



NOAA Explores Underwater Habitats of Vieques, Puerto Rico

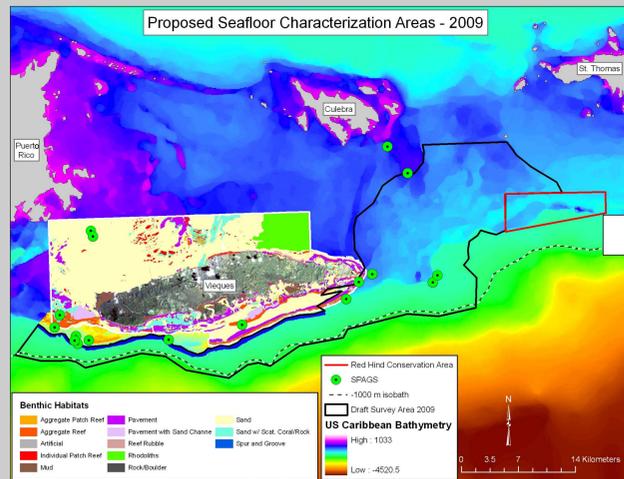


In partnership with the Caribbean Fisheries Management Council, the University of Puerto Rico (Mayagüez), the University of the Virgin Islands, and the Caribbean Coral Reef Institute, NOAA collects sonar and video data in high priority conservation areas around Vieques, Puerto Rico

NOAA Project NF-09-01

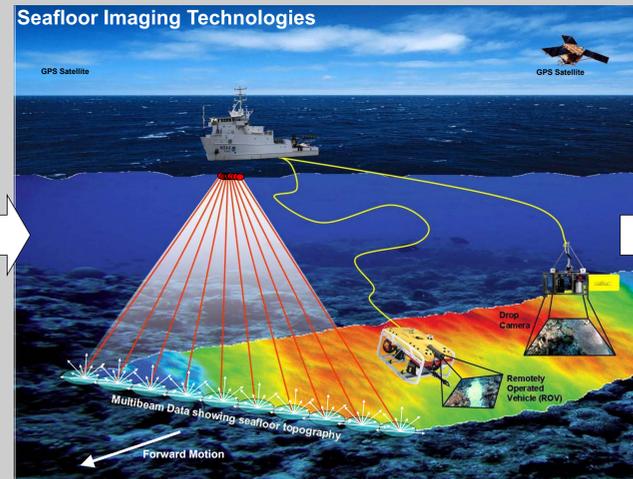
Project funded by NOAA's Coral Reef Conservation Program

Planning



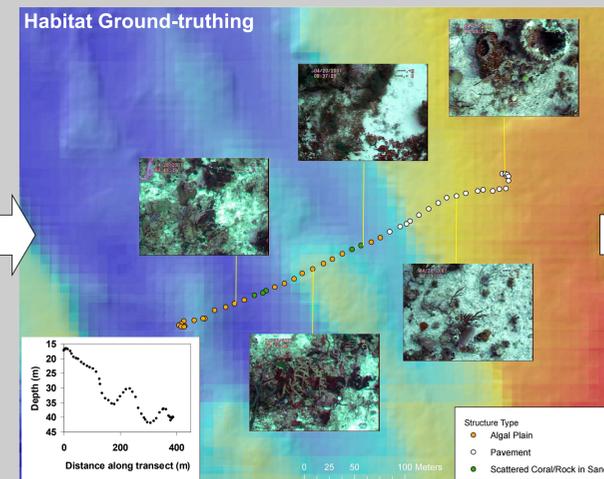
This is the fourth annual mission in an ongoing research project to explore and characterize near-shore habitats within the waters of Puerto Rico. On this mission, scientists will visit areas of the Virgin Passage around Vieques, Puerto Rico (see map above). These "high priority" areas were chosen in collaboration with the Caribbean Fisheries Management Council and the University of Puerto Rico (see "more about") for their importance to coral reef ecosystems and fisheries. For example, multibeam surveys conducted by NOAA and its partners have helped document grouper spawning grounds like Tourmaline Bank, which are seasonally closed to protect the fish while they spawn to ensure more sustainable populations.

