

## REPORT OF BIOLOGICAL OCEANOGRAPHY COMMITTEE



The BIO Committee meeting was called to order by Acting Chairman Prof. Michael M. Mullin, who welcomed new member Dr. Paul J. Harrison of Canada (replacing Prof. Tim Parsons). (See Endnote 1 for attendance.)

A report on WG 11 was given by Drs. George L. Hunt and Hidehiro Kato. The WG has tabulated estimated energy consumption by species of birds and mammals of various categories of prey in each of several sub-regions of the Bering Sea. The WG will meet at the time of PICES VII (estimated 4 days needed), but will not have a complete draft of a report for the BIO Committee then. Some governments have appointed WG members and then not paid for travel, and one appointed member has been uncooperative. Dr. Hunt recommends that a letter of reprimand be sent.

There were presentations on the Bering Sea metadata base by Dr. Bernard Megrey and on PICES web server communication and data exchange by Mr. Robin Brown (TCODE).

No report was available from CCCC-REX.

Drs. Jeffrey Napp and Richard D. Brodeur proposed a WG on micronekton (the subject of a BIO topic session at PICES VI), to be sponsored jointly with FIS. They presented draft terms of reference, and modifications were suggested by the Committee to link the focus more closely to other PICES activities. It was proposed to establish a committee and communicate by e-mail, meeting for 2 days at PICES VII. Napp or Brodeur would be one of two co-chairmen. Vote was 12:0:0 (yes/no/ abstain) in favor of this recommendation.

Dr. Kenneth L. Denman proposed a joint WG with POC on CO<sub>2</sub> in the North Pacific, and presented the terms of reference agreed to by POC. Denman would co-chair. He also proposed a joint topic session at PICES VII on

the role of shelf seas in the CO<sub>2</sub> budget. On the proposed WG, the Committee voted in favor, 10:0:2.

With respect to priorities for the two proposed WGs, the Committee put the micronekton WG as the higher priority by a slight margin.

The Committee considered 12 possibilities for its topic session at PICES VII, including 9 suggested last year. Voting by countries, the Committee recommended as a topic session "Controlling factors for lower trophic levels (especially phytoplankton stocks)". Possible convenors included Drs. Vera Alexander, Akira Taniguchi, and Paul J. Harrison. The Committee also recommended (10:0:2) a topic session co-sponsored by POC on CO<sub>2</sub> in the North Pacific (C.S. Wong possible co-convenor), and (6:0:6) a topic session co-sponsored by MEQ on contaminants and populations dynamics of higher trophic levels (Dr. Linda Jones to consider possible convenors). The Committee also recommended (9:0:3) that the Science Board consider for its topic session the manifestations of El Niño 1997-98, since this topic bridges interests of all Science Committees.

The Committee reviewed papers and posters in the BIO/FIS topic session and the BIO paper session, and recommended that Dr. Atsushi Tsuda receive the Best Presentation Award for his paper, "Life cycles of Neocalanus...". The Committee also strongly recommends that the practice of making such awards continue.

A presentation was made on an international symposium on management and mitigation of harmful algal blooms, and PICES support was requested. The Committee voted 6:0:4 to recommend non-monetary support by PICES, but against (1:4:7) recommending monetary support. L. Jones recommended that Science Board establish a group to determine what

PICES' role should be (if any) in increasing understanding of harmful algal blooms. Committee approved this suggestion 5:4:3.

Correspondence to U.S. NOAA / NMFS concerning trans-Pacific ship-of-opportunity sampling by Continuous Plankton Recorder (CPR, operated by the Sir Alistair Hardy Foundation for Ocean Science) was discussed. A similar monitoring program using ships' intake water on a Tokyo-Vancouver line was described by Prof. Takashige Sugimoto, and there is a Yellow Sea CPR and U(ndulating)PR program probably starting in 1998, with sorting of samples in Qingdao.

Mullin reminded the Committee that a new Chairman will be elected to serve after PICES VII, so possibilities should be considered.

The issue of translating a Russian book on the Okhotsk Sea was discussed. PICES has earlier considered translating data tables, but the Russians apparently insist that the whole book be translated, or nothing. Concerning non-monetary help in encouraging such translation, the committee voted 7:1:3 in favor, but voted against (1:4:6) monetary help (at least from BIO's perspective).

### Scientific Program

The following scientific papers were presented from the BIO Committee sponsored part of the program.

*Micronekton of the North Pacific: Distribution, biology and trophic linkages.* (BIO/FIS) Co-convenors: Richard D. Brodeur (U.S.A., Kouichi Kawaguchi (Japan) & Qi-Sheng Tang (China).

B.H. Robison. *In situ* studies of micronekton  
M. Moku, H. Watanabe, A. Ohno, K. Kawaguchi. Feeding habits and diel vertical migration patterns of the three dominant myctophid fishes in the western subarctic and transitional Pacific

A.A. Balanov. Daily and seasonal feeding dynamics of the two myctophid species, *Stenobranchius leucopsarus* and *S. Nannochir*, in the mesopelagic zone of the Bering Sea

M.T. Wilson. Community ecology of juvenile pollock (*Theragra chalcogramma*) and other micronekton in the eastern Bering Sea during 1987

D.J. Lindsay, M. Minagawa, K. Kawaguchi. Stable carbon and nitrogen ratios of mesopelagic micronekton and their prey

T. Kikuchi. Species composition, vertical distribution, and food habits of the pelagic shrimps in the western North Pacific

Y. Arimoto, A. Kawamura. Importance of micro-nektonic fishes as revealed from the stomach analysis of neon flying squid, *Ommastrephes bartrami*, in the northwestern North Pacific

O. Yamamura. Predation on micronekton by demersal fish

H. Ohizumi, T. Kuramochi, N. Miyazaki. Stomach contents of Dall's porpoises (*Phocoenoides dalli*) in the North Pacific Ocean

Y. Naito. Deep sea foraging of marine mammals and birds

Q.S. Tang. Distribution and relative abundance of some micronektonic fishes in the Aleutian Basin

*Harmful algal blooms: Causes and consequences.* (BIO/MEQ) Co-convenors: Roderick Forbes (Canada) & Jae-Hyung Shim (Korea).

