

REPORT OF THE TECHNICAL COMMITTEE ON DATA EXCHANGE

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1. Introduction of Members

The Chairman, Mr. Robin M. Brown, welcomed two new TCODE members (Dr. Bernard A. Megrey who replaces Dr. William A. Karp and Dr. Tatsu Kishida who replaces Dr. Ichiro Hara). (See Endnote 1 for participants.) Dr. Yutaka Nagata (Japan) attended as an observer.

2. Review of progress on items in the 1997 Workplan

2.1 Updates and additions to the Long-Term Time Series Dataset Inventory

The Committee reviewed progress on this item and found that while the content of the Inventory was quite satisfactory, it was underutilized. The following actions were considered and approved:

- All members will examine web sites to determine suitable places for "links" to this inventory. Members will report their suggestions to the Chairman, who will approach the webmasters of these sites to establish links.
- Dr. Megrey will review the use of HTML metatags (for improved indexing by WWW search engines) and recommend appropriate tags for the Inventory.
- Mr. Brown will review PICES web site statistics regarding usage of the Inventory and report to TCODE members.
- Members will explore other "advertising" possibilities, including PICES Press and possibly producing a brochure.

2.2 Improvements and extensions to list of other Internet resources

The Committee reviewed the list and recommended a new section for "directories" or "lists" of scientists and their areas of expertise. Mr. Toshio Nagai reported that the IOC already has assembled such a directory (GLODIR) and

that this was a good mechanism for searching for scientists/specialists. The following actions were approved:

- An additional section will be added to this web page for "pointers" to various lists of scientists. At a minimum, this will contain a reference to GLODIR.
- All members should forward information on other such "inventories" to the Chairman for inclusion in this new section.

2.3 Merging the Inventory of Long Term Time Series with the Bering Sea Metadatabase (Megrey, Brown)

Dr. Megrey reported on his efforts at matching the fields in the Bering Sea Metadatabase and the fields in the TCODE Inventory of Long Time Series. In general, the matching was very good, although the Bering Sea Metadatabase requires additional information on geographic location and contacts. The following action was approved:

- The structure of the TCODE Inventory of Long Time Series will be modified to match the Bering Sea metadatabase and to be compliant with structured metadata systems, such as FGDC (Brown, Megrey).

2.4 Assistance with loading entries into the Bering Sea Metadatabase (Megrey)

Dr. Megrey reported on progress in loading the Bering Sea Metadatabase. Substantial progress has been made and there are contributions from all PICES countries. TCODE members offered to continue to assist Drs. Megrey and Macklin in the identification of data sources. The following action was approved:

- Dr. Megrey will produce summaries of the existing entries in the Bering Sea metadatabase and will distribute these to TCODE members for review and comment. TCODE members will forward any

corrections or omissions to Dr. Megrey.

2.5 Assemble descriptions of monitoring programs for the 1997/1998 El Niño

Very little progress on this item was made in 1997/1998. Mr. Brown reported on descriptions of the Canadian programs listed on the Institute of Ocean Sciences web page and noted that no information was returned for other PICES nations. No further efforts will be undertaken to assemble this information.

3. Updates on data management activities in PICES nations:

3.1 Canada

Mr. Brown reported that Canada is planning to assemble a national database of biological/chemical oceanographic data (including plankton taxonomic data). Existing archives are very fragmented and much of this data is at risk of being lost.

3.2 China

Mr. Ling Tong reported on the Chinese Oceanographic Information Net. This network will link State Oceanographic Agency and Fisheries Agency laboratories. The system is now partially in place, but slow communication lines are limiting the usefulness of this system. Plans have been made to improve the communications links. The Chinese Oceanographic Information Database is at the National Marine Information Center and links to this web site to the PICES web site will be established.

3.3 Japan

Mr. Toshio Nagai reported on JODC staffing, organization and activities. JODC is now serving as the national data management office (DMO) for the Japan JGOFS program. Mr. Nagai also presented an overview of the JODC web site and capabilities for accessing oceanographic data holdings.

