

REPORT OF THE IMPLEMENTATION PANEL ON THE CCCC PROGRAM



The Executive Committee of the Climate Change and Carrying Capacity Program Implementation Panel (hereafter CCCC-IP/EC) met from 18:00–20:00 hours on October 15, 2006. The meeting was chaired by Drs. Harold P. Batchelder and Suam Kim. The Co-Chairmen welcomed the participants, and after brief introductions of those present (*CCCC-IP Endnote 1*), the draft agenda was reviewed and adopted with slight modifications (*CCCC-IP Endnote 2*).

Business from PICES XIV (Agenda Item 3)

The minutes from PICES XIV (October 2005, Vladivostok, Russia) were accepted as is. No other items on-going from last year's meeting required discussion.

Review of procedures for Best Presentation Awards and Closing Ceremony

Awards for CCCC Best Oral and Poster Presentations were announced at the Closing Session. The Secretariat provided a list of presentations that were eligible for this award. Drs. Batchelder and Kim agreed to serve as judges to determine the best CCCC oral presentation from the eligible papers in the CCCC Topic Sessions (S6), FIS/CCCC Topic Session (S7) and the CCCC Paper Session. Dr. Batchelder was nominated and agreed to select the CCCC best poster for PICES XV. Ms. Muzzneena Ahmad Mustapha (Hokkaido University, Japan) won the CCCC Best Oral Presentation Award for her paper (co-authored by Sei-Ichi Saitoh) on "*Interannual variations of sea ice and spring bloom occurrences at the Japanese scallop farming area in the Okhotsk Sea*", presented at the CCCC Paper Session. Ms. Yasuko Kamezawa (Hokkaido University, Japan) won the CCCC Best Poster Presentation Award for her paper (co-authored by Tomonori Azumaya, Toru Nagazawa and Michio J. Kishi)

on "*Bioenergetics model of Japanese chum salmon (Oncorhynchus keta) growth*", presented at the FIS/CCCC Topic Session (S7).

Documentation of scientific sessions (Agenda Item 4)

CCCC-IP/EC discussed responsibilities for documenting CCCC-sponsored Topic Sessions and workshops at PICES XV. Dr. Suam Kim reminded the Committee that documentation of scientific sessions and workshops is required of session/workshop convenors. At PICES XV this responsibility rests with: Dr. Shin-ichi Ito for the CCCC Topic Session (S6) on "*Modeling and historical data analysis of pelagic fish, with special focus on sardine and anchovy*"; Dr. Akihiko Yatsu for the FIS/CCCC Topic Session (S7) on "*Key recruitment processes and life history strategies: Bridging the temporal and spatial gap between models and data*"; Dr. Suam Kim for the CCCC Paper Session; Dr. Fei Chai for the IFEP/MODEL Workshop (W1) on "*Modeling iron biogeochemistry and ocean ecosystems*", and Dr. Kerim Y. Aydin for the CCCC Workshop (W7) on "*Climate forcing and marine ecosystems*". These session and workshop summaries were provided to Dr. Batchelder by the end of Friday, October 20, and are included in the *Session Summaries* chapter of this Annual Report.

Progress reports of Task Team activities (Agenda Item 5)

CCCC-IP/EC received reports of CCCC Task Team activities from Co-Chairmen of MODEL and CFAME. On October 20, both Task Teams provided final reports that included a summary on their progress since PICES XIV and recommendations and planned activities for 2007, and even some for 2008.

Items of significance for CFAME were:

- review of activities from the January 2006 CFAME workshop (Tokyo, Japan), April 2006 CCCC Symposium (Honolulu, U.S.A.) and October 2006 CFAME workshop (Yokohama, Japan);
- discussion of future work within the CFAME Terms of Reference;
- discussion on the theme for the next major PICES scientific program (FUTURE);
- overview of the Bering Sea Ecosystem Study (BEST) of the GLOBEC regional program on Ecosystem Studies of Sub-Arctic Seas (ESSAS), and plans of the June 2007 ESSAS workshops in Hakodate, Japan;
- plans for an inter-sessional CFAME workshop in the spring of 2007 and a joint WG 20/CFAME workshop at PICES XVI in Victoria, Canada. WG 20 is developing scenarios of future climate in the North Pacific for use by CFAME (and others) to allow them to evaluate potential changes in marine ecosystems. The results of the spring 2007 inter-sessional workshop would be CFAME's contribution to the June 2007 ESSAS workshops and the October 2007 WG 20/CFAME workshop; and
- selection of a new CFAME Co-Chairman.

