

REPORT OF THE ADVISORY PANEL ON *CONTINUOUS PLANKTON RECORDER IN THE NORTH PACIFIC*

The Advisory Panel on *Continuous Plankton Recorder in the North Pacific* (CPR-AP) (under the auspices of the Technical Committee on Monitoring, MONITOR) met from 14:00–16:00 h on October 24, 2010, Portland, Oregon, U.S.A. The meeting was chaired by Dr. Phillip R. Mundy and attended by the Chairman of MONITOR, Dr. Hiroya Sugisaki. The list of participants and agenda can be found in *CPR-AP Endnotes 1* and 2.

AGENDA ITEM 2

Overview of CPR activities in 2009–2010

Advice

CPR-AP continues to build a unique data set that is invaluable for understanding the extent and effects of global climate change in the North Pacific. The value of the information on inter-annual variability in geographic distribution and phenology of zooplankton is exemplified in the latest edition of the North Pacific Ecosystem Status Report, cited below. Information from CPR-AP is made available in a timely manner and is used to support a growing legacy of scientific publications. CPR-AP exemplifies how PICES fosters cooperation and communication among nations in North Pacific marine science. Nonetheless, the current financial support for the CPR project is not adequate to realize its full potential for the North Pacific. The level of financial and in-kind support from Canada, Japan, the United States and CPR-AP's originating agency, the Sir Alister Hardy Foundation for Ocean Sciences (SAHFOS) expected in 2011–2013 is not sufficient to provide for a full time North Pacific principal investigator, nor is it sufficient to process samples to the degree desirable for better understanding of large-scale changes. In addition, opportunities for additional transects cannot be pursued at current funding levels.

The Advisory Panel requests, through MONITOR, that the Science Board continue to support the Executive Secretary's annual letter of information to selected agencies that are potential partners in the CPR Consortium.

Sampling 2010 – sampling in 2010 was at the normal level, with 6 north–south transects (although one serious mechanical failure resulted in the loss of all samples on the June transect) and 3 east–west transects. Early sample analysis results suggest that 2010 biomass levels and *Neocalanus plumchrus* phenology are within the range determined in previous years. Abundances of the small copepod *Pseudocalanus* appeared to be anomalously high in spring 2010 in the NE Pacific. Once all samples are analyzed, we estimate that this will be at least 5 times, and potentially as much as 20 times, higher than previous spring abundances.

Sampling 2011 – the level of sampling is dependent on the renewal of Fisheries and Oceans Canada (DFO) funding, and the continued contribution from SAHFOS. The committed funding in place for 2011 means that at least 55% of the normal level of sampling will occur but we know from the past when there was lower funding, as in 2008 (as it turned out to be an unusually cold year), this meant that valuable information was lost. Should funding be reduced then, the Panel will be asked to prioritise the sampling that will occur.

Publications

CPR data contribute to a growing body of publications. Data from the North Pacific CPR made substantial and valuable contributions to the latest edition of the North Pacific Ecosystem Status Report (see Batten *et al.*, pp. 56–105, In S.M. McKinnell and M.J. Dagg. [Eds.] *Marine Ecosystems of the North Pacific Ocean, 2003–2008*. PICES Special Publication 4, 393 p.) Other recent and upcoming publications include Sydean *et al.* (2010) *Macro-Ecology of Plankton-Seabird Associations in the North Pacific Ocean*. *Journal of Plankton Research*; Hamme *et al.* (2010). *Volcanic ash fuels anomalous plankton bloom in subarctic Northeast Pacific*. *Geophysical Research Letters*, 37, L19604, doi:10.1029/2010GL044629; and Batten, S.D., and Mackas, D.L.

(2009) Shortened duration of the annual *Neocalanus plumchrus* biomass peak in the Northeast Pacific. Marine Ecology Progress Series, 393, 189–198.

Funding

Dr. Batten reported that a combination of funding from Canada, Japan, the United States and SAHFOS are in place. The 3-year funding commitment of Canada is at an end in March 2011. However, application for an additional 3-year commitment is promising, but not assured. Otherwise, substantial progress in securing funding has been made. Dr. Sanae Chiba (Japan) obtained funding for the processing of western Pacific samples in Japan. In preparation, Japanese scientists traveled to SAHFOS in Plymouth, England to understand CPR sample processing conventions and a CPR workshop in Yokohama was hosted by Dr. Hiroya Sugisaki. Also in 2009, the *Exxon Valdez* Oil Spill Trustee Council (EVOSTC) approved financial multi-year support that will conclude in 2013. As of now, direct funding from DFO, North Pacific Research Board (NPRB) and EVOSTC are at approximately 70% of full costs for operating two transects (E–W and N–S), including processing samples. Current funding, when supplemented by sample processing support from Japan and continued input from SAHFOS, is expected to keep two transects in place. However, it permits fewer samples than desirable to be processed.