Dr. Tatsu Kishida reported that catch and effort statistics are available from JFA, but there is no access via the Internet. Much of these data are stored in regional laboratories and/or by principal investigators, so access is difficult.

3.4 Korea

Dr. Kee-Soo Nam reported on the restructuring of data management in Korea following the creation of the Ministry of Maritime Affairs and Fisheries (MOMAF). Oceanographic and fisheries research are conducted by government agencies (under MOMAF) and by universities (under the Ministry of Education) and there is weak data exchange between universities and government agencies. Three major institutes under MOMAF are:

- KORDI (Korea Ocean Research and Development Institute) - This institute is focussed on oceanographic research, including physical, chemical, biological, geophysical, geological and antarctic research. The KORDI Oceanographic Information and Instrumentation Center was disbanded in the recent reorganization and separated into its member departments (Remote Sensing, Instrumentation, Oceanographic Data Management, Library and Management Information Services)
- NORI (National Ocean Research Institute) - This institute is focussed on hydrographic affairs, geophysical and bathymetric surveys and coastal tidal observations.
- NFRDI (National Fisheries Research and Development Institute) - This institute is focussed on fisheries-related research and observations and marine environmental protection. The Korean Oceanographic Data Center (KODC), headed by Dr. Sangbok D. Hahn, is part of this agency.

Historically, data exchange amongst these agencies has been difficult, but things are improving. A master plan for integrated data services was published in July 1998. Dr. Nam also noted that there is a small data management

program established to support the Yellow Sea Program and that this has provided a successful example of integrated data management.

3.5 Russia

Dr. Igor D. Rostov submitted a detailed summary of data management activities at the Pacific Oceanological Institute in Vladivostok.

3.6 U.S.A

Dr. Thomas C. Royer reported that the U.S. NODC seems to be healthy and active, but there are some concerns about migration of data from WOCE, JGOFS and GLOBEC programs to WDC-A/NODC as these programs wind down over the next few years. A recent review of National Science Foundation (NSF) programs called for acquisition of global data sets, including long time series. There was an emphasis on the importance of ocean salinity measurements and the conclusion was that the community was not doing a very good job of acquisition of ocean data.

Dr. Megrey reported that U.S. Federal Geographic Data Committee (FGDC) has completed a review of the FGDC standard for metadata that will better accommodate descriptions of biological data.

Following these reports, there was a discussion of the problems that many countries are experiencing in the management and archival of ocean data. The Committee recommended the following note of concern be forwarded to Science Board and Governing Council:

TCODE notes that improvements in national data management systems in PICES nations are imperative in order to properly support programs and activities of PICES (such as the CCCC Program) and other modern, interdisciplinary marine programs such as JGOFS, GLOBEC and GOOS. These improvements are required to:

- *Ensure proper archival of the diverse datasets that support these programs.*

- *Provide mechanisms for the efficient inventorying and exchange of these data.*

The Committee also notes that the retirement of investigators and the re-structuring of government programs may endanger valuable datasets and advise that consideration of data integrity and preservation be included when research programs are re-structured.

4. TCODE and other PICES Committees

4.1 MODEL Task Team - Sources of High Quality Nutrient data

Mr. Brown reported on the MODEL Task Team session on nutrient data and reviewed the status of the World Ocean Database 1998 and new efforts in quality control being implemented at the Ocean Climate Laboratory. He also noted that there was a very good web site (GOODbase) for extracting data from the World Ocean Database (<http://oceans.ucsd.edu/goodbase/>).

4.2 CCCC-IP - National GLOBEC data management plans

Mr. Brown reviewed the action to date on the issue of management of GLOBEC/CCCC data. Responses were received from the U.S.A., and Canada to the letter sent out by the CCCC-IP Co-Chairmen and the TCODE Chairman regarding national GLOBEC data management plans. The poor response may indicate future problems with GLOBEC data management and archival. TCODE will continue to work with the GLOBEC International Program Office (IPO) and the CCCC-IP to address this issue.

