International GLOBEC Symposium on "*Climate variability and Sub-Arctic marine ecosystems*"

Background and objectives

Sub-Arctic seas support extraordinarily rich marine resources, which provide food and wealth to local communities. These seas include: the Okhotsk Sea, Oyashio shelf region, Bering Sea, Hudson Bay, Newfoundland/Labrador shelves, Gulf of St. Lawrence, Greenland shelves, Iceland regions, the Nordic Seas and the Barents Sea. These seas share several features in common: seasonal ice cover, freshwater from ice-melt and runoff, dramatic seasonality, reduced sunlight and low biodiversity. Recently, changes in species abundance or distribution have been observed within several Sub-Arctic marine ecosystems. A symposium on climate effects on the Sub-Arctic marine ecosystems is timely because these recent changes appear to correlate with fluctuations in the physical environment, and because of the growing concern about anthropogenically induced climate change. Also, several new national programs in Sub-Arctic seas have recently been initiated, *e.g.* Bering Ecosystem Study (BEST), Effects of North Atlantic Climate Variability on the Barents Sea Ecosystem (ECOBE), Ecosystem West Greenland (ECOGREEN), and the Oyashio-pollock project in Japan. Additionally, a new GLOBEC regional program, Ecosystem Studies of Sub-Arctic Seas (ESSAS), is in the planning stage (Fig. 1). This symposium offers the opportunity to influence the implementation plans of ESSAS and BEST.

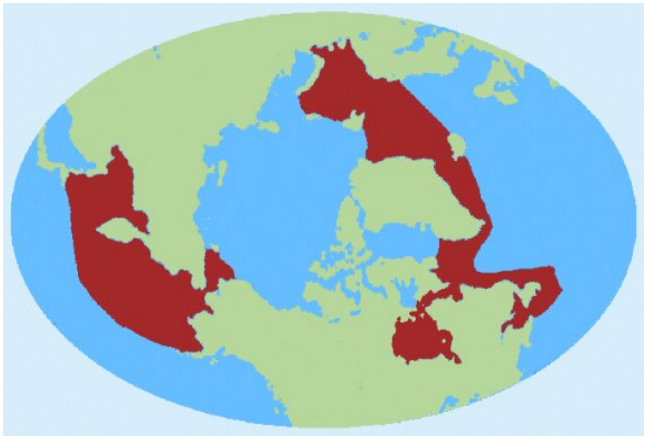

Fig. 1 The ESSAS regions.

Scientific program

The symposium's scientific objective is *to present current knowledge of the effects of seasonal to multi-decadal climate variability on the structure and function of Sub-Arctic marine ecosystems*. Papers, particularly inter-disciplinary or comparative ones, are invited on the following topics:

- large-scale climate forcing on the physical oceanography of Sub-Arctic seas;
- processes structuring Sub-Arctic ecosystems (sea ice, low temperatures, low species diversity, etc.);
- the transfer and fate of energy through subarctic food webs, from primary producers through zooplankton and benthic fauna to fish, seabirds, marine mammals and fisheries;
- recent changes in subarctic ecosystems, time scales of variation and possible causes;
- inter-comparisons between Sub-Arctic marine ecosystems.

Papers on related topics will also be considered. Scientists are invited to submit titles and abstracts (maximum of 250 words) for oral presentations or posters, through the GLOBEC website (http://www.globec.org). All abstracts will be reviewed for merit and relevance. **The deadline for abstract submission is December 1, 2004.**

Symposium structure

The symposium will have a combination of plenary sessions in the mornings, and parallel sessions in the afternoons. Keynote speakers will provide 40-minute introductions and challenges to selected topics. Contributed papers that are accepted will be 20 minutes in length. Posters will be displayed throughout the meeting, and sufficient time will be provided for discussion with authors. Workshops on BEST and ESSAS will be held on the first and last days of the symposium. The official language of the symposium will be English.

Publication

The symposium proceedings will be published in a refereed journal yet to be selected. Papers, including those based on poster presentations, will be considered for publication following peer review. Interested authors will be required to submit an electronic version of their manuscript in standard format at the time of the meeting.

Participation

The symposium is open to all scientists and students interested in Sub-Arctic marine ecosystems.