L. Mackenzie. Big problem or minor irritation? The impact of marine biotoxins on aquaculture in New Zealand

J.R. Forbes, E.A. Black. Effects of elevated nutrients from fish farm wastes on phytoplankton productivity

M.J. Zhou. What to focus on HAB (Harmful Algal Blooms) studies in China

D.Y. Kim, J.B. Lee, K.J. Cho, J.A. Lee. The distribution of dinoflagellate cysts in Masan-Jinhae Bay, Korea

- H.G. Kim, S.G. Lee, K.H. An. Species succession in the harmful algal blooms in temperate zone associate with eutrophication
- R.X. Li, M.Y. Zhu. The harmful algal blooms in shrimp ponds in north China
- W.H. Yih, J.S. Yang, H.J. Jeong, J.H. Shim. Recent red tides in Kunsan Inner Harbour - 'the kunsan type red tide'
- R.V. Azanza. Harmful algal blooms in southeast Asia
- Y.S. Suh, S.D. Hahn, Y.H. Ahn, H.G. Kim. Algal bloom distribution image derived from AVHRR visible and near infrared band data
- S.D. Hahn. Algal blooms before 20<sup>th</sup> century in Korea
- Y. Tanaka, A. Tsuda, T. Kimoto, & Harashi. Nutrient balance and distribution of phytoplankton species plus size species revealed via ferry
- biomass, chlorophyll concentration and physical environment in the subarctic Pacific and Bering Sea
- Y.S. Kang. Long-term change in zooplankton biomass in the Korean waters
- A. Tsuda, H. Saino, H. Kasai. Life cycles of *Neocalanus flemingeri* and *N. plumchrus* (calanoida, copepoda) in the western subarctic Pacific
- M.M. Mullin, S.L. Cass-Calay. Vertical distributions of zooplankton and larvae of the Pacific hake (whiting), *Merluccius productus*, in the California current system
- N. Shiga, K. Nishiguchi, T. Aono. Comparison of zooplankton communities between the central and western subarctic Pacific Ocean
- Y.S. Kang, Y.J. Jo, W.J. Go, S.S. Kim, K.A. Jeon. Distributional characters of salps in relation to oceanographical condition in the Korean waters
- Y. Sakurai, H. Kiyofuji, S.I. Saitoh. The effect of changing environmental regimes on *Todarodes pacificus* populations: A possible scenario
- S.Y. Hong, H.K. Cha. Ecology of *Metapenaeus joyneri miers* (Decapoda Penaeidae) in the western coast of Korea
- D.E. Hay. Effects of climate changes on the smelts (osmeridae) of the North Pacific

*BIO Committee Paper Session:*

- K. Tadokoro, T. Sugimoto. West-east comparison of seasonal variation in phytoplankton biomass in the subarctic North Pacific Ocean
- T. Sugimoto, K. Tadokoro. Interannual-interdecadal variations in zooplankton

**Endnote 1**

**Participants**

Canada

Kenneth L. Denman  
Paul J. Harrison  
David L. Mackas

China

Rong Wang

Japan

Tsutomu Ikeda  
Takashige Sugimoto  
Atsushi Tsuda

Korea

Sung-Yun Hong  
Sinjae Yoo  
Woong-Seo Kim (for Jae-Hyung Shim)

U.S.A.

Michael M. Mullin  
Linda Jones

## **Endnote 2**

### **Report of Working Group 11: Consumption of Marine Resources by Marine Birds and Mammals in the PICES Region**

PICES Working Group 11 met 14 to 18 October, 1997, in Pusan, Republic of Korea, to estimate the biomass of prey required to support populations of marine birds and mammals in selected regions of the North Pacific Ocean. To accomplish this goal, we assembled data on the distribution and abundance of marine birds and mammals, and the periods of time that these populations remained in the PICES area as a basis for estimating the energy required to support these populations. The quantity and quality of data available for estimating the size of marine bird and mammal populations, food habits and consumption differ greatly in quality and quantity by species and region. The Working Group therefore agreed to focus on the summer months, a period during which data were most complete, and when birds and mammals were less likely to be migrating in or out of the PICES region. We were able to complete, for several of the 14 sub-regions, tabulations of the populations of marine birds

and mammals found in that area, energy demand, food habits and food consumption. The time periods in which the data were aggregated varied depending on the biology of the species (June - August for birds, June - September for marine mammals). We propose to complete assessments of marine bird and mammal prey consumption for the remaining sub-regions through inter-session correspondence, and to complete a Final Report of our task at the next Working Group meeting in Alaska in 1998. The Working Group expressed its concern that a number of members central to the production of its report were not able to attend; less than one half of the Working Group members were able to participate in the Pusan meeting. Therefore an additional meeting to work interactively with these individuals is required for assembling our report. We strongly urge that efforts be made to ensure future full participation by working group members.