AGENDA ITEM 3

Reports from national representatives

Canada

Dr. David Mackas reported that Canadian funding will continue for a third year (April 2010–March 2011) at \$50,000/yr. The DFO International Governance Strategy program that contributes funding to both the NE Pacific and NW Atlantic CPR comes up for review/renewal in FY 2011–2012. However, the program has strong support from DFO Science in both the Atlantic and Pacific regions, and a 3-year renewal at the present level has been proposed.

The major scientific activity since PICES-2009 was the collaboration with Dr. Batten on chapters in the North Pacific Ecosystem Status Report, and on her annual report to NPRB. The DFO Institute of Ocean Sciences continued to be the east-side base for cruise staging and for the ‘quick-look’ component of North Pacific CPR sample processing. Despite some major changes in ship logistics and the retirement of DFO employee, Mr. Doug Moore (who handled sample processing and ID), there were no adverse impacts on operations. The main difference is that Mr. Moore now contracts his services directly to SAHFOS and Dr. Sonia Batten.

Japan

Dr. Sanae Chiba reported on an analysis by Japanese scientists of the CPR samples taken to the west of 170°E. Funding is provided by the Japan Society for the Promotion of Science (JSPS) Kakenhi (Kiban-A) at approximately \$400,000 for the 5 years, FY 2009–2013. Dr. Chiba also asked for funds from the Japan–UK research collaboration fund. She reported on efforts by other scientists in her group, including Dr. Tomoko Yoshiki, a new post-doctoral associate. Work by Dr. Tsuneo Ono (HFRI, physical–chemical data analysis) was also presented by Dr. Chiba. Japan continues to add value to CPR data by investigating oceanographic conditions along the transect routes for evaluation of east–west differences and synchrony in zooplankton populations.

Russia

Dr. Vladimir Kulik attended on behalf of Russia.

U.S.A.

The *Exxon Valdez* Oil Spill Trustee Council (Anchorage, U.S.A.) will issue a request for proposals for long-term research that includes the CPR sometime during the next 3 to 4 months. Long-term support of CPR is

expected. However, the level of support is currently unknown. Auke Bay Laboratories (ABL) is examining the possibilities for participation in processing of CPR samples and support of CPR transects on behalf of the Alaska Fisheries Science Center. If the outcome is positive, ABL would start participation in 2011.

Dr. George Hunt expressed interest in restoring the bird observation project on CPR transects that was discontinued in 2007. It was suggested that Dr. Kathy Kuletz (U.S. Department of the Interior, Anchorage) be approached about the possibility of supervising a retrospective study of existing CPR bird observer data. Dr. Hunt further recommended that the Board of the Point Reyes Bird Observatory be solicited for funding of the CPR bird observation project.

U.S. members support the recommendation for Science Board to send a letter of information and renewed request for funding to potential CPR Consortium members, and U.S. members further recommend that the letter be supported by the mailing of the North Pacific Ecosystem Status Report to the Consortium, highlighting the contributions of CPR data.

AGENDA ITEM 3

Suggestions for 2009–2010 CPR draft annual report

Panel members found the format currently in use to be acceptable for the 2009–2010 report.

AGENDA ITEM 5

New business

A number of international science meetings relevant to the CPR and zooplankton communities are upcoming.

- 5th International Zooplankton Production Symposium, March 14–18, 2011, Pucón, Chile.
<http://www.ices.dk/iceswork/symposia.asp?topic=2011>
- Workshop on “Comparative studies of zooplankton, *Calanus* spp.” at the ESSAS Open Science Meeting, May 22–26, Seattle WA, U.S.A.
http://www.pices.int/meetings/international_symposia/2011/ESSAS/default.aspx
- SAHFOS 80th Anniversary Symposium. SAHFOS will host a Plankton 2011 symposium on September 22–23, 2011, Plymouth, UK.
<http://www.sahfos.ac.uk/news/2010/10/14/sahfos'-80th-symposium.aspx>

Web links for CPR in the North Pacific can be viewed through:

- PICES, <http://www.pices.int/projects/tcpsotnp/default.aspx/#data>
- SAHFOS, <http://www.sahfos.ac.uk/sister-survey/pacific-cpr-survey/background.aspx>

CPR-AP Endnote 1

CPR-AP participation list

Members

Sonia D. Batten (SAHFOS)
Sanae Chiba (Japan)
David L. Mackas (Canada)
Phillip R. Mundy (U.S.A., Chairman)
Jeffrey M. Napp (U.S.A.)

Observers

Alexander Bychkov (PICES)
George Hunt (U.S.A.)
Vladimir Kulik (Russia)
Tsuneo Ono (Japan)
Hiroya Sugisaki (Japan)
Tomoko Yoshiki (Japan)

CPR-AP Endnote 2

CPR-AP meeting agenda

1. Welcome (Mundy)
2. Overview of CPR activities in 2009–2010 (Batten)
3. Reports from national representatives on status of CPR
 - a. Canada (Mackas)
 - b. Japan (Chiba)
 - c. Russia (Kulik)
 - d. United States (Mundy)
4. Receive suggestions for 2009–2010 CPR draft annual report (Mundy)
5. New business
6. Adjourn