Registration fees

Those attending are invited to register by **December 1, 2004.** A registration fee of $250 US ($150 for students) will be charged to help cover the costs of the symposium. Late registration is $350 US ($250 for students). Limited support for student participation is expected to be available. Applications for student support must be made by **December 1, 2004**. Registration, abstract submission

and student support application will be through the GLOBEC website.

Important dates

- December 1, 2004: Deadline for early registration and abstract submission and for application of Student Support Grants;
- February 1, 2005: Notification of abstract acceptance;
- April 1, 2005: Notification of Student Support Grants;
- May 17, 2005: Submission of electronic versions of papers.

Co-Convenors

George L. Hunt, Jr. (University of California, Irvine, U.S.A.)
Ken Drinkwater (Institute of Marine Research, Bergen, Norway)

Scientific Steering Committee

Olafur S. Astthorsson (Marine Research Institute, Reykjavik, Iceland)
Manuel Barange (GLOBEC IPO, Plymouth, UK)
Mickle Flint (Shirshov Institute of Oceanology, Moscow, Russia)
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Hans-Jurgen Hirche (Alfred Wegner Institute, Bremerhavn, Germany)
Eileen Hofmann (Old Dominion University, Norfolk, U.S.A.)
Anne Hollowed (Alaska Fisheries Science Center, Seattle, U.S.A.)
Michael Kingsley (Greenland Institute of Natural Resources, Nuuk, West Greenland)
Michio J. Kishi (Hokkaido University, Hakodate, Japan)
Harald Loeng (Institute of Marine Research, Bergen, Norway)
Bernard Megrey (Alaska Fisheries Science Center, Seattle, U.S.A.)
Ian Perry (Pacific Biological Station, Nanaimo, Canada)
Sei-ichi Saitoh (Hokkaido University, Hakodate, Japan)
Yasunori Sakurai (Hokkaido University, Hakodate, Japan)
Kurt Tande (University of Tromsø, Norway)
Terry Whitledge (University of Alaska, Fairbanks, U.S.A.)

PICES Calendar

- PICES-MODEL Workshop on "*Development of a model on coupled responses of lower and higher trophic levels for climate variability in the North Pacific*", August 20-23, 2004, Seattle, U.S.A.
- PICES Thirteenth Annual Meeting, October 14-24, 2004, Honolulu, U.S.A. (http://www.pices.int)
- APN/PICES Workshop on "*Climate interactions and marine ecosystems: Effects of climate on the structure and function of marine food webs and implications for marine fish production in the North Pacific Ocean and marginal seas*", October 10-13, 2004 (in conjunction with PICES XIII)
- PICES-CCCC Workshop on "*Seasonal cycles of plankton and nutrients around the North Pacific Rim*", October 14, 2004, (in conjunction with PICES XIII)
- PICES-MBMAP Workshop on "*Combining data sets on diets of marine birds and mammals - Phase II*", October 14, 2004 (in conjunction with PICES XIII)
- PICES/IOC Workshop on "*Developing a North Pacific HAB data resource*", October 15, 2004 (in conjunction with PICES XIII)
- PICES-CCCC Workshop on "*Linking open ocean and coastal ecosystems II*", October 15-16, 2004 (in conjunction with PICES XIII)
- PICES/CLIVAR Workshop on "*Scale interactions of climate and marine ecosystems*", October 23-24, 2004 (in conjunction with PICES XIII)
- GLOBEC/PICES Symposium on "*Climate variability and sub-Arctic marine ecosystem*", May 16-20, 2005, Victoria, Canada (see this issue, page 34)
- CREAMS/PICES/WESTPAC Workshop (with training component) on "*NEAR-GOOS Seas Circulation: What we know and how well can we forecast?*", summer 2005, near Vladivistok, Russia
- NPAFC/PICES Symposium on "*Pacific salmon as indicators of the state of North Pacific ecosystems*" (tentative title), November 2005, Seoul, Korea
- PICES Fourteenth Annual Meeting, September 30-October 8, 2005, Vladivostok, Russia
- ICES/PICES theme session on "*Fisheries, ecology and life history of small pelagic fish*" at the ICES Annual Science Conference, September 2005, Aberdeen, Scotland
- ICES/PICES symposium on "*Marine bioinvasions*", spring 2006, east coast of U.S.A.
- PICES/GLOBEC symposium on "*Climate variability and ecosystem impacts on the North Pacific: A basin-scale synthesis*", April 19-21, 2006, Honolulu, U.S.A. (see this issue, page 36)
- PICES/ICES Young Scientist Conference, spring 2006 or 2007, venue TBD
- 4th International Zooplankton Production Symposium (co-sponsored by PICES, GLOBEC and ICES), spring 2007, Hiroshima, Japan

