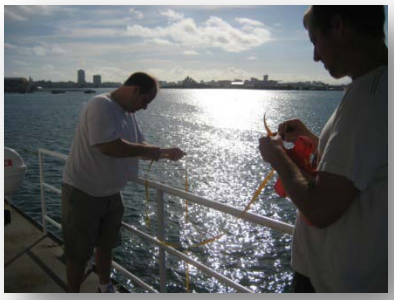
Sea Floor Characterization of the U.S. Caribbean
2011 Field Season
Day 1: March 28, 2011

And We're Off!

This morning the NOAA Ship *Nancy Foster* was a hub of activity as the science team and crew prepared to depart San Juan, Puerto Rico. Equipment was checked and rechecked before the gangway was raised and the 2011 sea floor mapping mission officially got underway. The ship left port around 9:00 a.m. heading east toward the first stop: Grammanik Bank.

Grammanik Bank is adjacent to Red Hind Bank reserve south of St. Thomas near the Virgin Islands Passage. The region is a known spawning aggregation site for several ecologically and commercially important fish. The researchers used fish acoustics and the remotely operated vehicle (ROV) to get a better idea of which fish species spawn at Grammnik Bank and why. Ecologist and fish acoustics specialists Chris Taylor explained that the geology and ocean currents of the area may enhance the survival and transport of eggs and larvae spawned at the site.

The NOAA Ship Nancy Foster gangway welcomes science crew aboard for the 2011 U.S. Caribbean sea floor mapping mission.



Researchers Ed Owens and Mike Stecher take some draft measurements for the multibeam before leaving port.

Night Time Fish Finding Mission

The excitement didn't get started until well after dark when Taylor's computer screen showed what appeared to be a group of large fish. Although the fish acoustic data offered solid information on the presence and size of the fish, more details were needed. It was time to deploy the ROV to see exactly what types of fish were detected.

Lance Horn and Glenn Taylor from the University of North Carolina, Wilmington's Undersea Research Center quickly readied the ROV for the first nighttime operation of the mission. Once the ship was positioned perfectly, the ROV was lowered over the side of the ship to act as the scientists' eyes under water.

Chris Taylor (red shirt) and Nick Przyuski carefully study what the fish acoustics system is locating. Taylor later determines the it's necessary to deploy the ROV.

As the ROV began its 119-ft descent, the headlights illuminated the surrounding darkness. The live ROV video feed to the ship displayed a shower of sea snow, a squid gliding effortlessly through the water, small fish darting in and out of view and large, red barrel sponges rising from the sea floor. Despite thoroughly combing the area for nearly an hour, the school of large fish the scientists sought to film was nowhere to be seen.

Tim Battista and Glenn Taylor deploy the ROV for the first dive of the mission

"It was dark and fish move. It could have been the fish moved to another area away from the ROV. Or, it could have been a change in behavior. We just missed them," Taylor said.

As the ROV was put to bed for the night, the evening multibeam team was just starting their shift. Over the next 12 hours the ship will run multibeam over the study areas south of St. Thomas. In the morning, geographic locations of interested will be further explored with the ROV.

All About Acoustics

✓Sound (acoustics) tell us a lot about the habitats and fish communities deep under water.

✓Fish acoustic systems work by emitting sound waves through the water column that are reflected off the swim bladders of fish.

✓Based on the return strength of the sound waves, scientists can estimate everything from the number of fish in a given area to the approximate size range of individual fish.