During the MODEL Task Team meeting the participants discussed:

- the accomplishments of MODEL over the past year;
- the outline for the next major PICES scientific program (FUTURE);
- plans for 2006–2007;
- requests for travel to future meetings;
- various new businesses; and
- the MODEL membership and selection of a new MODEL Co-Chairman.

Details of these discussions are provided in the MODEL and CFAME Task Team reports.

GLOBEC's activities on synthesis and integration (Agenda Item 6)

Drs. Francisco E. Werner (Chairman of GLOBEC-International SSC) and Dr. Manuel Barange (Executive Director of GLOBEC IPO) attended the CCCC IP/EC meeting to describe the synthesis and integration activities of

GLOBEC-International. GLOBEC-International ends in 2009, however, the recently established regional programs of GLOBEC such as CLIOTOP (Climate Impacts on Oceanic Top Predators) and ESSAS will continue beyond 2009, probably as part of a new science program of IGBP (International Geosphere-Biosphere Programme) called IMBER (Integrated Marine Biogeochemistry and Ecosystem Research). GLOBEC International and IMBER are exploring ways to merge these continuing GLOBEC programs into future IMBER activities. Funding was also kindly offered by GLOBEC-International to support travel costs of scientists from non-PICES nations to CCCC-related sessions at PICES XVI.

FUTURE – new PICES integrative scientific program (Agenda Item 7)

CCCC members reviewed the draft outline for a new PICES integrative scientific program on *Forecasting and Understanding Trends, Uncertainties and Responses of the North Pacific Ecosystem* (FUTURE). There was consensus that the direction of the proposed program is good, and that the focus is consistent with past and ongoing activities of the CCCC Program. Two major differences between CCCC and FUTURE are the emphasis on forecasting and on education, communication and outreach in the latter. FUTURE is consistent with the planned activities of MODEL and CFAME, and it is envisioned that the activities of these two Task Teams could become part of FUTURE.

There were, however, a number of concerns expressed by CCCC members about the FUTURE plan:

- The proposal emphasizes scientific work in a policy and management context, but the identity of the “clients” was not clear. Is it resource managers, the general public, or both?
- FUTURE is substantially different from CCCC in that FUTURE has an external constituency – there was a lack of consensus among CCCC members whether this constituency and the associated outreach and communication that are needed to “connect”

science with management/policy would require a different approach to science. Some members felt that the best approach was for scientists themselves to take on the task of communicating science to policy makers, but others felt that specialized experts in communication will be required.

- Although forecasts are technically feasible, the quality of forecasts will be a major issue. It will be very important that forecasts intended for policy decisions include estimates of uncertainty (probabilities), similar to what is presently done in weather forecasting. In particular, ecosystem models cannot yet provide useful long-term forecasts.
- PICES should be focused on doing good science, not on tailoring science to perceived management needs; if science is high quality and assists policy makers in decision-processes, then managers will embrace the science.
- Management systems and processes for connecting science to management may need to be tailored specifically for individual member countries, and it is not clear that a single program can address the needs of all.
- Scientific issues should be forwarded to the managers properly, and the focus on management and communications could require a new group within PICES such as an advisory panel to interpret science for management and the public. Research scientists may not be the best people to play the science policy role.
- The research on climate forcing and marine ecosystem responses needs to also include an emphasis on the short- and long-term effects of episodic events such as jellyfish outbreaks and hurricanes.

Changes in CCCC-IP/EC and Task Team membership (Agenda Item 8)

The CCCC-IP/EC decided to:

- Endorse requests to replace Drs. Akihiko Yatsu and Shin-ichi Ito with Drs. Young-Shil Kang (Korea) and Hao Wei (China) as new Co-Chairmen of CFAME and MODEL, respectively;

- Consider MODEL's request for nomination of two new members from Russia (instead of Drs. Irina Ishmukova and Gennady Kantakov), and addition of one new member (TBD) from Canada.

