

EPA Dives into Caribbean to Develop 3-D Look of Coral Reef

(St. Croix, U.S.V.I. -- Dec. 5, 2007) The U.S. Environmental Protection Agency's (EPA) 224-foot research flagship Ocean Survey Vessel, the OSV BOLD is working in the waters of the Caribbean this week developing a three dimensional model of coral reef conditions and examining fish and marine life as part of its ongoing efforts to protect and improve the environment of the Caribbean. Divers from EPA, the U.S.V.I. Department of Planning and Natural Resources and the National Oceanic and Atmospheric Administration will work together to help take samples and observe coral reef conditions at nearly 60 strategic areas around St. Croix with the aim of recording core measurements to develop the first ever coral reef biological criteria for water quality standards.

"EPA recognizes that healthy coral reefs are the foundation for many marine species, and thus a crucial support for human life," said Alan J. Steinberg, EPA Regional Administrator.

"This coral reef monitoring and assessment is an outstanding example of how EPA is investing in sound science and new technology to protect public health and our coastal waters. EPA is supporting the development of biological assessment methods and biological criteria for use in evaluating the health of coral reefs."

Coral reefs throughout the Caribbean have suffered degradation from a number of environmental stresses including increased sea surface temperature, contaminants from land-based sources and excess of nutrients from pollution. In the summer of 2005, sea surface temperatures throughout the Caribbean elevated to record levels, and U.S. V.I. marine scientists observed serious impacts to coral reefs. Bleaching affected 90 percent of corals, and subsequent spread of coral disease caused impacts to reefs throughout the entire territory. Virgin Islands government scientists have been working with EPA to develop a coral reef monitoring and assessment strategy. This week, the OSV BOLD will resume coral reef monitoring that began in 2006. The survey will initiate a long-term monitoring program to observe conditions of corals around the entire island.

Dive teams will identify, count, measure, and make observe to capture the complexity of the three-dimensional structure of coral reefs as part of EPA's innovative research. The sophisticated procedure will rely on going underwater to collect data from three perspectives. Divers will make methodical observations by swimming in carefully measured 360 degree "radial belt" pathways. The combination of observations will allow scientists to calculate a number of sensitive measurements to gauge the conditions of the coral reefs.

Samples of coral tissue and sediment will be collected for analyses of the tissue, algae and sensitive marine shrubs. Photogrammetric Imaging will take place in which scientists take underwater photographs of different coral species to help determine their geometric properties and refine future 3-D surface area estimates. Divers will also conduct fish population counts and habitat analysis associated with some of the EPA coral monitoring points. This will support a more holistic understanding of the ecological life of the coral systems.

Under the Clean Water Act, states and territories may adopt water quality standards based on biological, as well as physical and chemical criteria. Standards based on biological criteria (or biocriteria) are helpful management tools because biological communities are dependable indicators of aquatic health. Biocriteria have been adapted for freshwater systems. This survey is designed to provide core measurements that can be used to develop the first ever coral biocriteria.

The OSV BOLD is equipped with state-of-the-art sampling, mapping, and analysis equipment including side scan sonar, underwater video, water sampling instruments, and sediment sampling devices, which scientists use in a wide variety of ocean monitoring activities. The ship can house up to 18 scientists, 19 crew members and remain at sea for weeks as they collect water quality and sediment samples, fish, and other organisms.

To learn more about our oceans and coral reefs, visit:

<http://www.epa.gov/Region2/water/oceans>.

More information about the OSV BOLD can be found at:

<http://www.epa.gov/bold>.

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