

# OCEAN CHEMISTRY DIVISION

The diverse Ocean Chemistry Division's (OCD) scientific staff of 24, including nine Ph.D.-level scientists, is comprised of marine, atmospheric, and geological chemists, as well as chemical, biological, and geological oceanographers. OCD is, therefore, able to use multidisciplinary approaches to solve scientific research questions devoted to helping NOAA fulfill its scientific mission. The Division's work includes projects that are important in assessing the current and future effects of human activities on our coastal to deep ocean and atmospheric environments. Detailed information about specific research projects can be found by visiting the web sites of the individual OCD project pages listed below.

## CURRENT RESEARCH PROJECTS

### Florida Bay

With the South Florida Ecosystem Restoration, Prediction and Modeling (SFERPM) effort, NOAA has taken a lead role in regard to rigorously investigating the causes of present changes in the Everglades/Florida Bay coastal ecosystem and quantitatively predicting the consequences of upstream restoration activities upon that ecosystem. OCD has taken a leadership role in this effort and is conducting biological, chemical, and physical studies in collaboration with other AOML Divisions.

### Global Ocean Ecosystem Coupling (GLOBEC)

GLOBEC investigates the effects of climate and natural variability on ocean ecosystem changes, especially as they are relevant to commercially valuable fisheries. The Arabian Sea GLOBEC program investigated zooplankton and mesopelagic fish in an exhaustively detailed physical, chemical, and biological context provided by research cruises, satellite remote-sensing, long-term mooring, and modeling activities conducted by U.S. Global Change Program research components.

### Ocean Atmosphere Carbon Exchange Study (OACES)

The Ocean Atmosphere Carbon Exchange Study (OACES) is a collaborative study between the NOAA laboratories of AOML, CMDL, PMEL, and university-based investigators to assess the role of the oceans in controlling the exchange of carbon dioxide (CO<sub>2</sub>) across the air-sea interface and its eventual penetration into the water masses of the deep ocean as part of the NOAA Climate and Global Change Program (C&GC).

### Atmospheric Chemistry

The OCD atmospheric chemistry program is an ongoing effort to understand the sources and sinks of chemical trace species in the marine troposphere within the NOAA Climate and Global Change Program. These investigations include the cycling of methyl bromide (CH<sub>3</sub>Br) in the atmosphere and the ocean and the exchange of this trace gas between the two reservoirs. This program also concerns sources and reactions of reactive nitrogen gases, ozone, and carbon monoxide, and the measurement of radon (<sup>222</sup>Rn) as an atmospheric tracer gas. The former gases affect global warming, while radon traces terrestrial sources.

### Deep Ocean Relocation

This project is investigating the potential of environmentally safe disposal of harbor and estuary dredge material in the deep ocean. AOML scientists in OCD and the Ocean Acoustics Division (OAD) are working closely with the Naval Research Laboratories (NRL) and the Defense Advanced Research Programs Agency (DARPA), as well as private consulting firms and university scientists, to understand the consequences of such activities to, for example, New York and Boston harbors.



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