4.3 MEQ - entries in the Inventory of Long-Term Time Series

The MEQ Chairman was contacted to determine their interest in adding entries to the Inventory. The conclusion is that there are few contaminant datasets that would meet the criteria for inclusion in this inventory.

4.4 WG 11 - Marine Birds and Mammals

WG 11 was contacted to determine the level of interest in adding entries for Marine Birds and/or Marine Mammals to the inventory of long time series. This will be considered by the Working Group, but they are presently focussed on completing their report. Dr. Megrey noted that the Bering Sea Metadatabase already contains many entries for the N.E. Pacific and Bering Sea.

4.5 MONITOR Task Team

Dr. Thomas C. Royer has been appointed as the TCODE Liaison member on this Task Team.

5. Other activities relevant to TCODE

5.1 North East Asian Regional - Global Ocean Observing System (NEAR-GOOS) (Nagai)

Mr. Nagai reported on the North East Asian Regional component of the Global Ocean Observing System and the various web sites that are associated with this program.

5.2 JGOFS - North Pacific Task Team (Brown)

Mr. Brown reported on the JGOFS Data Management and Synthesis meeting in Bergen, Norway, in September 1998. As JGOFS moves into the Synthesis and Modeling phase, the systems for archival and retrieval of JGOFS data are being put to the test and the results have not been as good as expected. The JGOFS Steering Committee has established three priorities for data management in JGOFS:

- Ensuring that JGOFS data are securely archived and preserved
- Creation of web-based inventories to allow researchers to identify and locate JGOFS data
- Encourage development of web-based systems to deliver JGOFS data to interested researchers.

Although JGOFS and GLOBEC are similar programs, the JGOFS project is more mature and

can provide insight into the problems that the GLOBEC project will face in the next few years. TCODE will monitor the efforts of the JGOFS project to create a searchable inventory of JGOFS metadata and make recommendations to the CCCC-IP, based on our analysis of the JGOFS experience.

5.3 GLOBEC Program Office - data management activities

The GLOBEC International Program Office (IPO) has been established, but the staff positions have not been filled yet. GLOBEC plans to have some data management function at the IPO, but the details are not yet available. TCODE will monitor activities at the IPO and make recommendations to the CCCC-IP as the data management requirements are defined.

6. Organization details

6.1 Revised rules for PICES Committees

Mr. Brown reported on revised rules for PICES Committees which were passed by Governing Council during PICES VII. For TCODE, the major change is that the term of service for the Chairman has been set at three years, with the start date set as October 1998. The PICES Secretariat will print the revised PICES Handbook, and Handbook for Chairmen and Convenors, early in 1999 and printed copies will be available on request from the PICES office. These documents will also be posted on the PICES web site.

7. New business items

7.1 Proposal for TCODE Session on Data Visualization (Megrey)

Dr. Megrey presented a proposal for a session on data visualization to be held at the next PICES Annual Meeting (Vladivostok -October, 1999). After receiving support for this proposal from TCODE, the proposal was also presented to Scientific Committees (POC, BIO and FIS) who were also supportive. This proposal has been accepted for the PICES VIII Annual Meeting. Convenors/organizers will be Drs.

Bernard A. Megrey, Igor I. Shevchenko and Thomas C. Royer. Dr. Shevchenko has also volunteered to look after the local technical arrangements for this session.

7.2 Proposal for new Working Group on Iron Fertilization Experiments

TCODE reviewed this proposal and decided that it was not appropriate for TCODE to make a recommendation.

7.3 WG 13 - CO₂ in North Pacific

This Working Group proposed that PICES support two significant data management-related activities:

- A CO₂ measurement inter-calibration exercise (tentatively scheduled for Japan in April 1999)
- A CO₂ data intercomparison workshop (tentatively scheduled for 2000)

TCODE enthusiastically supported these initiatives, and suggested that it was important for a TCODE member to attend the data intercomparison workshop.

