

REPORT OF MODEL TASK TEAM

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The meeting of the MODEL Task Team was held from 09:00-13:00 hours on October 12, 2002. The Co-Chairmen, Drs. Shin-ichi Ito and Francisco E. Werner called the meeting to order and welcomed the participants (*MODEL Endnote 1*). The Task Team reviewed the draft agenda and adopted it (*MODEL Endnote 2*).

Discussion of reports from Study Group on PICES Capacity Building and NEXT (Agenda Item 2)

Dr. Harold P. Batchelder (CCCC-IP Co-Chairman) presented recommendations from the Study Group on *PICES Capacity Building* and the NEMURO Experimental Planning Team (NEXT).

- On capacity building, the discussion focused on how best to accomplish the important goals listed in the report and how to secure funds for this effort. Ideas included: (i) short 2-3 day workshops, (ii) extended visits to host countries by scientists bringing expertise in specialized areas of research, and (iii) regular yearly “summer courses” on focus-topics allowing immersion for graduate students, post-docs and young scientists. Funding opportunities would need to be identified by PICES, and could include funds from PICES member countries as well as government agencies and private foundations.
- The lack of connection between modelers and data collectors has been a severe impediment to a wider application of NEMURO. Among other recommendations, NEXT proposed NEMURO Training Sessions to enable the broader PICES community to implement the NEMURO model regionally. During these sessions, potential users of the NEMURO model code and its derivatives (*e.g.*, NEMURO.FISH, *etc.*) will receive instruction and hands-on training with the model. This issue is discussed further in sections below.

New PICES web site (Agenda Item 3)

Ms. Julia Yazvenko (PICES Secretariat) presented the new web site structure and format targeted for late 2003 or early 2004. Each group will have a separate page on this new site. MODEL will provide information to fit the proposed template including tasks, reports and membership. Dr. Bernard A. Megrey was nominated as the contact person on scientific content for the MODEL web page and links with the existing MODEL web site. MODEL requested that the PICES web site include list-serve capabilities to the Task Team members.

Report from Study Group on PICES Strategic Issues (Agenda Item 4)

The PICES Strategic Plan (Vision Statement) was announced and certain aspects were discussed. In particular, mention was made of the new role that PICES may be asked to play in providing scientific advice to member countries.

North Pacific Ecosystem Status Report (Agenda Item 5)

The draft North Pacific Ecosystem Status Report (NPESR) was discussed and Task Team members were asked to consider if MODEL should contribute to future NPESRs. One example was to report on the performance of models of the North Pacific basin in capturing certain physical signals (*e.g.*, stratification, transport, mixed layer depth) that could not be fully captured by observations. This would require interaction with the PICES Physical Oceanography and Climate Committee as well as other scientific programs such as GODAE (Global Ocean Data Assimilation Experiment). Contribution to the NPESR could include the models’ performance in capturing past signals as well as predictive aspects where possible.

MODEL accomplishments in 2003 (Agenda Item 6)

A successful workshop to “Embed NEMURO and NEMURO.FISH into a 3-D circulation model” (co-sponsored in part by the Nakajima Foundation) was held March 3-6, 2003, at the Frontier Research System for Global Change, in Yokohama, Japan. The main results of the workshop were: (i) the development of a computer simulation model of fish bioenergetics and growth for Pacific herring and Pacific saury including feedback from the fish model to lower trophic model; (ii) the formulation of a Lagrangian model of NEMURO.FISH including fish migration; and (iii) the adaptation of the Lagrangian model to saury in the western North Pacific. The workshop results will be published in PICES Scientific Report No. 26.

A ½-day MODEL Topic Session on “Comparison of modeling approaches to describe ecological food webs, marine ecosystem processes, and ecosystem response to climate variability” was convened at PICES XII. The program of the session that consists of 10 oral presentations and 5 posters was reviewed. A summary of the session is included elsewhere in this Annual Report.

MODEL Workplan for 2004 (Agenda Item 7)

Inter-sessional meetings

- Convene an inter-sessional workshop in December 2003, in Yokohama, Japan, to work on NEMURO and NEMURO.FISH manuscripts for a special issue of *Ecological Modeling*. This workshop is funded by the Fisheries Research Agency of Japan (FRA) in a grant to Dr. Shin-ichi Ito for a project entitled “Development of model on coupled response of lower and higher trophic level ecosystems for climate variability in the North Pacific”. No PICES funds are requested for this activity.
- Meet in August 2004, in Seattle, U.S.A., for (i) an inter-sessional workshop to “Document and disseminate NEMURO and NEMURO.FISH” in preparation for a 2005 inter-sessional Training Session, and (ii) editing the manuscripts for publication in

Ecological Modelling. Partial support will be available from FRA, and PICES support is requested for two scientists to attend.

PICES XIII

- Plan and convene a ½-day CCCC/MODEL Topic Session on “Modeling approaches that integrate multiple spatial scales and trophic levels between shelf and open oceans” (*MODEL Endnote 3*). PICES support is requested for one invited speaker.
- Conduct a joint BASS/REX/MODEL planning workshop to link NEMURO and NEMURO.FISH to ECOPATH and ECOSIM for the study of sardine and anchovies (*BASS Endnote 4*).
- Convene a 1-day CCCC/MODEL Workshop to prepare a strategy and products for future NEMURO and NEMURO.FISH Training Sessions.

