

## REPORT OF THE IMPLEMENTATION PANEL ON THE CCCC PROGRAM

The Executive Committee of the Climate Change and Carrying Capacity Program Implementation Panel (CCCC-IP/EC) met in Dalian, China from 14:00–18:00 hours on October 26, 2008. The meeting was chaired by Drs. Harold P. Batchelder and Michio J. Kishi. The Co-Chairmen welcomed the attendees, and after brief introductions (*CCCC-IP Endnote 1*), the agenda was reviewed and adopted with slight modifications (*CCCC-IP Endnote 2*). It was noted that there were no representatives from Canada or China in attendance during the meeting.

### AGENDA ITEM 3

#### **Business from PICES-2007**

The minutes from PICES-2007 (Victoria, Canada) were accepted as is. No other items on-going from last year's meeting required discussion.

### AGENDA ITEM 4

#### **Review of procedures for Best Presentation awards and Closing Ceremony**

Awards for CCCC Best Oral and Poster Presentations were announced at the Closing Session. CCCC was responsible for selecting the Best Oral and Best Poster presentation for one session: S7 (CCCC/POC Session titled "*Marine system forecast models: Moving forward to the FUTURE*"). Dr. Batchelder spoke earlier with three of the co-convenors of this session (Drs. Thomas Wainwright, Hao Wei, Yury Zuenko) who agreed to judge and select the Best Poster and best talk. A list of session S7 early career scientists who were eligible for this award was provided by the Secretariat. CCCC-IP/EC recognized Xunqiang Yin (First Institute of Oceanography, Qingdao, China) for his oral presentation, "*Ensemble adjustment Kalmon filter study for Argo data*" (co-authored by Fangli Qiao, Yongzeng Yang and Changshui Xia). The Best CCCC Poster was awarded to Yasumasa Miyazawa (Japan Agency for Marine Earth Science and Technology, Japan) for his poster titled "*Toward a data-assimilation system for marginal seas in the SEA-WP region*" (co-authored with Yoshikazu Sasai and Kazuo Nadaoka).

### AGENDA ITEM 4

#### **Documentation of scientific sessions**

CCCC-IP/EC discussed responsibilities for documenting CCCC-sponsored Topic Sessions and Workshops at PICES-2008. Dr. Batchelder reminded the members that documentation of scientific sessions and workshops is required by the convenors. Dr. Tom Wainwright will document the CCCC/POC Topic Session (S7) on "*Marine system forecast models: Moving forward to the FUTURE*". CCCC co-sponsored two workshops associated with the Annual Meeting: W4 (CCCC/POC/FIS Workshop on *Climate scenarios for ecosystem modeling (II)*), and W5 (CCCC/ESSAS Workshop on *Marine ecosystem model inter-comparisons*). Dr. Michael Foreman, Chairman of POC, will document W4 and Dr. Bernard Megrey, Chairman of TCODE, will document W5. Session and workshop reports should be communicated directly to PICES Secretariat, or to CCCC co-chairs, who will forward them to the Secretariat.

AGENDA ITEM 5

**Progress reports of Task Teams**

CCCC-IP/EC received a brief oral report of CCCC MODEL Task Team activities. During their meeting MODEL participants reviewed the accomplishments of the past year, discussed production of a final MODEL report, the PICES FUTURE draft Implementation Plan, and possible proposed activities of FUTURE. A more extensive and complete written report is available in the MODEL report elsewhere in this Annual Report.

Only three CFAME members attended PICES-2008. Those attending were Drs. Akihiko Yatsu (Japan), Young-Shil Kang (Korea), and George Hunt (U.S.A.). In lieu of holding a business meeting represented by three countries, Dr. Batchelder communicated with CFAME Co-Chair Kerim Aydin (U.S.A.) prior to PICES-2008 and received email summaries on progress being made by CFAME. Thus, the Task Team did not meet at PICES-2008. A major task of CFAME is the writing of three regional summaries on the impacts of climate forcing on marine ecosystems, and an overview paper that compares these three regional ecosystems responses. CFAME held a 3-day workshop on “*Linking and visualizing climate forcing and marine ecosystem changes: A comparative approach*” in Honolulu, U.S.A. on April 15–17, 2008. Planning for the workshop was done by Drs. Aydin and Kang, who were to co-chair the workshop. Unfortunately, Dr. Kang was unable to attend the meeting, so it was chaired by Dr. Aydin. A summary of the workshop from email communications provided by Dr. Aydin can be found in *CCCC-IP Endnote 3*.

