

BIOGEOGRAPHY BRANCH

CENTER FOR COASTAL MONITORING & ASSESSMENT
NATIONAL CENTERS FOR COASTAL OCEAN SCIENCE

Seafloor Characterization of the U.S. Caribbean 2010 Field Season March 18-April 6, 2010

Day 5: March 22, 2010

Today scientists continue to focus on an area south west of St. Thomas, U.S. Virgin Islands.

The Day's Events

Due to some choppy water all small boat operations and drop camera activities were suspended for the day. However, the conditions did not affect the remotely operated vehicle (ROV) dives. The machine was deployed three times along three different study paths and captured some excellent video and still photos of different habitat types.

The first and most southern ROV dive revealed several different types of ground cover. The scientists saw aggregate reefs; spur and groove reef formations; areas covered by cylindrical algae covered calcified nodules called rhodoliths; and bare sandy areas.

There are many different kinds of habitats on the seafloor. The Biogeography Branch has established a detailed seafloor habitat classification guide its scientists use in the field. Three of the main habitat types observed today are described below:

Aggregate reef formations

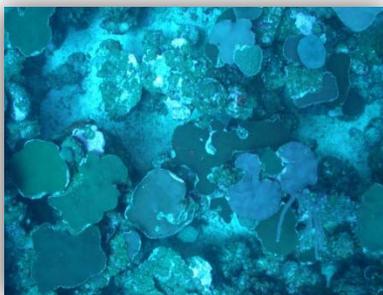
Vast expanses of coral formations that vary in shape and height, but lack the presence of sand channels are classified as aggregate reefs. They may also include linear formations of coral that grow parallel to the edges of the seafloor shelf. In this locale, this formation is typified by many plate corals, interspersed with a few soft corals and sponges. The reef space below the coral has many holes and cavities perfect for fish and invertebrates to hide in.

Spur and groove reef formations

A spur and groove reef consists of linear formations of coral that are separated by channels of sand roughly 5 meters wide. These formations are usually quite steep and are found at the shelf edge.



The ROV is retrieved from the water.



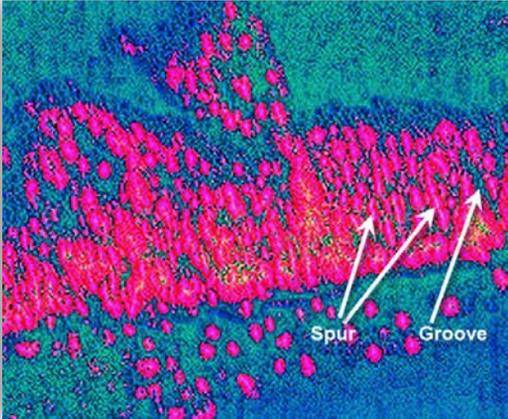
Aggregate reef formations (left), spur and groove formations (center) and rhodolith cover (right) were the primary seafloor cover types observed in the study region south west of St. Thomas.

Rhodolith-Covered Areas

Rhodoliths are round, hard calcified nodules that are roughly the size of a tennis ball. If an area of the seafloor is comprised of more than 10 percent rhodoliths, the habitat is classified as 'rhodolith'. Rhodoliths are colonized by thick layers of red algae. Because they are not attached to the seafloor, rhodoliths roll about in the currents and thus their distribution can change from year to year.

The second and third ROV dives were slightly northwest of the first dive. During dive two large expanses of aggregate reef, some rising an estimated 10-20 feet above the seafloor, were observed. The group saw one large yellow mouth grouper and a several schools of small fish, but very few large fish.

The final and most northern ROV dive exhibited vast aggregate reef formations, as well as spur and groove coverage. The spur and groove formations were also clearly detected on earlier multibeam images (see image below).



A spur and groove reef formation as shown by a processed multibeam backscatter image. The pink areas show reef spurs, the blue areas indicate grooves of sand.

For related information about the shallow and moderated-depth benthic habitats of St. John, U.S. Virgin Islands, visit: http://ccma.nos.noaa.gov/ecosystems/coralreef/benthic_usvi.html.

DID YOU KNOW ...

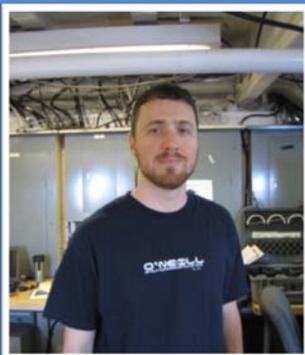
- Coral reef ecosystems have many different values to people. Coral reefs
 - ✓ Are a source of food for millions;
 - ✓ Protect coastlines from storms and erosion;
 - ✓ Provide habitat, spawning and nursery grounds for economically important fish species;
 - ✓ Provide jobs and income to local economies from fishing, recreation, and tourism;
 - ✓ Are a source of new medicines; and
 - ✓ Are hotspots of marine biodiversity.
- Although it's difficult to put a dollar value on some of the benefits coral ecosystems provide, one recent estimate gave the total net benefit of the world's coral reef ecosystems to be \$29.8 billion/year.

- To learn more about coral reef ecosystems, visit

<http://coralreef.noaa.gov/>



MEET THE SCIENTISTS ...



Matt Wilson

Matt Wilson is a physical scientist with NOAA's Atlantic Hydrographic Branch. He assists with the hydrographic surveying and ensures that all data meet NOS standards.

MEET THE CREW ...



Keith Martin

Keith Martin is the chief electronics technician aboard the NOAA Ship Nancy Foster. He keeps the ship's electronics, computers and sensors running.

For more information about NOAA's Center for Coastal Monitoring and Assessment Biogeography Branch visit, <http://ccma.nos.noaa.gov/about/biogeography/welcome.html>