Publications

- Submit papers on NEMURO and NEMURO.FISH models and their applications for review and publication as a special issue of *Ecological Modeling* (Guest Editors: Shin-ichi Ito, Michio J. Kishi, Bernard A. Megrey and Francisco E. Werner).

Pending APN Workshop proposal

Drs. Werner and Megrey submitted a proposal to APN (Asia Pacific Network) for US\$86,000, for an “International 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”. The objective is to use a common marine food-web and fisheries bioenergetics modeling approach based on NEMURO and NEMURO.FISH, along with long-term area-specific oceanographic and fisheries data sets, (i) to understand the propagation of climate change effects up the marine food-web; (ii) to quantify its effects on energy cycling and fish growth and production (Pacific herring is the target) in distinct geographic regions in the North Pacific and its marginal seas; (iii) to initiate a discussion of how these results can be integrated into the

decision making process by fisheries/resource managers and policy makers; (iv) to hold a workshop to integrate the work; and (v) to publish two papers in peer-reviewed journals.

If funded, the proposal will bring a Chinese and a Russian young scientist for four months to the United States to work on data mining and model implementation. It will also fund a workshop with 15 participants in October 2004, in Honolulu, the week before PICES XIII. Funding decision will be announced in April 2004. Since Canada is not an APN member, PICES funds were requested for two Canadian scientists to attend the workshop.

Membership of MODEL Task Team (Agenda Item 8)

No new members were introduced but MODEL recommended that the current membership be reviewed to make sure the Task Team was composed of the appropriate mix of disciplinary points and views, and has proper international representation.

MODEL Task Team recommendations (Agenda Item 9)

1. Convene a MODEL workshop in December 2003, in Yokohama, Japan (hosted by FRA), to prepare manuscripts on NEMURO and

NEMURO.FISH for submission to a special issue of *Ecological Modelling*.

2. Convene an inter-sessional workshop in August 2004, in Seattle, U.S.A., (i) to edit the manuscripts for publication in *Ecological Modelling*, and (ii) to document and disseminate “clean versions” of NEMURO and NEMURO.FISH. Travel funds are requested for two scientists.
3. At PICES XIII:
 - Convene a ½-day CCCC/MODEL Topic Session on “Modeling approaches that integrate multiple spatial scales and trophic levels between shelf and open oceans”. If alternate funding for the inter-sessional meeting is found (*e.g.*, from APN), we request funding for one invited speaker.
 - Conduct a joint BASS/REX/MODEL workshop to discuss coupling NEMURO and NEMURO.FISH with ECOPATH and ECOSIM to study sardine and anchovy fluctuations.
 - Building on the dissemination of NEMURO and NEMURO.FISH, and in preparation for a CCCC Integration Symposium in 2006, convene a 1-day CCCC/MODEL workshop to plan the NEMURO Training Session of April 2005.

MODEL Endnote 1

Participation List

Members

Shin-ichi Ito (Japan, Co-Chairman)
Gennady A. Kantakov (Russia)
Michio J. Kishi (Japan)
Bernard A. Megrey (U.S.A.)
Hiroaki Saito (Japan)
Thomas C. Wainright (U.S.A.)
David W. Welch (Canada)
Francisco E. Werner (U.S.A., Co-Chairman)
Sinjae Yoo (Korea)
Yury I. Zuenko (Russia)

Observers

Harold P. Batchelder (U.S.A.)
Michael J. Dagg (U.S.A.)
George L. Hunt (U.S.A.)
Irina Ishmukova (Russia)
Maki Neguchi-Aita (Japan)
S. Lan Smith (Japan)
Fan Wang (China)
Yasuhiro Yamanaka (Japan)
Julia Yazvenko (PICES Secretariat)
Hak Yoel You (Korea)

MODEL Endnote 2

MODEL Task Team Meeting Agenda

1. Welcome and introduction of new members
2. Discussion of reports from Study Group on *PICES Capacity Building* and NEXT
3. Discussion of PICES web site
4. Discussion of report from Study Group on *PICES Strategic Issues*
5. North Pacific Ecosystem Status Report
6. Review of accomplishments in 2003
7. Planning for 2004
 - a. Inter-sessional meetings
 - b. PICES XIII
 - c. Publications
 - d. APN proposal
8. Rotation of membership
9. Recommendations to CCCC IP
10. Other business.

MODEL Endnote 3

Proposal for a ½-day CCCC/MODEL Topic Session at PICES XIII on “Modeling approaches that integrate multiple spatial scales and trophic levels between shelf and open oceans”

Marine ecosystems are characterized by complex trophic interactions that occur on disparate time and space scales. Modulation by physical and biogeochemical properties further complicates these interactions. To date, most studies of marine ecosystems consider shelf and open ocean regions separately. However, through active migration and/or advective processes, shelf and oceanic populations are coupled. In this session, we welcome modeling contributions that consider shelf, open ocean and

coupled shelf-ocean domains that integrate across multiple spatial scales, temporal scales and trophic levels. From these studies we seek to develop a better understanding of how open ocean and shelf ecosystems are linked.

Recommended convenors: Shin-ichi Ito (Japan), Michio J. Kishi (Japan), Bernard A. Megrey (U.S.A) and Francisco E. Werner (U.S.A). Travel support is requested for one invited speaker.