PICES/GLOBEC Symposium on *"Climate variability and ecosystem impacts on the North Pacific: A basin-scale synthesis"*

Symposium description and science themes

Atmospheric forcing, ocean structure, and ecosystem structure and population dynamics vary on many spatial and temporal scales. Dominant temporal scales are diel, seasonal, interannual and longer. In the past ten to fifteen years, marine scientists have begun to document evidence that basin-wide or large-scale changes might be significant forcing for decadal to millennium-scale changes in marine ecosystems. In 1994, the PICES Climate Change and Carrying Capacity (CCCC) Program, a regional program of the IGBP/SCOR/IOC GLOBEC International, was developed to provide a framework for examining climate-ecosystem linkages, mostly on regional scales, but with plans for broader-scale, basin-wide synthesis, in the North Pacific. The primary scientific objective of this symposium is to present a synthesis of the effects of seasonal to multi-decadal variability on the structure and function of the North Pacific that goes beyond the analysis and understanding developed from studies of a single trophic level, process or region—a True Synthesis.

We invite papers that provide interdisciplinary or multi-regional comparisons on the specific science themes of the symposium:

- **Regime shifts**, especially, examination of the ocean and ecosystem responses to known strong, infrequent changes in the North Pacific, such as those that occurred in 1977, 1989, and 1998;
- **Ecosystem productivity and structural responses to physical forcing**, with an emphasis on shorter than inter-decadal time-scales—interannual (El Niño-La Niña), seasonal and event scales; and
- **Pan-Pacific comparisons**, with an emphasis on comparisons of similar species or processes from multiple coastal ecosystems and of open ocean-coastal linkages and climate connections.

Papers on related topics will also be considered.

Dates and venue

The symposium will be held April 19-21, 2006, at the Hawaii Imin International Conference Center (East-West Center) in Honolulu, U.S.A.

Symposium structure

The symposium will have a combination of plenary oral sessions and poster sessions each day. Keynote speakers will provide 40-minute overviews and challenges for each science theme. Contributed papers that are accepted will be 25 minutes in length. Number of posters displayed each day will be limited, and poster-only time will be provided for discussion with authors. The official language of the symposium will be English.

Publication

The symposium proceedings will be published in a refereed journal still to be determined. Papers, including those based on poster presentations, will be considered for publication following peer review. Interested authors will be required to submit one paper copy and an electronic version of their manuscript at the time of the meeting. Copies of the proceedings will be sent to all registered participants.

Registration and abstracts

Those wishing to attend are invited to register and submit abstracts (maximum of 300 words) through the PICES website (http://www.pices.int). **The deadline for early registration and abstract submission is November 4, 2005.** A registration fee of CDN$ 225 (CDN$ 150 for students) will be charged to help cover costs of the symposium. Late registration (after November 4) is CDN$ 325 (CDN$ 225 for students) and subject to availability of space. Because of venue arrangements and the intent for only plenary sessions and posters, we are limited to *ca*. 40 oral talks and 90 poster presentations during this symposium. In the event that response (abstract submission) exceeds this, the Steering Committee will consider abstract merit and relevance, and date of submission in determining abstract acceptance. Authors of accepted abstracts will be notified by January 4, 2006.

Co-Convenors

Harold (Hal) P. Batchelder (Oregon State University, Corvallis, Oregon, U.S.A.)

Suam Kim (Pukyong National University, Pusan, Korea)

NEW!!!!
PICES Report on Marine Ecosystems of the North Pacific

A pre-publication version is available on the PICES Website (http://www.pices.int/publications/default.aspx). Comments and inquiries about this report can be sent to mckinnell@pices.int. A printed version is anticipated in early 2005.

PICES PRESS

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