Data Collection



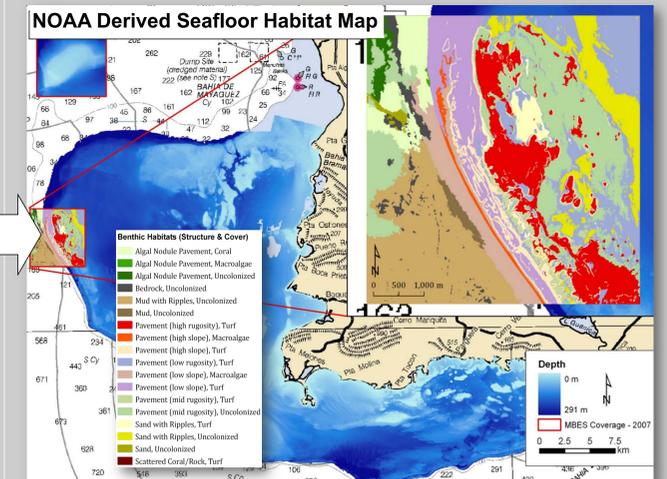
Aboard the NOAA research ship NANCY FOSTER (see "more about") scientists collect abiotic data, such as high-resolution bathymetry, habitat hardness and habitat roughness, and biotic data, such as underwater video footage of corals, plants and fish. Multibeam echosounders are used to collect depth and backscatter data, and a remotely-operated vehicle is used to collect video. An integrated Global Positioning System and Ultra Short-line Base Receiver provide precise positioning of the camera on the seafloor and on digital charts to support investigation of specific targets. These acoustic and remote video technologies allow researchers to explore down to 1 km, so as to document the composition, condition, and distribution of critical resources.

Interpretation



Above is a drop camera transect overlaid on seafloor topography. The points represent where the video camera took a picture of the seafloor. Because both the acoustic (physical) and video (biological) data have high positional accuracy, scientists can match them up on a map and look for spatial patterns. This allows them to map the distribution of coral from shallow to deep, and explore species preference for sand versus hardbottom, etc. Developing these "habitat utilization models," which link physical habitat with biological information, is one of the primary objectives of the NOAA Biogeography Branch (see "more about"). The Branch also uses this data to develop signal processing techniques, mapping and sampling designs, and to evaluate new technologies.

