committees meet once per year, with most of their on-going work being conducted by Working Groups or Task Teams. In general these latter are small groups focussed on specific topics or issues, with durations that may range from 1-5 years.

There is also a Secretariat, located in Sidney, B.C., Canada, which has a staff of four.

Activities

It is appropriate, here, to describe PICES activities and the potential for ICES-PICES interaction in the context of the 10 Goals that ICES has defined for itself in the recent ICES Strategic Plan.

ICES Goal 1. *Understand the physical, chemical, and biological functioning of marine ecosystems.*

PICES has strong complements to ICES in this goal. PICES and ICES, along with other organisations, were co-sponsors of the symposium held this past spring on the “Marine Mortality of Salmon”. PICES and ICES are also major co-sponsors, along with GLOBEC, of the zooplankton symposium scheduled for May 2003 in Gijon, Spain. ICES, and recently PICES, have on-going open ocean monitoring programs which include use of the Continuous Plankton Recorder.

Both ICES and PICES have important Regional Programs of GLOBEC, the Global Ocean Ecosystem Dynamics study. PICES’ program, however, is more broadly focussed than your ICES program on Cod and Climate Change. The PICES program is Climate Change and Carrying Capacity (CCCC). It was formed in the early years of PICES as our major interdisciplinary and integrating program, with the ultimate goal “to forecast the consequences of climate variability on the ecosystems of the subarctic Pacific”. The general question was posed: “how do interannual and decadal variations in ocean conditions affect the species dominance, biomass, and productivity of the key zooplankton and fish species in the ecosystems of the PICES area?” Scientific activities of CCCC are conducted by four Task Teams dealing with: modeling, monitoring, basin-scale studies, and regional experiments.

From this wealth of activities of common interest, a number of themes emerge which we might consider exploring together, in fact, some demand (or require) that we explore them together:

- coherence of zooplankton and fish population responses (variability) over large spatial and long temporal scales, including issues of climate-fisheries interactions and teleconnections;
 - e.g. ICES and PICES might agree to a joint workshop or working group to examine the extent to which the physics and ecosystems of the North Pacific and North Atlantic respond to the same atmospheric forcing, and at what response times? Here I note a planning workshop with the title “Climate variability, zooplankton abundance and distributions – comparative opportunities from the world’s oceans” has been proposed in conjunction with the Gijon zooplankton symposium next year.
- Or we might ask more specific questions, for example:
 - Cross-basin comparative studies of herring or groundfish (such as gadoids);
 - Similar modelling issues are being explored in ICES and PICES which might benefit from collaboration, such as linkages between open ocean and coastal habitats;
 - Role and significance of meso- and bathy-pelagic species to the ecosystems in each ocean;
 - Comparative study of high latitude, sub-polar seas, such as the Bering, Barents, and Labrador. Note there was a recent US planning workshop on this topic in September.

ICES Goal 2. *Understand and quantify human impacts on marine ecosystems, including living marine resources.*

PICES’ CCCC program is also concerned with this goal, along with your Cod and Climate Change and ecosystem effects of fishing programs. PICES and ICES also have similar efforts on-going with regards to harmful algal blooms, and in fact some of the members on the two committees are the same people. There is obvious potential for closer interactions and co-ordination. PICES also recently completed a Practical Workshop to evaluate and compare methodologies to assess the impact of pollutants.

PICES is developing a North Pacific Ecosystem Status Report which will integrate and synthesise information on atmospheric, hydrographic, chemical, and biological conditions around

the North Pacific, as well as identify the significant drivers causing changes to these ecosystems and the potential consequences of these changes. This is a major effort which, once operational, is intended to be a regular assessment. There are obvious opportunities here for collaborations with several ICES activities, including ocean monitoring, development of summary indices, and the ecosystem consequences of fishing.

ICES Goal 3. *Evaluate options for sustainable marine-related industries, particularly fishing and mariculture.*

PICES does not have the same responsibilities here as does ICES. However, PICES is moving to recognise and include the human dimension more explicitly. The theme for the PICES meeting in 2003 is “Human Dimensions of Ecosystem Variability” with the goal of highlighting the many ways that humans interact with marine ecosystems and the scientific efforts to quantify and predict human impacts. This is similar to the ICES goal of researching methods for assessing the social and economic aspects of human interactions with marine ecosystems, and could be a profitable subject for ICES-PICES collaborations.

ICES Goal 4. *Advise on the sustainable use of living marine resources and protection of the marine environment.*

In contrast to ICES, PICES does not have an explicit mandate to prepare scientific advice on fish stocks. However, the North Pacific Ecosystem Status Report may become a process by which scientific advice on more general issues of concern to the marine systems of the North Pacific is developed and evaluated. PICES does currently have a Working Group on Climate Change and Fisheries Management, which is due to complete its report shortly. A new Working Group has been proposed to evaluate ecosystem-based approaches to fisheries management which, since it is also a topic of interest to ICES, might benefit from joint membership with ICES.

ICES Goal 5. *Enhance collaboration with organisations, scientific programmes, and stakeholders that are relevant to the ICES goals.*

ICES Goal 6. *Maintain and further develop a modern and effective infrastructure to support ICES programmes.*

ICES Goal 7. *Keep abreast of the needs and expectations of ICES member countries.*

ICES Goal 8. *Broaden the diversity of the scientists who participate in ICES activities.*

ICES Goal 9. *Match the budget of ICES to the needs and expectations for scientific information and advice.*

ICES Goal 10. *Make the scientific products of ICES more accessible to the public.*

All of these goals are also either explicitly or implicitly those of PICES. They are not easy to implement, and PICES will appreciate ongoing discussions with ICES, e.g. especially on Goal 9 !

In conclusion, I must underline that PICES and ICES are already co-operating by sponsoring a number of activities (mostly meetings), and that ICES and PICES already have a Memorandum of Understanding on scientific co-operation. So the mechanisms would seem to be

in place for increased interaction. For such interaction, there are perhaps four major themes that can be distilled from those that I have presented:

- teleconnections, and the similarity of forcings and comparisons of responses of Atlantic and Pacific Oceans;
- evaluating, summarising, and conveying the state of marine ecosystems;
- harmful algal blooms;
- ecosystem-based approaches to management of marine resources.

I would also like to hear of any ideas that you may have. Ultimately, however, the initiative must come from the working scientists, therefore the problems must be perceived as interesting and generally fit in with and extend existing work, or be sufficiently new and novel to capture their imagination and enthusiasm. If this happens, we should have no trouble developing on-going and active interactions between ICES and PICES, that would broaden the CCC program of ICES and the CCCC program of PICES to the “7 C’s” program !