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Climate Change Affects Top Predators in Ocean Ecosystems

HONOLULU (20 December 2007) Scientists from the University of Hawaii joined more than 150 colleagues at the First Climate Impacts on Oceanic Top Predators (CLIOTOP) Symposium, hosted by the Centro Interdisciplinario de Ciencias Marinas and the Centro de Investigaciones Biologicas del Noroeste, December 3-7, 2007, at La Paz, Baja California Sur, Mexico.

The symposium, which was attended by scientists from 25 different countries, marks the start of the 10-year project to investigate the impact of climate change on top predators in the world's oceans. Predators include such economically important fish as tunas, as well as billfish, sharks, whales, dolphins, sea turtles and sea birds. All of these species are affected by such changes in climate as variability in winds, ocean currents, air and sea temperatures, and rainfall levels. El Nino La Nina changes are the most well known and significant aspect of year-to-year climate variability, but climate change also occurs over decades and centuries.

The University of Hawaii's Pelagic Fisheries Research Program (PFRP) played an active role in the symposium. Dr John Sibert, manager of the PFRP and a member of the CLIOTOP Steering Committee, helped organize the symposium, and the PFRP sponsored student participation. PFRP-funded research reported at the symposium addresses several aspects of how climate change will affect top predators, for example, how potential changes in the base of the oceanic food web will affect the feeding of top predators, the migration patterns of hatchling sea turtles, and the size of tuna populations.

"Oceanic top predators respond to changes in their environment by changing their behavior and shifting their distribution. As a result, ocean ecosystems may experience changes in the relative abundance of different species, as well as changes in overall productivity," said Dr Sibert. "This can have major economic impacts and may determine the food security of many coastal communities in the developing countries of the world."

CLIOTOP provides a framework for scientists to carry out collaborative and comparative research across different oceans. Such comparative research will deepen our understanding of the ecosystem impacts of climate change. The CLIOTOP Project has established five working groups to investigate a variety of scientific topics related to the general theme of how climate change impacts top predators. One working group is examining how climate change is likely to affect ocean governance.

In discussing preliminary results of one PFRP-sponsored research project, Dr. Sibert stated that "global warming may lead to severe contraction of favorable reproductive zones for some species of tunas that will have larger effects than fisheries on tuna stocks by the end of the twenty-first century."

For background information on the CLIOTOP Project, including its Science Plan, go to <http://web.pml.ac.uk/globec/structure/regional/cliotop/cliotop.htm>

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