7.4 JGOFS North Pacific Task Team

The JGOFS North Pacific Task Team (NPTT) met prior to PICES VII and requested support for two PICES representatives to attend the JGOFS Synthesis and Modeling Workshop in Taipei in March 1999. They suggested that the Co-Chairmen of WG 13 and Chairman of TCODE should attend as PICES representatives.

TCODE recommends that a single PICES representative (one of the Co-Chairmen of WG 13) should be supported.

7.5 GOOS - North Pacific Coordination

Mr. Brown reported on discussions about creating a position for a North Pacific Global Ocean Observing System Coordinator, which would be housed at the PICES Secretariat. There is a broad base of support for this and

PICES has offered to provide office space and logistical support, but there is still no firm plan to actually create and staff such a position. The major problem appears to be finding funds to pay the salary for this position.

7.6 PICES "Expertise" database

At the REX Task Team meeting, a suggestion was made that a database of researchers and their areas of expertise would be a useful contribution for PICES activities. Mr. Nagai reported that such a database (GLODIR) already exists and is supported by IOC/IODE. This database is available on the IOC web site (http://ioc.unesco.org/iode/activities/info_man/gلودir.htm). The application allows individual researchers to create and maintain their personal entries in this database.

TCODE agreed to provide links to this directory (and any similar directories) in the TCODE "Other Internet Resources" web page.

7.7 Action Plan for the Protection, Management and Development of the Marine and Coastal

Dr. Nagata presented some documents describing the Environments of the Northwest Pacific Region Project (NOWPAP), which included plans for database and information management system as well as plans for collaborative monitoring. This is an IOC/UNEP sponsored program that involves Japan, China, Korea and Russia. These documents will be copied and distributed to TCODE members for information.

7.8 Publication Study Group

TCODE members reviewed the recommendations of the Publication Study Group and supported their recommendation to form a permanent Publications Committee. The committee noted that the composition of this committee may need careful review, should PICES decide to produce a new peer-reviewed scientific journal.

8. TCODE Workplan for 1998

The Committee adopted the following workplan for 1998:

8.1 Continued efforts to develop a Data Management Plan for the CCCC Program

TCODE will work with the CCCC-IP, national GLOBEC committees and the GLOBEC International Program Office to develop a data management plan that will ensure proper archival and allow for exchange of GLOBEC data amongst the participants. TCODE will also monitor the data management activities of the JGOFS project to identify successful strategies.

8.2 Continue to upgrade and improve the TCODE web pages including

- Re-structure the Inventory of Long-Term Time Series to make it compatible with other structured metadata standards (like FGDC)
- Add entries to Inventory of Long-Term Time Series for marine birds and mammals (if supplied by WG 11)
- Improve "Other Internet Resources" web

page offerings in the area of Data analysis/visualization/graphics tools by reorganizing some current categories

- Add "Directories of Marine Scientists" section to "Other Internet Resources" web page
- Improve usage of TCODE web pages by adding metatags, identifying locations for links to PICES pages and promoting the use of the PICES web site.

8.2 Organizing the Data Visualization Workshop at PICES VIII

8.3 Assist MONITOR Task Team to assemble a detailed list of ongoing monitoring activities (by time and location)

8.4 Assist BASS Task Team to identify planned cruises in the open North Pacific in order to allow for sharing of ship time and improved program integration

8.6 Assist MODEL Task Team in identifying sources of nutrient data that are not yet in international databases

Endnote 1

Participants

Canada

Robin M. Brown (Chairman)

China

Ling Tong

Japan

Tatsu Kishida

Toshio Nagai

Korea

Kee-Soo Nam

Russia

Igor I. Shevchenko

U.S.A.

Bernard A. Megrey

Thomas C. Royer