



**NOAA Teacher at Sea
Philip J. Hertzog
Onboard NOAA Ship RAINIER
July 24 - August 13, 2005**

Log 6

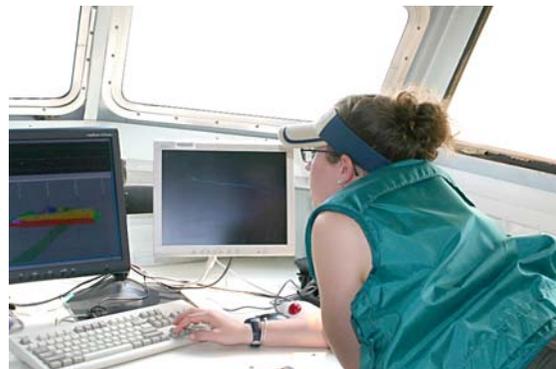
Day 6: July 30, 2005
Time: 1600 hours
Latitude: 55°53.4' N
Longitude: 158° 50.4' W
Visibility: 10 nm
Wind Direction: light
Wind Speed: airs
Sea Wave Height: 0 feet
Sea Water Temperature: 12.2° C
Sea Level Pressure: 1012.5 mb
Cloud Cover: 7, cumulus, stratocumulus, altocumulus

Science and Technology Log

I went boating into new territory today. We took launch RA-4 and headed to the western end of Mitrofanina Island to map the bottom around Spitz Island and several rocks. I got to learn more about the RAINIER crew, saw a new type of sonar, met some sea lions and even drove the launch.

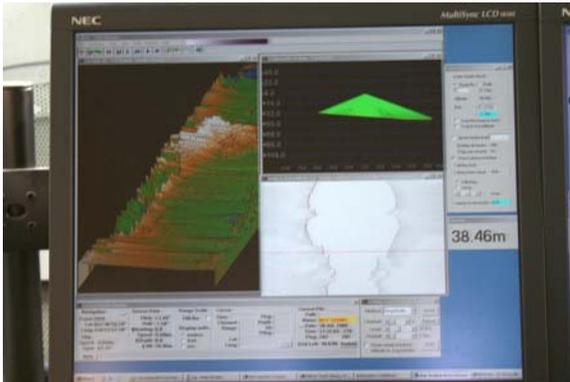
Ensign Brianna Welton led our launch with assistance from Lorraine Roubidoux. Ensign Welton is an expert in sonar technology and I watched other crew members seek out her help when problems crop up. Ms. Roubidoux goes to school at the University of New Hampshire where she's earning a Masters Degree. She joined the RAINIER for a month to get experience with sonar systems. Ms Roubidoux conducts research on sonar "background scatter." Background scatter occurs when sonar signals bounce around more than once and give false readings of ocean bottom depth. Ms. Roubidoux's research will hopefully result in better sonar for future ships.

Women play an important role on NOAA ships. They serve as officers like Ensign Welton and scientists like Ms. Roubidoux. Women also play key leadership roles on the RAINIER like our ship's XO (Executive Officer), Commander Julia Neander, who takes command of our ship when the Captain leaves. I hope my students will learn that



many cool opportunities exist for women in the sciences and they should not be discouraged from taking math and science classes. Above is a photo of Ms. Robidoux running the sonar on our launch.

Coxswain (official name for a sailor who drives small boats), Corey Mussey, carefully maneuvered the launch as we approached Spitz Island. Underwater rocks make this type of mapping more dangerous and Seaman Mussey moved the launch slowly and carefully to avoid ripping off the half million dollar sonar sensor from the hull. In these photos you can see Corey and one of the sonar sensors on the bottom of the launch:



Because we moved into shallow water, Ensign Welton turned on a different type of Sonar Sensor called the Reson SeaBat 8101. The Reson works in water depths of 4 to 150 meters and gives a sharp, clear image of the bottom. The other sonar I saw before, the Elac, operates in deeper waters ranging from 40 to 400 meters, but does not give a clear image of the bottom. Corey told me you can actually see ship wrecks in full detail with the Reson sonar.