CCCC-IP/EC asked Dr. Batchelder to continue his chairmanship until the conclusion of the CCCC synthesis phase and development of the next PICES integrative scientific program, or through PICES XVIII (2009), whichever comes earlier. Dr. Michio J. Kishi has been elected as a new CCCC-IP/EC Co-Chairman, replacing Dr. Suam Kim.

Suggested changes in membership will be forwarded to Science Board and Governing Council for further actions.

The Executive Committee thanked the out-going Co-Chairmen (Drs. Yatsu, Ito, and Kim) for their leadership and contributions.

Proposals for new subsidiary bodies (Agenda Item 9)

The Executive Committee did not receive any proposals for new subsidiary bodies.

Planning for PICES XVI (Agenda Item 10)

The following scientific sessions and workshops were proposed:

- a 1-day CCCC/FIS Topic Session on "*Towards ecosystem-based management: Recent developments and successes in multi-species modeling*" (MODEL Endnote 3);
- a 1-day POC/CCCC/MONITOR Topic Session on "*Operational forecasts of oceans and ecosystems*" (POC Endnote 4);
- a 1-day FIS/CCCC/BIO Topic Session on "*Fisheries interactions and local ecology*" (FIS Endnote 4);
- a 1-day CCCC Contributed Paper Session (CCCC Endnote 3); and
- a 1- or 1½-day POC/CCCC workshop, preceding the 2007 Annual Meeting, on "*Climate scenarios for ecosystem modeling*" (CFAME Endnote 4).

Theme proposal for PICES XVII (Agenda Item 11)

CCCC-IP/EC had no specific suggestions concerning the theme of the Science Board Symposium at PICES XVII (October 2008, Dalian, China).

CCCC inter-sessional activities and travel support requests/priorities for October 2006-October 2007 (Agenda Item 12)

The following inter-sessional meeting was proposed for the period between October 2006 and October 2007:

- A CFAME inter-sessional workshop (CFAME Endnote 3) on “*Linking climate-forcing mechanisms to indicators of species ecosystem-level changes: A comparative approach*” in preparation for active collaboration with WG 20, possibly held in North America in the spring of 2007. CCCC-IP/EC endorsed the CFAME request to support 2 invited speakers for this workshop (priority level 1).

CCCC-IP/EC requests travel support for:

- 2–3 CCCC scientists to attend the 4th International Zooplankton Production Symposium to be held May 28–June 1, 2007, in Hiroshima, Japan; it was noted that this symposium is co-sponsored by PICES;
- 1 invited speaker for the CCCC/FIS Topic Session on “*Towards ecosystem-based management: Recent developments and successes in multi-species modeling*” (priority level 2);
- 1 invited speaker for the POC/CCCC/MONITOR Topic Session on “*Operational forecasts of oceans and ecosystems*” (priority level 2);
- 1 member of CFAME to attend the June 2007 ESSAS workshops (priority level 3).

Report of the April 2006 CCCC Symposium (Agenda Item 13)

Dr. Batchelder reported on the PICES/GLOBEC symposium on “*Climate variability and ecosystem impacts on the North Pacific: A basin-scale synthesis*” held April 19–21, 2006,

in Honolulu, U.S.A. A total of 90 scientists from 12 countries attended the symposium. The symposium consisted of 3 sub-themes: (1) Regime shifts; (2) Ecosystem productivity and structural responses to physical forcing; and (3) Pan-Pacific comparisons. Panelists shared their thoughts and insights with audience at the Closing Discussion (see *PICES Press* Vol. 14, No. 2 for details). Outlets for future CCCC products include the GLOBEC Open Science Meeting in May 2009 and a planned GLOBEC Synthesis Book.

CCCC Action Plan (Agenda Item 14)

No time was spent on this issue at the meeting, except to note that Dr. Batchelder suggested that he can update the CCCC Action Plan using information provided by the CCCC Task Teams.

Relations to other international organizations and programs (Agenda Item 15)

ICES and regional/national GLOBEC programs remain the highest priority relations for the CCCC Program. CCCC-IP/EC identified linkages with ICES, GLOBEC-International, and the North Pacific Research Board (NPRB) as high priorities for the coming year. Also, there are several regional coastal observing programs in the Northeast Pacific (e.g., AOS, PaCOOS, PNW-IOOS), the Northwest Pacific (e.g., CREAMS, NEAR-GOOS), that PICES should maintain connections with. CCCC-IP/EC must interact closely with NPAFC to address salmon issues of interest to the CCCC Program in the North Pacific.

