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PICES and IPHC: Continuing Connections

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The North Pacific Marine Science Organization (PICES) is an intergovernmental scientific organization established by an international convention in 1992, in order to promote and coordinate marine scientific research in the North Pacific and adjacent seas. Our current member countries are Canada, Japan, People's Republic of China, Republic of Korea, Russian Federation and the United States of America. In 25 years since its establishment, PICES has become a major forum for marine science in the North Pacific. Information on the Organization and its activities can be found on the PICES website at http://www.pices.int.

PICES and IPHC are both regional intergovernmental organizations with overlapping geographical areas and common interests in the sub-Arctic regions of the North Pacific Ocean. PICES was created to communicate and foster science that will lead to better understanding of the physical, chemical and ecological functioning of the North Pacific, including information on human activities affecting, and affected by marine ecosystems. IPHC was established for the preservation of the Pacific halibut fishery in waters off Canada and the United States of America. Despite the objectives of the two organizations have different emphasis, PICES and IPHC have been working together for almost two decades, with a good record of joint activities.

- IPHC has been on the PICES radar since the establishment of our Organization and was included in the Standing List of the most relevant international and regional organizations and programs for potential partnerships at the first PICES Annual Meeting in 1992. A PICES/IPHC MOU on scientific cooperation was signed in January 2000. The exchange of observers at each other's annual meetings, which unfortunately became less regular in the recent years (after 2010), is important for facilitating future collaborations between the two organizations.

- Facilitating the development and dissemination of the concept of decadal ecosystem regime shifts is one of PICES major achievements, and a stepping stone on this road was a 1-day Science Board Symposium on "*Nature and impacts of North Pacific climate regime shifts*" held on October 15, 1999, at the PICES Eighth Annual Meeting in Vladivostok, Russia. The symposium led to the publication of a special issue of *Progress in Oceanography* (2000, Vol. 47, No. 2–4, pp. 99–408), with 12 papers co-authored by scientists from 5 PICES member countries. Dr. Steve Hare from IPHC served as a co-convenor for the symposium and a co-Guest Editor for the special issue.

- The Beyond El Niño Conference on "*Pacific climate variability and marine ecosystem impacts*" held March 23–26, 2000, in La Jolla, USA, was the first event that PICES organized with multiple international partners – four international fisheries commissions, including IPHC [$10,000 US], and SCOR. The objective of the conference was to consider the current state of knowledge of climate and marine ecosystem variability on all temporal scales, including the concept of "regime shifts", and examine the implications of climate-induced variability in fish populations and the management of their use. A total of 144 papers were presented.

  A conference summary was published in the summer 2000 issue of PICES Press (Vol. 8, No. 2). The conference also resulted in the largest special issue ever produced by the journal *Progress in Oceanography* (2001, Vol. 49, Nos. 1–4, pp. 1-639) – 32 papers with lead authors from 12 countries.

  The success of this new type of endeavour led to a series of springtime symposia, organized primarily by PICES.

- IPHC co-sponsored [$6,000 US] the PICES/ICES/FAO symposium on "*Climate change effects on fish and fisheries: Forecasting impacts, assessing ecosystem responses, and evaluating management strategies*", held April 25–29, 2010, in Sendai, Japan. The symposium was designed to provide an opportunity for scientists and policymakers to discuss the potential impacts of climate change on marine ecosystems, and our use of the resources provided by these ecosystems. A total of 337 scientists from 37 countries were in attendance, with 208 oral presentations and 105 posters.

A summary of the symposium was published in the summer 2010 issue of PICES Press (Vol. 18, No. 2). The detailed account of the symposium was included in the report of the PICES/ICES Working Group on Forecasting Climate Change Impacts on Fish and Shellfish (PICES Scientific Report, 2013, No. 45, 197 pp.). A symposium overview and 35 papers co-authored by scientists from around the globe were published in a special issue of *ICES Journal of Marine Science* (2011, Vol. 68, No. 6, pp. 983–1383).

- IPHC co-sponsored [$6,000] the second PICES/ICES/IOC symposium on "*Effects of climate change on the world's oceans*" held May 13–20, 2012, in Yeosu, Korea, as one of the official academic events related to the Ocean Expo-2012. The symposium aimed to bring together expert from different disciplines to exchange results and ideas at a global scale and to discuss the opportunities to mitigate and protect the marine environment and its living resources. One of goals was to accelerate research and publications on a diversity of oceanic themes to ensure more emphasis on impacts of climate change on marine ecosystems in the Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC). A total of 326 scientists from 31 countries contributed 208 oral and 79 poster presentations to the symposium.

  A summary of the symposium was published in the summer 2012 issue of PICES Press (Vol. 20, No. 2). Selected papers from the symposium constituted a special issue of *ICES Journal of Marine Science* (2013, Vol. 70, No. 5, pp. 915–1054).

- Though PICES does not have any specific short term advisory role, as provided by fishery commissions, it works to strengthen foundations on which good management depends. Requests for advice can be unsolicited or requested by a member country or an organization. The North Pacific Ecosystem Status Report (NPESR) Series is the flagship project for PICES, and the first extensive unsolicited advice that PICES has produced. Two reports were published so far, in 2004 (PICES Special Publication No. 1, 280 pp.) and in 2010 (PICES Special Publication No. 4, 393 pp.). Each report reviews and assesses the status and trends of marine ecosystems in the North Pacific to contribute to sustainable use of resources in the region. The work is in progress on the next NPESR. IPHC provided information on species of their concern for the first PICES NPESR.

  IPHC participated in the PICES/CoML/IPRC workshop on "*Impact of climate variability on observation and prediction of ecosystem and biodiversity changes in the North Pacific*" held March 7–9, 2001, in Honolulu, USA. This workshop was the first step in reviewing the goals and strategies for observing North Pacific marine ecosystems and their biodiversity in order to improve our ability to predict ecosystem changes. One of the main purposes of the workshop was to facilitate the compilation of knowledge and data (with emphasis on time-series of data) into a North Pacific Ecosystem Status Report, and to identify the approach for producing the report. A summary of the workshop was included in the summer 2001 issue of PICES Press (Vol. 9, No. 2), and the full workshop report was published as PICES Scientific Report (2001, No. 18, 209 pp.).