AGENDA ITEM 6

**PICES FUTURE Implementation Plan**

CCCC and the MODEL Task Team reviewed the second draft of the Implementation Plan: FUTURE Science Program. Comments from MODEL members are summarized in the MODEL Task Team report elsewhere in this Annual Report. Dr. Batchelder communicated a synopsis of MODEL’s comments and other CCCC comments on the Implementation Plan (henceforth IP) to Science Board and the FUTURE IP Writing Team in both oral form and written form during an informal Tuesday evening (October 28) meeting. CCCC comments and recommendations for the next draft were reiterated during the SG FISP public forum that was held on October 30. General comments on the draft IP from CCCC include:

- It is an exciting program, but the document is unclear on how it should progress from research to applications;
- General consensus in favor of the hierarchy of Status, Outlooks and Forecasts; and the progression from what we have done and can do now, to the more complex and difficult forecasts;
- There is too much introduction (duplication of science plan) and too little on the organizational structure and how the work will be accomplished;
- A general question was raised concerning whether this draft represents writings of the co-chairs only or the entire FISP Writing Team.

AGENDA ITEM 7

**Planning for PICES-2009**

Although it is likely that CCCC will cease to exist and therefore, CCCC should not (cannot) sponsor topic sessions at PICES-2009, a topic session was proposed as a topic for next year’s annual meeting. CCCC agreed to take this to Science Board and seek advice on how to incorporate it into the list of proposed topics for next year. The Topic Session was titled “*Spatial and temporal dynamics of ecosystems: What we know and what we need to know to provide outlooks and forecasts*” with confirmed convenors Drs. Hiroaki Saito (Japan) and Batchelder (U.S.A.). It was agreed to request one invited speaker. Dr. Saito noted that it was possible that IMBER might be interested in co-sponsoring this session. During subsequent Science Board discussions, this topic was merged with a similar topic proposed by the POC Committee, and has moved forward as a POC/FUTURE topic titled, “*Outlooks and forecasts of marine ecosystems from an earth system science*”

*perspective: Challenges and opportunities*". Confirmed convenors for this are H. Saito (Japan), H. Batchelder (U.S.A.), M. Foreman (Canada) and A. Hollowed (U.S.A.). Subsequent to PICES-2008, Dr. Saito has confirmed that IMBER will co-sponsor this session. A full description of the session is provided in *POC Endnote 4(1)*.

#### AGENDA ITEM 8

##### **Theme proposal for PICES-2010**

CCCC-IP/EC briefly discussed the theme, "*North Pacific Ecosystems Today, and Challenges in Understanding and Forecasting Change*", that has been proposed by the U.S. delegation for PICES-2010. CCCC had no specific changes to recommend, and feels the theme is appropriate and will be interesting to the scientific community.

#### AGENDA ITEM 9

##### **Review travel support requests/priorities for October 2008–October 2009**

Due to the CCCC program winding down and the FUTURE program beginning, CCCC has no specific requests for travel funds for the coming year. Nevertheless, CCCC has proposed a topic session to Science Board and requests that one invited speaker be supported for that session at PICES-2009.

#### AGENDA ITEM 10

##### **CCCC Synthesis Symposium Special Publication**

Dr. Batchelder reported on the status of the special issue publication resulting from the CCCC synthesis symposium on "*Climate variability and ecosystem impacts on the North Pacific: A basin-scale synthesis*". With GLOBEC and other co-sponsors, an international synthesis symposium was held in 2006, with some of the papers presented now published in a special issue of *Progress in Oceanography* (2008, Vol. 77, No. 23, pp. 83–268).

#### AGENDA ITEM 11

##### **Relations to other international organizations and programs**

CCCC did not identify any international programs or organizations that should be added to the PICES list of international partners.

#### AGENDA ITEM 12

##### **Preparation of CCCC report to Science Board**

Dr. Batchelder agreed to summarize the CCCC-IP/EC discussions and present a summary to the Science Board.

#### AGENDA ITEM 13

##### **Other business**

##### *Projected CCCC publications*

At PICES-2007, the CCCC Co-Chairs indicated that CCCC will develop a final report of the CCCC program which is expected to be published in the PICES Scientific Report series. Dr. Kishi will lead this, and be

## CCCC-2008

assisted by Dr. Batchelder, but assistance is expected from past and present leaders within the CCCC program as well. There has been little progress on this report in the past year. It must be completed and submitted to Science Board and the Secretariat prior to PICES-2009.

### *CapacityBuilding*

Dr. Suam Kim noted that 17 early career scientists from Korea are being funded by Korea GLOBEC to attend PICES-2008, and that similar levels of support are hoped to continue in future years.

