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NOAA, MOTE MARINE LABORATORY PARTNER
TO IMPROVE DETECTION OF HARMFUL ALGAL BLOOMS

NOAA and Mote Marine Laboratory of Sarasota, Fla., have signed a three-year $364,000 contract to partner in the monitoring and detection of harmful algal blooms (HAB) using newly developed underwater technology that should provide earlier warning of HAB events along Florida's Gulf coast.

NOAA currently operates an existing Operational Harmful Algal Bloom Forecast System for the Gulf of Mexico, run by the agency's Center of Operational Oceanographic Products and Services. This forecast system provides HAB detection information to coastal managers and public health officials twice weekly. The improved HAB forecasting ability is an example of the benefits that can be derived from an Integrated Ocean Observing System, an effort in which NOAA is taking a leadership development role.

"NOAA is committed to the improved management, detection and monitoring of harmful algal blooms. With the addition of this new technology to our existing system, we are developing the next generation of forecast tools," said retired Navy Vice Adm. Conrad C. Lautenbacher, Jr., Ph.D., under secretary for commerce for oceans and atmosphere and NOAA administrator. "Using observational data for ecological forecast systems shows the value and need for the development of an integrated ocean observing system, one that can assist in addressing the threats to our health and our economy caused by harmful algal blooms."

The existing HAB forecast system represents a cooperative effort that integrates data from various ocean-observing systems, including data from commercial and government satellites; meteorological data from NOAA observing stations; and field data collected by state and university monitoring programs. The addition of the new data sets from moorings and autonomous underwater vehicles (AUVs) will provide a key new data set to improve determination of the location and characteristics of blooms.

The new technology NOAA is implementing improves HAB detection with in-water detection sensors called "Brevebusters," to detect Karenia brevis, commonly known as Florida red tide. Developed by the Mote Marine Laboratory through funding by NOAA's Center for Sponsored Coastal Ocean Research, a Brevebuster will be deployed on NOAA platforms at Venice and Naples, Fla., providing additional information on the location of harmful blooms along the Gulf coast.

NOAA is also experimenting with new technology involving the use of the Brevebuster on AUVs that can search for and track blooms offshore. As blooms often form offshore below the water surface, current detection methods make the blooms difficult to find. Using new capabilities with AUV gliders developed by Mote Marine Laboratory, it will become possible to find these blooms and forecast their development sooner. Subsurface monitoring may have aided in identifying the extent of *Karenia brevis,* commonly known as Florida red tide*,* in causing the recent extensive kills of bottom fish offshore of Tampa Bay and Sarasota.

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Already the new observation technology is showing promise. A Brevebuster attached to a mooring provided the first warning of the current and on-going spread of the toxic algae *Karenia* brevis bloom southward into Lee County, Fla.

Initially a pilot program, the goal is to have a fully operational mooring and AUV system deployed in the Gulf by next summer.

"When NOAA inaugurated the operational forecasting system last October we made a long term commitment to Florida's Gulf coast citizens that NOAA would continue to seek ways to improve ecological HAB forecasts to alert coastal communities to HAB events so that they can implement protective measures," said Richard Spinrad, assistant administrator of NOAA Oceans and Coasts Service. "The HAB forecast system is one example of NOAA's efforts to provide information and decision support tools for coastal managers. The new technology represents NOAA's goal of adding value to science for the benefit of the users."

HABs occur in the waters of almost every U.S. coastal state and, over the last several decades, HABs have caused more than $1 billion in economic losses in the U.S. due to closures of shellfish beds and coastal fisheries, negative impacts on tourism and service industry revenues, and public illnesses. Data suggests that HABs are increasing in frequency. To reduce impacts for HABs, public health officials, the seafood industry, coastal managers, and Chambers of Commerce need precise information on the current and projected location of these blooms.

NOAA also supports continued research to improve HAB detection, monitoring and forecasting, and has provided more than $9 million since 1997 for research on *Karenia brevis*. With the improved understanding of HABs developed through NOAA's Ecology and Oceanopgraphy of Harmful Algal Blooms (ECOHAB) and Monitoring and Event Response for Harmful Algal Blooms (MERHAB) programs, there is a potential to extend HAB forecast capabilities to other U.S. coasts. New capabilities developed through improved integration of ocean data from regional observing systems will further aid improvements in HAB detection and forecasts.

The National Oceanic and Atmospheric Administration, an agency of the U.S. Commerce Department, is dedicated to enhancing economic security and national safety through the prediction and research of weather and climate-related events and providing environmental stewardship of our nation's coastal and marine resources. Through the emerging Global Earth Observation System of Systems (GEOSS), NOAA is working with its federal partners and nearly 60 countries to develop a global monitoring network that is as integrated as the planet it observes.

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On the Web:
NOAA: http://www.noaa.gov
NOAA Oceans and Coasts Service: http://oceanservice.noaa.gov
NOAA Centers for Coastal Ocean Research: http://coastalscience.noaa.gov/
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