

## **West Florida Continental Shelf Diving and the ECOHAB-ONR- COMPS Monitoring Array**

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This overview describes the accomplishments of the University of South Florida's Ocean Circulation Group (OCG) in the Gulf of Mexico using a variety of oceanographic and meteorological instrumentation and how critical diving is in this research. Heavily deployed in the Pacific Ocean as part of the Tropical Ocean Global Atmosphere project with National Oceanic and Atmospheric Administration (NOAA), OCG also began conducting science locally, on the west Florida continental shelf (WFS) just west of the USF campus. In cooperation with the U.S. Geological Service Center for Coastal Geology, an element of the West-Central Florida Coastal Studies Project, the West-Central Florida Shelf Hydrography and Circulation study was initiated in 1993. The goal was to provide an improved description and understanding of the relevant physical processes that control the shelf circulation and hydrography. This is the prerequisite to understanding the physical oceanographic impacts upon coastal oceans. AAUS divers play an important role in the collection of these data and the entire ECOHAB-ONR-COMPS monitoring array.

Understanding the circulation on the west Florida shelf is important for a variety of reasons. Knowledge of currents and sea level is necessary to monitor coastal erosion. This information can also be used for recreational and commercial navigation and for search and rescue operations. Similarly, prediction of the movements and dispersal of hazardous material spills is critically dependent on knowing the currents and how they respond to tides and winds. The interactions between the coastal waters and the offshore loop current in the Gulf of Mexico affect the distribution of biological and chemical properties that ultimately affect fisheries and red tides. Compared with other continental shelf regions, little is known about the west Florida shelf circulation.

The Ocean Circulation Group manages the *in situ* physical oceanographic measurements and modeling on the shelf. Funding comes from a variety of sources such as USGS, Minerals Management Service, NOAA, Office of Naval Research (ONR), the State of Florida, the Department of Environmental Protection, National Science Foundation, and others. After a series of projects on the WFS, the monitoring array has evolved into 13 moorings, six surface sites, and seven subsurface sites. All use acoustic Doppler current profilers (ADCPs) for water column measurements. Temperature and salinity recorders are spaced on the moorings as well as the bottom mounts. Four of the surface moorings measure surface meteorological parameters and telemeter data in real time. The most complete system provides surface meteorological sampling, water column currents, temperature, and salinity at six depths, all telemetered in near real time via the NOAA-GOES (Geostationary Operational Environmental Satellite) data collection system. Ongoing are an Ecology of Harmful Algal Blooms (ECOHAB) regional field study to advance our understanding and forecasting ability for red tides; ONR-supported *in situ* measurements and modeling; and a State of Florida-supported Coastal Ocean Monitoring Prediction System (COMPS) to provide real-time data for emergency management use.