



Contact: Monica Allen
301-713-2370
monica.allen@noaa.gov

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NOAA and NSF Commission National Study of Ocean Acidification

The first comprehensive national study of how carbon dioxide emissions absorbed into the oceans may be altering fisheries, marine mammals, coral reefs, and other natural resources has been commissioned by NOAA and the National Science Foundation.

“Carbon dioxide released into the atmosphere through the burning of fossil fuels is not only contributing to atmospheric climate change,” said Dr. Steven A. Murawski, director of scientific programs and chief science advisor for NOAA’s Fisheries Service. “These emissions are being absorbed into the oceans with potentially catastrophic effects on life in our oceans. Some of the most vulnerable species – clams, crabs, lobsters, mussels, shrimp, and scallops - are also some of the most important economically to the United States, representing half of the \$4 billion annual value of all fish harvested in U.S. waters.”

The need for this national study, to be conducted by the National Academy of Sciences, was outlined by Congress in the reauthorization of the Magnuson-Stevens Fishery Conservation and Management Act in 2007.

Since the beginning of the industrial era, the oceans have absorbed about a third of all manmade carbon dioxide emissions released into the air. The ability of the oceans to absorb carbon dioxide emissions has reduced some of the harmful effects of heat-trapping greenhouse gases in the atmosphere and on land. But scientists are finding that the continued, increased absorption of these gases is altering the biology and chemistry of oceans in fundamental ways.

Absorption of large amounts of carbon dioxide alters the chemistry of the oceans by reducing the pH of seawater. With increasing carbon dioxide in seawater, shellfish and corals cannot absorb enough calcium carbonate to build strong skeletons and shells. The greater acidity slows the growth and even dissolves ocean plant and animal shells. The decline of these valuable species would drastically harm U.S. fisheries.

Any decline of these species would also have profound effects on entire ecosystems where shellfish and crustaceans provide food for many other species and coral provides habitat for fish. The effects of ocean acidification will potentially extend to coral reefs, marine plankton, other animals and plants.

The National Research Council of the National Academy of Sciences is putting together a panel of 10 to 12 scientists to undertake the 18-month study. The committee will be made up of scientists with expertise in chemical oceanography, paleoceanography, biological oceanography, physiology, marine ecology, resource economics, geochemistry, resource management, and ocean-climate modeling.

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NOAA’s Fisheries Service: <http://www.nmfs.noaa.gov>

Ocean Acidification: <http://www.pmel.noaa.gov/co2/OA/>