

# 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 4: March 21, 2010

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

### Ground Truthing

Once the multibeam data has been processed, scientists can use it to pinpoint unique acoustical signatures on the seafloor. Although the acoustic multibeam data provides a lot of information about the seafloor, it isn't readily apparent exactly what the acoustical signatures are. The only way to determine that is to visualize the seafloor with underwater video and photos to verify what the multibeam data indicate. This process is called ground truthing.

"Pre-existing multibeam data delineates unique seafloor features and in some cases we have a guess at what they are, but we're not always sure," Tim Battista, chief scientist for the mission said. "So the next step is to verify these unique acoustic signatures. And sometimes the only way do that is to take a picture of the bottom using a drop camera or a remotely operated vehicle."

Most of the places being mapped are too deep for divers. However, ROVs provide a way to accurately ground truth study paths up to 4 hours long and can be maneuvering to take pictures and video. For this mission, both the ROV and the drop camera will be used to ground truth. Just as it sounds, a drop camera is a video camera attached to a long cable that can be lowered off the side of a small boat to quickly determine what is present.

After fixing some electrical and mechanical problems with the launch, Sam Tormey and Tim Battista headed out for a day of drop camera ground truthing.



**Tim Battista, Sam Tormey and ship crew member Gordon Pringle go out on the launch to begin ground truthing the area (left and center). Sam Tormey manages the drop camera and begins capturing underwater video.**

Because of some pretty choppy waters, only about 20 sites were ground truthed in five hours. The team visited sites in the mapped area that were out too shallow to warrant use of the ROV. Using a GPS unit the boat driver came within 10 feet of a selected point. From there the drop camera was lowered to roughly three feet above the seafloor using an outrigger.

"I was surprised how well you can control where you are looking," Tormey said. "The camera has a line that feeds live shots to a viewing screen that Tim watches. He directs me on where to point the camera and zoom," he explained.

Although there are a lot of advantages to using a drop camera, there are also some disadvantages. Because of the wind and waves, it can be hard to put the camera in an exact point. Also, the camera can only go as far down as there is cable so the system is used in areas that are about 100-120 ft deep. "This is the first year we are using both ROV and drop camera to ground truth. Normally it's just one or the other," Battista said. "But we really wanted to take advantage of the ship's launch boats and its features that meet our ROV needs."

### **Derelict Fishing Gear**

Fish traps are a common tool used by fishermen throughout the Caribbean. In the U.S. Virgin Islands alone it is thought that there are about 11,000 traps, with 1,000 in St. Croix and 10,000 collectively in St. Thomas and St. John spread though a variety of habitats. Problems arise when the traps are lost and cannot be easily recovered. In these cases, they continue to trap fish and can damage habitats as they are dragged over the habitat by waves, currents and storms. Just four days into the mission the ROV has captured many derelict fishing traps. Some are pictured below.

The Biogeography Branch and the National Park Service have partnered to study what impact derelict fishing gear is having on local fish communities in the U.S. Virgin Islands. Visit: <http://ccma.nos.noaa.gov/ecosystems/coastaloccean/derelictfishtraps.html> for more information.



Derelict fishing traps observed with the ROV off the south west coast of St. Thomas.

### ***DID YOU KNOW ...***

- In the 2008 *State of the Reefs* report the U.S. Virgin Islands reported coral disease; climate change and coral bleaching; tropical storms; coastal development and commercial fishing as the top five threats facing the region's reefs.

- Other threats to corals that have been deemed important and relevant across all U.S. jurisdictions include: coral disease; tropical storms; tourism and recreation; vessel damage; marine debris and pollution; aquatic invasive species.

- To learn more about coral reef ecosystems, visit <http://coralreef.noaa.gov/>



### ***MEET THE SCIENTISTS ...***



#### **Ed Owens**

Ed Owens is a physical scientist with NOAA's Atlantic Hydrographic Branch. He is in charge of nighttime multibeam operations.



#### **Sam Tormey**

Sam Tormey is a marine spatial analyst with NOAA's Biogeography Branch. He plays a lead role in ground truthing operations and provides support for multibeam data collection.