

PICES @ Oceans in a High CO₂ World

by Skip McKinnell



Le Musée Océanographique de Monaco.

If anywhere in the world there is a cathedral to oceanography, it must certainly be *le Musée* in Monaco. Names of the earliest research vessels, *Challenger*, *Vityaz*, *Albatross*, and others adorn its exterior. Its halls tell the stories of nearly two centuries of research on the sea. It was here that the organizers of the conference on “*The oceans in a high CO₂ world–II*” chose to convene their second major symposium on this increasingly important topic from October 6–9, 2008.

Under the High Patronage of His Serene Highness Prince Albert II, 220 scientists from 32 countries assessed what is known about ocean acidification impacts on marine chemistry and ecosystems. The symposium was sponsored by the Scientific Committee on Oceanic Research (SCOR), the Intergovernmental Oceanographic Commission (IOC-UNESCO), the International Atomic Energy Agency’s Marine Environmental Laboratory (IAEA-MEL) and the International Geosphere–Biosphere Programme (IGBP). They invited PICES and ICES to jointly organize a session on *Fisheries, food webs, and ecosystem impacts*. Each organization was asked to identify one invited speaker and to encourage contributed papers by scientists working under their auspices. PICES nominated Dr. Yukihiro Nojiri (National Institute of Environmental Science, Tsukuba, Japan), who gave an invited talk on “*An ocean acidification*

simulation experiment with benthic animals using a precise pCO₂ control system” that he co-authored with Yoshihisa Shirayama, Hideshi Kimoto, Takeshi Egashira and Katsumoto Kinoshita. They described a new technology under development that will allow controlled experiments on calcifying organisms. The PICES contributed paper selected by the organizers for oral presentation was “*Salmon pFishing in the Northeast Pacific: An archaeological dig in the North Pacific survey data (1956–1964)*” that was prepared by Skip McKinnell, James Christian (Co-Chairman of PICES’ Section on *Carbon and Climate*), Nancy Davis, and David Mackas (member of PICES’ Biological Oceanography Committee). The northern North Pacific is one of a few regions in the World Ocean where the aragonite saturation horizon is relatively shallow. Below this horizon, aragonite shells dissolve when exposed to seawater. Richard Feely and colleagues have found aragonite-undersaturated waters on the North American continental shelf. Recognizing that several species of Pacific salmon are known to eat pteropods, especially *Limacina helicina* (a shelled mollusc that is part of the holoplankton), Skip McKinnell and his co-authors reviewed where and when pteropods are important prey for salmon. For example, a modelling study published in 2005 by Kerim Aydin, Gordon McFarlane, Jacquelynne King, Bernard Megrey and Katherine Myers in the PICES special issue on *Linkages between coastal and open ocean ecosystems in Deep Sea Research II* (Vol. 52, Nos. 5–6) suggests that pteropods can be very important to pink salmon in the Gulf of Alaska near Station Papa in winter.



The Conference Room at Musée Océanographique de Monaco.

Within PICES, the Section on *Carbon and Climate*, currently chaired by Drs. James Christian (Canada) and Toshiro Saino (Japan), has the main responsibility for promoting and coordinating international research on ocean acidification in the North Pacific Ocean.

Dr. Skip McKinnell (mckinnell@pices.int) is Deputy Executive Secretary of PICES, and all he asks for is a tall ship and a star to steer her by.