### *Marine Ecosystems Model Intercomparison Project*

Dr. Bernard Megrey summarized the results and recommendations from a CCCC/ESSAS workshop held on Saturday, October 25, in Dalian, China. The goal of the workshop was to provide an introduction to the topic, set some guidelines on what needs to be done, and to frame a work plan for future hands-on workshops that will compare ecosystem models at one or more sites in the North Pacific. The goal is to identify why some models work better than others, why some models may be more generally applicable, and provide measures of uncertainty associated with model predictions. A focus of the exercise will be prediction of zooplankton abundance/biomass instead of the more usual assessment using phytoplankton (and sometimes nutrient) observations only. Participants at planned future workshops will contribute data sets for validation and/or contribute and run models. Dr. Megrey and the participants agreed that the workshop at PICES-2008 was useful, and should lead to a workshop at PICES-2009. Drs. Megrey, Batchelder and Shin-ichi Ito have agreed to co-chair a workshop (if approved by Science Board and Governing Council) at PICES-2009. Dr. Megrey also noted that with CCCC concluding, a new home for MEMIP is needed. Dr. Batchelder suggested that BIO would be the logical home, and he would make this proposal to Science Board. This was agreeable to the BIO Committee and a proposal was submitted to Science Board through BIO for a 2-day workshop to conduct an intercomparison exercise at PICES-2009 (*BIO Endnote 7*).

## CCCC Endnote 1

### CCCC-IP/EC participation list

#### Members

Harold P. Batchelder (U.S.A., CCCC-IP Co-Chairman)  
Suam Kim (Korea)  
Michio J. Kishi (Japan, CCCC-IP Co-Chairman)  
Andrei Krovnin (Russia)  
Bernard A. Megrey (U.S.A.)  
William T. Peterson (U.S.A.)  
Thomas Wainwright (U.S.A.)

## CCCC Endnote 2

### CCCC-IP/EC meeting agenda

1. Welcome and opening remarks
2. Adoption of agenda
3. Business from last year's meeting (if any)
4. Documenting PICES CCCC scientific sessions and judging/selecting best oral and best posters.
5. Reports of Task Team Chairmen on activities from past year and plans for wrapping up task team activities (MODEL, CFAME)
6. PICES FUTURE Implementation Plan: discussion and comments to be forwarded to Science Board
7. Topic Session proposals for PICES-2009. Theme of meeting is "*Understanding ecosystem dynamics*"

- and pursuing ecosystem approaches to management*
8. Theme and Topic Session proposals for PICES-2010 (U.S.A.). Tentative theme title is: *“North Pacific Ecosystems Today, and Challenges in Understanding and Forecasting Change”*
  9. CCCC travel requests for calendar year 2009
  10. Update on CCCC Synthesis Symposium Special Publication
  11. PICES-CCCC relations to other international programs. (ICES, GLOBEC, NPRB, GOOS, CoML, *etc.*)
  12. Preparation of CCCC report to Science Board
  13. Other business (publications; capacity building; final CCCC report for PICES; Marine Ecosystem Model Intercomparison Project)

## CCCC Endnote 2

### **Summary report of 3-day CFAME workshop in Honolulu, U.S.A. on *“Linking and visualizing climate forcing and marine ecosystem changes: A comparative approach”***

Five CFAME Task Team members, WG 20 Chairman, Dr. Michael Foreman, and two invited scientists met in Honolulu. Three CFAME ecosystem comparative teams have been working together since May, 2007 on each of three ecosystems (the California Current, the Kuroshio/Oyashio, and the East China/Yellow Seas). Prior to the workshop, team leaders for each set of ecosystem mechanism tables (Vera Agostini, Akihiko Yatsu, and Young-Shil Kang) coordinated the review of the details of these tables, providing an explicit description of ecological processes in relation to climate variables. Prior to the meeting, this information was provided to graduate students working with CFAME member, Dr. Brenda Norcross, who produced summary drafts and figures documenting the projected changes in ecosystem components based on future scenarios forecasted by IPCC climate scenarios. Drafts were provided by these researchers in January 2008 and were circulated prior to the workshop.

At the April workshop, we reviewed draft versions of the graphic representations of ecosystem mechanisms climate/ocean scenarios. Dr. Foreman, representing the Co-chairs of WG20, provided immediate feedback as to accuracy of the physical model results which drive our biological predictions. Each ecosystem team then worked to revise text and figures during the meeting and finalize graphic representations of our current knowledge of the physical processes impacting species population dynamics (one graphic representation for each of the 3 ecosystems, with likely impacts under climate warming). One critical need to complete the three regional papers and synthesis paper was tasking out the development of some conceptual model figures to a graphics professional. This was done, although most of the graphics developed need further refinement.

After successfully completing this review at the meeting, a schedule was established to complete scientific publications (PICES Scientific Report and peer-reviewed manuscripts resulting from the past two years of CFAME work) for dissemination to the broad public as part of PICES contributions to forecasting future ecosystem states. The schedule established in April was for a PICES Scientific Report summarizing CFAME’s activities to be submitted prior to PICES-2008. The schedule has subsequently slipped. As of October 2008, the revised schedule is for the three regional manuscripts to be completed by the end of January 2009, the overview synthesis manuscript about one month later, and the final CFAME report by the inter-sessional Science Board meeting in April 2009.