Above is a photo of the Reson's sonar output that generates a map of the ocean bottom near Spitz Island.

As we mapped, I occasionally stood on the bow of the launch and looked out for rocks as we moved close into shore. We passed over underwater "forests" of bull kelp and I saw 25 to 30 feet below the surface where a long, single whip like strand moves toward the surface and attaches to a floating round bulb. Out of the bulb comes half a dozen flat fronds about 5 to 10 feet in length and four inches wide that make the bull kelp look almost like underwater palm trees. Suddenly I saw a salmon dart quickly underwater and then 40 to 50 fish appear under the launch and move just as quickly out of view to our port (left) side.

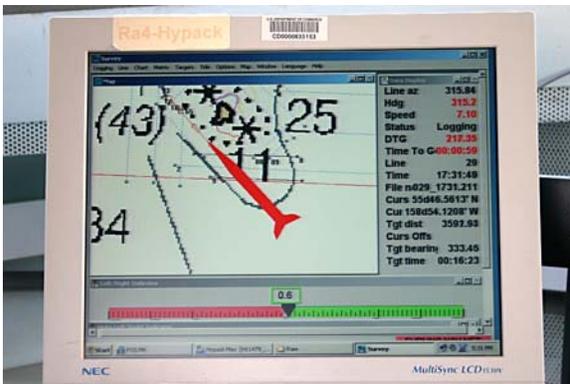
As we moved back and forth in our "mowing the lawn" mapping pattern, we disturbed two groups of Stellar Sea Lions. Four males sat on a small rocky island while two dozen

or more females beach themselves on Spitz Island three hundred yards away. Each time we passed, the Sea Lions sat up and barked at us. We may be the first humans they have seen in this remote part of the Southwestern Alaskan peninsula. Corey drove the launch up close to the males and I hopped out on the bow to get these photos:



As you can see, the one male challenged me with its open mouth while another sat calmly with his seagull friend.

At the end of the day, Corey let me drive the launch and run one of the transect lines for the sonar mapping. As you can see in the photos below, I looked at a computer screen that showed our boat as a red torpedo along a line on the computer screen. I had to keep the black marker on the red and green bar at the bottom of the screen exactly in between the two colors or we would miss our mapping area. This proved difficult because just as one gets lined up a wave pushes the launch off course so you constantly correct the boat's position. I found using the computer screen to drive the launch similar to a video game except you could wreck the boat and get hurt for real if one makes a mistake.



I had a great day and returned to the ship to await another adventurous day.

Personal Log

I had a fantastic day. I got to see some interesting technology and talked to professional people. Being out on the bow of the launch scared me a bit. If we had hit a rock I failed

to spot, the damage to the sonar system could equal a half a million dollars. The bow also requires a lot of balance and strength. Each time a wave rocked the launch, I risked falling into the cold Alaskan water and had to really pay attention.

Though the crew of the RAINIER works hard and long hours, they do get a chance to relax and Saturday nights are special. After supper, we loaded up into the open skiff and rode about mile to a wide open, gravelly beach for a party. A few people started a large bon fire and we had soda drinks and music playing. The skiff could only carry eight people at a time, but the party grew larger and noisier each time it arrived on the beach. People talked, told jokes, found whale bones, and caught salmon all evening long. The party lasted until 11:30 pm and we rode back to the RAINIER just as the Alaskan sky started to turn dark.

After returning to the ship, I joined some of the crew in the Wardroom (ship's lounge) and watched the video, "Napoleon Dynamite," about a high school student. We all laughed and talked about our own high school experiences. Tomorrow we all will be tired, but ready for another two weeks of work.

Question of the Day

How large can Stellar Sea Lions get? Where do we find Stellar Sea Lions and what are their life's history.