Other business (Agenda Item 17)

Projected CCCC publications

- The scientific contributions of NEMURO and NEMURO.FISH will be published as a special issue of *Ecological Modelling* in the first quarter of 2007. Drs. M.J. Kishi, S.-I. Ito, B.A. Megrey and F.E. Werner are the Guest Editors of the special issue.
- A collection of papers from the April 2006 CCCC synthesis symposium will be published as a special issue of *Progress in*

Oceanography in 2008. Drs. Batchelder and Suam Kim are the Guest Editor of the special issue. Nineteen papers were submitted for review, but not all may be published. The target date for finishing all papers is June 2007.

- A final report of the CCCC Program is expected to be published in the PICES Scientific Report Series between PICES XVI and PICES XVII.

ICES/PICES Early Career Scientist Conference

Dr. Suam Kim described recent progress in planning the ICES/PICES Conference for Early

Career Scientists on “*New frontiers in marine science*” to be held June 26-29, 2007, in Baltimore (U.S.A.).

Recommendations to Science Board (Agenda Item 16)

- CCCC-IP/EC **recommends the approval** of changes in the CCCC-IP/EC and Task Team membership proposed under Agenda Item 8 above;
- CCCC-IP/EC **recommends the approval** of the sessions/workshops and travel requests detailed under Agenda Items 10 and 12.

CCCC Endnote 1

Participation list

Members

Kerim Y. Aydin (U.S.A.)
Harold P. Batchelder (U.S.A., Co-Chairman)
Shin-Ichi Ito (Japan)
Suam Kim (Korea, Co-Chairman)
William T. Peterson (U.S.A.)
Thomas C. Wainwright (U.S.A.)
Akihiko Yatsu (Japan)

Observers

Michio J. Kishi (Japan)
Manuel Barange (GLOBEC International)
Francisco E. Werner (GLOBEC International)

CCCC Endnote 2

CCCC-IP/EC meeting agenda

1. Welcome and opening remarks
2. Adoption of agenda
3. Business from PICES XIV
4. Review of responsibilities for documenting CCCC Topic Sessions and workshops
5. Progress reports of Task Team (CFAME and MODEL) activities
6. Presentation of GLOBEC's activities on synthesis and integration
7. FUTURE – new PICES integrative scientific program
8. Changes in CCCC-IP/EC and Task Team membership
9. Proposals for new CCCC subsidiary bodies
10. Planning for PICES XVI
11. Theme proposal for PICES XVII
12. Planned CCCC inter-sessional activities and travel support requests/priorities for October 2006-October 2007
13. Report on the April 2006 CCCC Synthesis Symposium
14. CCCC Action Plan
15. Relations with other international programs and organizations
16. Preparation of the CCCC report to Science Board
17. Other business

CCCC Endnote 3

Proposal for a 1-day CCCC Contributed Paper Session at PICES XVI

North Pacific ecosystems and their response to climate variability have experienced intense study through GLOBEC and similar programs over the past 10 years. The PICES Climate Change and Carrying Capacity (CCCC) Program addressed the question of “how do interannual and decadal variations in ocean conditions affect the species dominance, biomass and productivity of the key zooplankton and fish species in North Pacific ecosystems?”. Ultimately, a goal of the CCCC Program was to forecast possible consequences of climate variability on the North Pacific ecosystem. As the CCCC Program nears completion, it is worthwhile to examine the program’s successes on addressing the key elements: climate change, carrying capacity, and forecasting. This

evaluation will provide useful information for moving forward with successor PICES integrative programs like FUTURE: *Forecasting and Understanding Trends, Uncertainty and Responses of North Pacific Ecosystems*. We invite abstracts that infer processes from patterns and link climate, ocean physics, populations and ecosystems. Provocative abstracts that retrospectively examine the successes and shortcomings of the CCCC Program are welcome, as are more traditional presentations on climate, ecosystems and forecasting.

Recommended convenors: Harold P. Batchelder (U.S.A.) and Michio J. Kishi (Japan).