

## Executive Summary

The North Pacific Ocean plays a significant role in controlling the long-term fate of CO<sub>2</sub> on Earth. Much of our understanding of the distribution of anthropogenic CO<sub>2</sub> in the North Pacific stems from intensive work conducted during the decade of the 1990s. Underway measurements were made for *p*CO<sub>2</sub> in the northern North Pacific from 1995 to 1999, as part of the Japan-Canada cooperative vessel-of-opportunity program. In addition, discrete high-quality dissolved inorganic carbon and total alkalinity data were acquired as part of the WOCE/JGOFS Global CO<sub>2</sub> survey in the Pacific Ocean between 1991 and 1999. This research was supported, in part, by the member nations of the North Pacific Marine Science Organization (PICES). This report describes the research and technical activities of the PICES Working Group 13 on *CO<sub>2</sub> in the North Pacific* from 1998 through 2001. The major scientific objectives of the Working Group were to: (i) synthesize CO<sub>2</sub> data from the North Pacific Ocean; (ii) determine the sources and sink for CO<sub>2</sub> and their regional fluxes; and (iii) provide a comprehensive picture of the distribution of anthropogenic carbon dioxide in the region. The major technical activities included: (i) supporting international cooperation in exchanges of samples from cruises; (ii) organizing measurement inter-comparison studies for carbonate parameters in seawater; and (iii) developing ongoing mechanisms for exchanging data at the international level; and (iv) sponsoring several meetings and symposia on CO<sub>2</sub> system dynamics in the North Pacific. We will discuss the implications of these research and technical activities with respect to climate change processes and provide recommendations for future directions by PICES for international cooperation on carbon cycle research in the North Pacific.

Richard A. Feely & Yukihiro Nojiri  
WG 13 Co-Chairmen