

# 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 14: March 30, 2010

Two “budding” new scientists have joined the R/V Nancy Foster on the second leg of the mission this week. Karen Black and Kacey Johnson, both seniors at College of Charleston, joined the ship today to take advantage of an opportunity to work with scientists in learning more about the characteristics of the seafloor around the USVI.

Black and Johnson are both currently enrolled in a sea-floor mapping class at College of Charleston. Both geology majors noted that it is one of the few classes in this topic that exists for undergraduates around the country. The class offers an optional opportunity to participate in a mapping cruise during the semester – both girls jumped at the opportunity.

“We are learning how to process mapping data in our sea-floor mapping class, but I wanted to learn more about how the data is actually collected” says Black. Kacey Johnson agrees – “I wanted to gain more experience in this type of work.” She adds that it will assist her in a project she is working on in with her professor, Dr. Harris, on deep-sea coral characterization (funded by NOAA Office of Exploration).

When asked if they are considering careers in marine science, both students agree that this experience aboard the R/V Nancy Foster will be instrumental in their future plans.

“I think this is really good experience that can be applied to any workplace. The skills we are learning aboard the ship will be something we can bring to the table in many different jobs” says Black. “I’ve wondered if working on a ship to do this kind of work is something I might do,” Johnson adds. “I think this trip will help me to decide” (We’re hoping an early bout of seasickness won’t sway her decision!).

Both girls are interested in pursuing careers in marine geology. Karen is especially interested in structuring (plate) tectonics, specifically in mid-ocean ridges, however, she notes that she is trying to keep her options open. Kacey’s interests are in marine paleo-biology, of which corals are an important component. Both agree that understanding multi-beam mapping technologies will be helpful to them in their future career paths.

While on board, Karen and Kacey will be processing multi-beam data that is collected on the cruise, as well as learning more about back-scatter data which will be new for both of them. We hope they will enjoy their time aboard

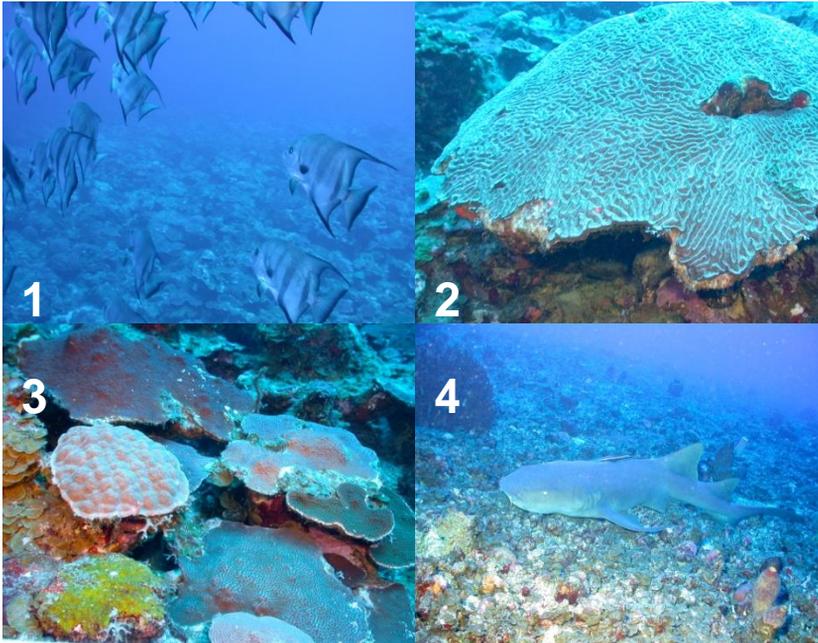


**Karen Black (right) and Kacey Johnson (middle) learn about how to deploy the CTD from Melody Ovard, Nancy Foster Survey Technician (above); and work with NOAA Scientist Edward Owen on some multi-beam processing (below).**



## Today's Operations

Today's activities included multi-beam mapping continued to map the shelf's edge with the 10-02 sonar (deeper mapping capability), which outlines the studying area and identifies important hydrodynamic processes (such as channels that form deeper habitat) that occur there. Later in the day, two ROV dives were conducted along transects in the Red Hind Bank Marine Conservation District. Though one of the ROV dives had to terminate early due to a malfunction in the dynamic positioning system (the system that enables the ship to follow the transect), the dives showed high coral cover along the shelf, a variety of fish including grouper, ocean trigger fish, spade fish, damsel fish, barracuda and a few nurse sharks. Transects were selected by the team included areas previously mapped by USGS and by NOAA between 2004-09. The groundtruth data collected today will help to gain more comprehensive habitat information that includes the entire shelf region south of St. Thomas and St. John. One of the goals of studying these areas is to capitalize on existing mapping efforts to create a habitat map that pulls all of these existing data sets together.



## DID YOU KNOW ...

- While most reef-building coral gain their yellow to brown shades of color from the symbiotic algae that live within their tissue, other corals contain protective pigments that give them bright colors. Exposure to ultraviolet light (UVA and UVB) can destroy DNA, so some coral species dwelling in shallow waters have evolved protective pigments to reduce the negative effects of ultraviolet light. These pigments are often blue, purple, or pink and account for the bright colors found in some corals.

For more information about corals, visit:

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

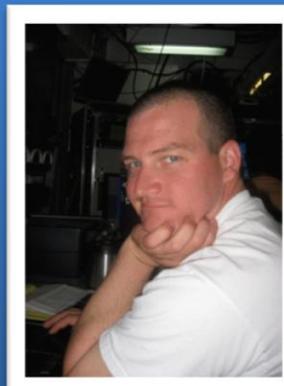


ROV transects revealed moderate diversity of fish and coral species indicating a healthy reef ecosystem in the study area. 1) School of spade fish swims by 2) Large head of boulder brain coral 3) Several species of coral and some encrusting algae 4) A sedentary nurse shark on the sea floor.



### Juan Torres

Juan is a professor at the University of Puerto Rico. Juan is interested in learning more about the multi-beam operations as they pertain to coral reef ecosystem research. He has been assisting the ROV team with species identification as they fly the ROV over transects.



### Eric Ebert

Eric works for NOAA's Applied Ecology and Fishery Habitat Conservation Branch in Beaufort, NC. He is working on the fishery acoustics activities being conducted on the cruise.