



**NOAA Teacher at Sea
Beth Carter
Onboard NOAA Ship RAINIER
June 25 – July 7, 2007**

**NOAA Teacher at Sea: Beth Carter
NOAA Ship RAINIER**

Mission: Hydrographic mapping of Gulf of Esquibel
Day 5: Friday, June 29, 2007

Weather Data from Bridge: (this is from July 1, 2007)

Visibility: 4 miles
Wind direction: calm
Wind speed: calm
Sea wave height: none
Swell water height: none...flat, flat, flat
Seawater temperature: 12.2 degrees C
Sea level pressure: 1016.6 mb
Dry bulb temperature: 12.2 degrees C; Wet bulb temperature: 11.7 degrees C
Cloud cover: Fog, cloudy, 8/8
Depth: 18 fathoms,
New anchorage: near Sonora Island, part of Maurelle Island group

Science and Technology Log:

On Friday, I went out on the RA-1 boat with Coxswain Leslie Abramson, Seaman Surveyor Corey Muzzey, and Survey Tech Marta Krynytzky. The #1 boat is a jet boat, which operates like a jet ski...it has a nozzle that shoots water out, and it only draws one foot of water. The RAINIER likes to use the #1 boat in very shallow water, as it is able to get into shallow places without running aground. #1 is also has a single beam sonar, which means it is sending out "pings" in a single direction directly underneath the boat.



This is a single beam transducer on the hull of launch #1. The small blue oval on the hull is a "fish finder" or depth sounder.

Thursday night, Marta drew a grid of lines for the RA-1 to survey. The FOO (Field Operations Officer) asked her to develop a tight grid, with the lines being only 5 meters apart. If you have driven a boat, you know that this means that as you go up and down the parallel lines, your turning ratio is quite tight, and there will be wake and bubbles formed. The problem with this is that bubbles throw off the single beam sonar, and it “scrambles” the feedback from the sea floor.

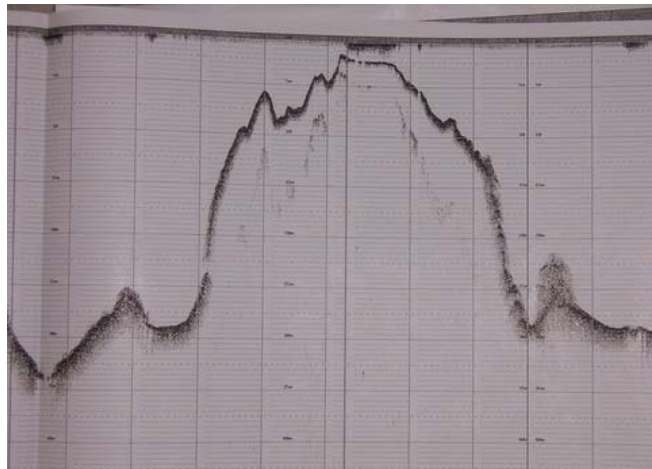


This is the Echosounder machine that records the data from the single beam transducer.

We were operating in Warm Chuck Inlet, which has some freshwater creeks feeding it. Marta taught me to do a little part of the recording on the Echosounder machine, which is called doing “paper control.” She tracked our progress on her computer, and when we were over an area that needed to be mapped, she would say, “Start recording,” and I would hit a button that started the paper moving. The machine creates a line graph similar to that that a seismograph might create during an earthquake, or in a medical

scenario, it is similar to that of an EKG that graphs the activity of your heartbeat. When we ran through our own bubbles, it created dense gray shaded areas that obscured the data. We had to slow down, and change our course several times to allow for which way the tide was flowing so that tidal movements would carry our bubbles away from the next line we wanted to drive.

The single beam technology is rather outdated, and NOAA prefers to use the multibeam, as it creates real-time, 3-D pictures of the ocean floor. However, the multibeam transducers are very expensive, and very vulnerable to damage caused by running aground, and so the RAINIER uses both technologies to get as much information as possible without damaging or destroying the multibeams.



This is a sample of the paper “picture” of the bottom recorded by Launch #1.

After we returned to the ship, the RAINIER weighed anchor and

moved to a new anchorage near Sonora Island in the Maurelle Islands group.

Personal Log

Friday was an interesting day, as most of the time, I was helping Marta with the recording. I goofed up a few times, as you have to stay so focused and attend to detail constantly. The survey techs have my true admiration...they go out day after day in cool to cold weather, rain or fog or drizzle, and collect intensely detailed data. There are no days off on the ship, really

Actually, everyone on the RAINIER is amazing with his/her ability to focus and stay on-task and get jobs done...from the cooks (who are great!) to the deck crew to the officers to the engineers.

Last night (Saturday), Raul Quiros was fishing and caught a small shark...maybe 2 feet long. He cut him off the line, and had a bit of trouble picking him up to release him. The shark was gasping, so I tentatively grabbed his belly and threw him over the side.

Then, a few of us saw some whales playing off the starboard side of the ship. I ran and got my videocam...finally! I actually got some footage of a whale! He was rolled over on his back, and slapping the water with both fins, over and over and over. It was amazing. Some people say whales breach and do these "slaps" to remove barnacles, but it looked to me as though he was just having fun!

Question of the Day

1. Go to the website: www.oceanservice.noaa.gov/education_new/seafloor-mapping/welcome.html. Click on the "movie" on multibeam surveying. What do you think would happen if the boat passed over a whale or a sunken ship? What would NOAA do with information on sunken ships if they discovered some?
2. For my first graders: Look at a picture of a humpback whale and a jet plane. Can you see any ways that they are alike? Also, try that website in #1...the movie is definitely something you will understand!