



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

**Log 14**

Day 14: August 7, 2005  
Time: 1600 hours  
Latitude: 55° 53.38' N  
Longitude: 158° 50.34' W  
Visibility: 10 nm  
Wind Direction: 210°  
Wind Speed: 16 kts  
Sea Wave Height: 1-2 feet  
Sea Water Temperature: 13.3° C  
Sea Level Pressure: 1028.1 mb  
Cloud Cover: 5, cirrus

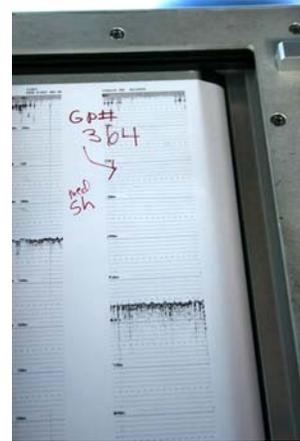
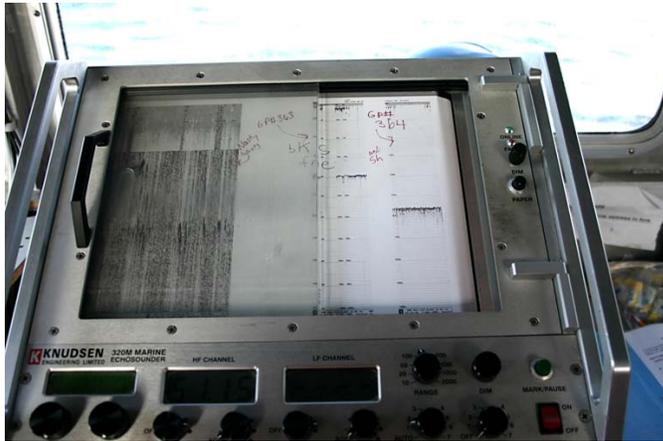
**Science and Technology Log**

Today I actively participated as a full member of the launch crew conducting a new type of survey for me, sediment sampling. The launches typically carry three crew members, one to handle the boat and two others to work the sonar and computer equipment. Generally Mike Laird (the other the teacher at sea) and I have gone along as a fourth person to observe. However, today we only had three people aboard launch RA 2, the smallest and lightest of the launches.

Survey Technician Dan Boles and Coxswain Erick Flickenger (Flick) co-led our survey mission. Dan described to me today's goal of collecting sediment samples from several locations around Mitrofanina Island. Sediments are the material found on the bottom surface of water bodies. It includes materials like mud, silt, sand, clay, pebbles, rocks, shells or hard pan.

The nautical chart makers place sediment information on their maps so ship captains can determine if they have a safe location to set anchor. If the bottom is too rocky, the ship's anchor may get stuck and trap the boat. If the bottom is not firm enough, the anchor will drag across the bottom and the ship could end up drifting to a dangerous location like a reef or rocky shore. The sediments in an anchorage area also determine the type of anchor a captain chooses to use. Some types of anchor work better than others in certain sediment types.

I helped unhook the launch from the RAINIER's crane and Flick got us underway. Dan immediately showed me how to work the sonar and computer equipment. We used a Knudsen 320 M echo sounder to measure bottom depth at our sample locations. Dan had me turn it on and I watched the sounder trace the depth on a roll of paper:



The sounder recorded a black line on a scale so we know our bottom depth at the sampling location. Dan also had me write the type of sediment we found on the same paper. I then entered the data into the computer. We needed both an electronic and paper copy in case the computer crashes which sometimes happens when the launch bounces around. To the right is a photo of Dan entering data while Flick watches in RA 2's small cabin.



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On the launch deck we used a “clam shell” sediment sampler. The sampler is shaped like a large, round clam shell with two metal jaws held shut by a large spring. We pried open the two jaws and set a trigger to keep the jaws opened. It works like a bear track with the trigger lever on the side. We took great care setting the trigger because the jaws can break our fingers if it snaps shut on them. Once set, you then lower the sediment sampler over the side. The sampler free falls through the water column and plunges into the bottom which triggers the jaws to snap tight and capture the sediment sample. You then winch the sample up to the surface, open the jaws and record the sediment type. The following photos show the sediment sampling process:





We found mostly fine black sand and pebbles of volcanic origin in our sediments around Mitrofanía Island which matches the local geology. As mentioned in previous logs, the explosion of an ancient volcano formed Sosbee Bay (a caldera) on the south side of the Mitrofanía Island. To the north of the island, the shield volcano, Mount Veniaminof dominates the landscape:



Our sediment sampling went well with one exception. We transited out to a sample location far south of Mitrofanía Island. A combination of wind and tide suddenly hit us with two to three foot choppy waves as we took our sample. Our light weight launch took two to three nose dives down the face of a three foot wave as Flick tried to hold our position in one spot for the sample. Dan and I got knocked into the railings on the deck and the clam shell sampler almost snapped on my fingers as I tried to adjust it. Inside the cabin, equipment flew off the shelves and onto the cabin floor. Flick pronounced the sea conditions as too unsafe for us to work on the deck and yelled for us to get back inside the cabin. We then made tail and headed back towards land getting bounced about until we entered the wind shadow created by the lee side of the island. Flick later told us he

considered having us put the life raft out on the back deck of the launch as a safety precaution.

Dan and I talked about boat safety. Dan told me that anyone on board the launch can call for it to return due to unsafe conditions. In our case, we did the right thing by not trying to finish the sampling south of Mitrofanía and quickly returning to calmer waters. The rest of the day we worked on the protected side of the island and finished early. We fished near Cushing Bay and waited for the RAINIER to arrive and pick us up. The RAINIER again moved location to seek shelter from the changing winds. We will spend our few remaining nights in Cushing Bay, our first location when we arrived at Mitrofanía about two weeks ago.

### **Personal Log**

I enjoyed the opportunity to work today as a full member of the launch team. I appreciated Dan Boles putting me on the computer right away and the way we took turns collecting sediment samples out on deck. I found Flick to be a master at handling the launch in rough conditions and ensuring our safety.

I have felt safe on the launches, but our situation south of Mitrofanía proved a bit worrisome. I'm glad Flick called off our work out there right away and brought us into a more protected area.

While waiting for the Rainier, I got to fish and caught numerous sea bass near a kelp bed. We also saw a "fish ball" go by. The fish ball consisted of a large school of small candlefish tightly grouped into a ball shape about 7 feet in diameter just below the surface. Seagulls hovered over the fish ball and snatched out tiny fish as tasty treats. As the fish ball passed under the launch, we saw the outlines of large fish following the candlefish.

After supper we had another beach party out on the spit near the HorCon station. We had a beautiful, clear evening and watched the sun set. We again had a large bon fire and plenty of good conversation and company. I returned at 11:00 pm with an orange and deep blue dusky sky as a backdrop for our skiff ride from the beach. The days have grown shorter since my arrival, but night still arrives after 11:30 pm.

### **Question of the Day**

What sediment bottom type do you think will best hold an anchor and keep a ship safe?