

EXECUTIVE SUMMARY

This volume summarizes the results of workshops organized by the PICES-GLOBEC Climate Change and Carrying Capacity Program held just prior to the Eighth Annual Meeting in Vladivostok, Russia, in October 1999. In addition, a very successful modelling workshop was subsequently convened in Nemuro, Japan, the following January.

One of the most important goals is to integrate the results of national GLOBEC and related programs in order to review and promote a better understanding of how climate change affects the ecosystems of the North Pacific Ocean. PICES plays a key role in this regard, because it serves as the forum where diverse scientists can come together, presenting their own recent findings, and learning about progress in other regions around the Pacific Rim. With the rapid changes in climate occurring in the 1990s, PICES has played a crucial role in organizing meetings where scientists can meet to compare recent findings and exchange views on what seems to be happening in the North Pacific.

The MONITOR Task Team first met in 1998 in Fairbanks. Since that initial meeting a number of initiatives to improve monitoring of the North Pacific Ocean have been successfully implemented. As this report indicates, large-scale plankton monitoring has begun with the deployment of a Hardy Continuous Plankton Recorder in the year 2000. The Hardy recorder was developed in the 1920s and 1930s, so it is hardly a modern electronic instrument. However, it marks the first time that large scale plankton monitoring of the North Pacific has begun, and it is expected that the data so collected will provide badly needed information on the spatial scale of the plankton of the North Pacific—essential information if a more extensive monitoring program is to be put in place in future. Most of the remainder of the MONITOR Task Team meeting was devoted to an extensive review and discussion of international efforts in GOOS (Global Ocean Observing System), which will serve as a framework for questions about how to get oceanographic data into a useable form in a timely manner. The data from these new initiatives will form the basis for the monitoring systems of the future.

The REX Task Team held a workshop to review the population dynamics of herring and euphausiids around the Pacific Rim. Typical of small pelagic animals, large changes in the abundance of these key members of coastal ecosystems are observed over time, and interesting data on the changes in feeding success and overwinter energy depletion were reported. An interesting development within the North Pacific are the reports on longer-term fluctuations in herring abundance, which will no doubt serve to provide a better perspective on the short-term fluctuations evident when only data from modern fisheries is examined. A number of interesting relationships were also noted between the abundance of herring and euphausiids from around the Pacific Rim.

Finally, the MODEL Task Team met to discuss developments during the past year and to make the final plans for an intensive workshop scheduled for Nemuro, Japan, in January 2000. The extensive report from that meeting is included here, and describes the results of a substantial effort by many members of the PICES modelling community to develop a consensus on the essential elements of an ecosystem model for the North Pacific Ocean; their progress in doing so will provide an essential stepping stone towards a better understanding of what aspects of the ecosystem are most important to measure and monitor in the future.

In conclusion, the many scientific threads within PICES are progressing well, and there is excellent reason to believe that in the near future, we will be able to weave these threads together and to produce

new understanding that will be beyond what would be possible from the efforts of either individual scientists or individual specialities. As its name suggests, PICES' "Four Seas" Program (Climate Change and Carrying Capacity) has an ambitious goal. The hard work by the many individuals at the Task Team meetings (plus the dedication of the members of the PICES Secretariat to quietly ensure that that work is done as promised!) has led PICES very far in the first eight years of its existence. I am very proud to be a part of this group, and am privileged to have had the opportunity to work with such a diverse group of talented and interesting people. There are many challenges on the horizon for PICES. I feel confident that the networks of people and ideas being nurtured within PICES will provide the nucleus for addressing them in the North Pacific– both those that we can foresee, and those that we have yet to discover.

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