Products



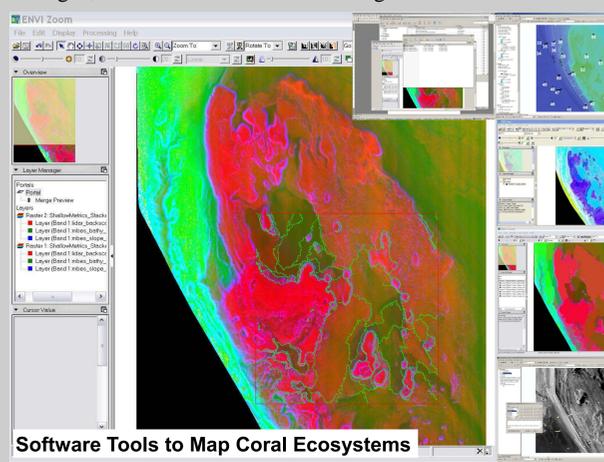
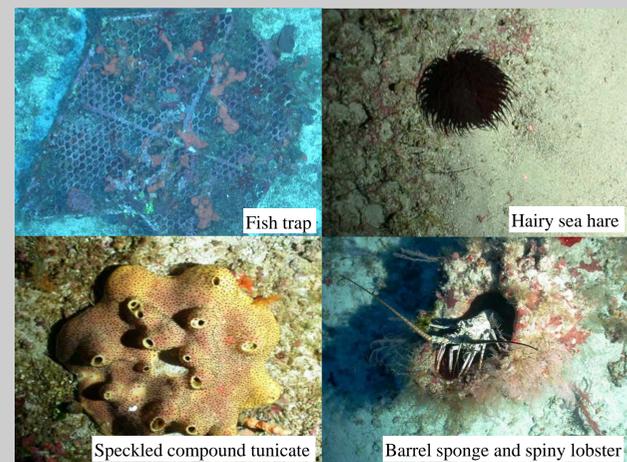
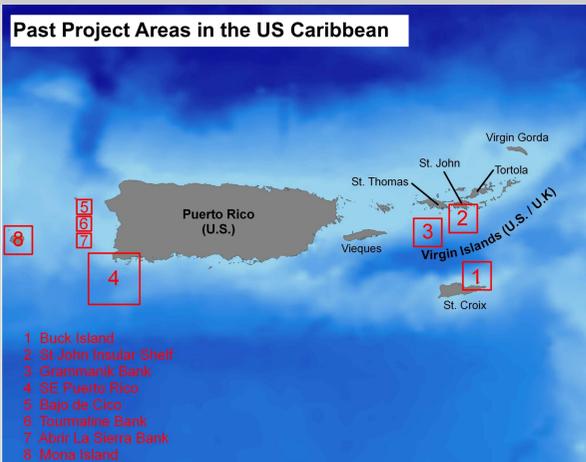
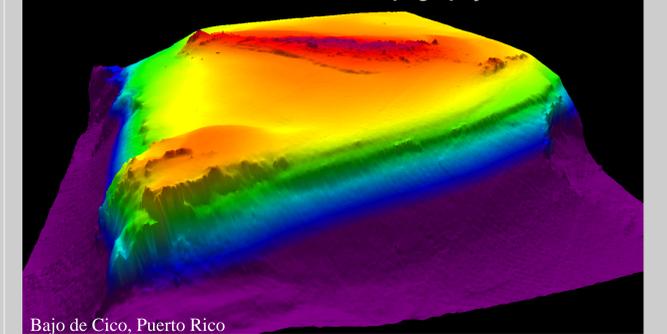
Everyone from scientists to managers uses the benthic habitat maps (above) created with data from these missions. Resource managers like the CFMC use them to make informed, ecosystem-based decisions that help ensure the long-term economic, recreational, and environmental viability of coral reef communities, which are under stress from climate change, disease, coastal development, invasive species, and pollution. Other scientists, like our partners at UPI, UVI, and CCRI, use them to arrive at a more complete understanding of these important marine resources. The data is also available to the public. In fact, images and data from these missions are available online at:

<http://www8.nos.noaa.gov/bhv/bhvMapBrowser.aspx>

For more information:

Tim Battista, NOAA CCMA Biogeography Branch
1305 East West Hwy, SSMC 4, Silver Spring, MD 20910
Phone: (301) 713-3028 x171, Fax: (301) 713-4384, Email: tim.battista@noaa.gov

Marine Conservation Area Seafloor Topography



More About...

The National Oceanic and Atmospheric Administration

NOAA is an agency of the U.S. Commerce Department. NOAA 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 the 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.

Our Partners

The Caribbean Coral Reef Institute (CCRI) is a cooperative program between the University of Puerto Rico – Mayagüez (UPRM) and NOAA. CCRI sponsors programs that address management-driven priorities for the understanding of the coral reef ecosystem of the US Caribbean. The Caribbean Fishery Management Council (CFMC) is one of eight councils established under the Magnuson-Stevens Act for the conservation and orderly utilization of the fishery resources of the USA. The University of the Virgin Islands (UVI) is committed to enhancing the lives of the people of the USVI and the wider Caribbean.



The R/V NANCY FOSTER

The NOAA research ship NANCY FOSTER, based in Charleston, SC, is one of a fleet of research and survey vessels used by NOAA to improve understanding of the marine environment. The former U.S. Navy vessel was converted in 2002 to conduct a wide variety of coastal oceanographic research projects along the U.S. Atlantic and Gulf coasts. The ship has 17 permanent crewmembers and accommodations for up to 16 scientists. The NANCY FOSTER began operations in April 2003 and was commissioned on May 10, 2004.

The Center for Coastal Monitoring and Assessment Biogeography Branch

The Biogeography Branch is part of NOAA's National Centers for Coastal Ocean Science in the Center for Coastal Monitoring and Assessment, located in Silver Spring, Maryland, USA. The goals of the Biogeography Branch are to develop knowledge and products on the distribution and ecology of living marine resources throughout the nation's estuarine, coastal, and marine environments; and provide resource managers, scientists, and the public with an improved ecosystem basis for making decisions.

