



**NOAA Teacher at Sea**  
**Susan Smith**  
**Onboard NOAA Ship *Rainier***  
**June 1 – 12, 2009**

**NOAA Teacher at Sea: Susan Smith**

NOAA ship *Rainier*

Mission: Hydrographic survey

Geographical Area: Trocadero Bay, Alaska

Date: Tuesday, June 9, 2009 55°20.965'N; 133°00.646'W

**Weather Data from the Bridge**

Temperature: Dry Bulb: 12.2° (54°F); Wet Bulb: 11.1° (52°F)

Cloud Cover: Overcast 8/8

Visibility: 10 Nautical Miles

Wind direction: 315, 08 kts.

Sea Wave Height: 0-1

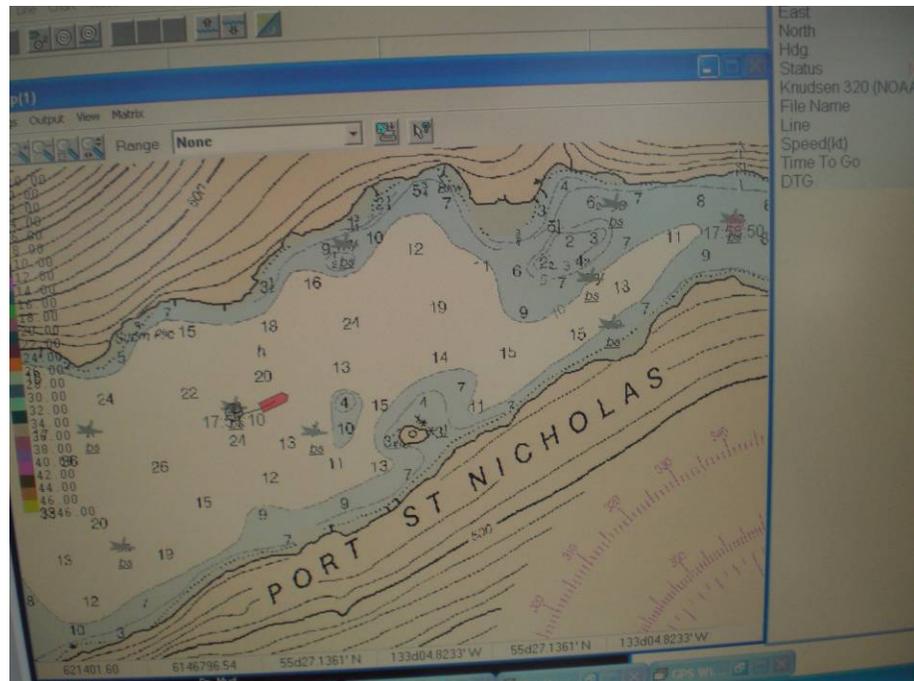
Sea Water Temperature: 12.8°C (55°F)

**Science and Technology Log**

**Question: What might an empty bottom sampler indicate?** There might be a hard bottom, so it is not a good place to try to anchor.

Today we took bottom samples in ten locations. The objective of bottom sampling is to update historical data and look for good anchor locations.

This chart has five locations where we took bottom samples. They are shown where the stars are. The red symbol depicts our launch driving from one point to the next. There are many houses, and what appeared to be summer hotels, in this area, so they must have accurately charted information.



**A digital nautical chart**

When we performed our bottom sampling, the bottom sampler was affixed to a rope which we dropped over the side of the launch. Some times a weight is put on the rope so it will hit bottom with more force. After we tried three times and the claw was not closed we put a weight on and it closed from then on.

When the sampler hit the bottom the claw of the sampler shut, trapping whatever was in that locale. We then brought the rope back up and opened the sampler to observe its contents.



**Bottom Sampler with claw**



**Susan sending the sampler down with Shawn's help**



**Left: Bringing the sampler back up; Above: Opening the sampler to view contents**

We found the following materials:

1. 100 feet deep: grey sand, three rocks of varying sizes
2. 168 feet deep: black, sticky mud

3. 43 feet deep: nothing in three tries- must be a hard bottom
4. 50 feet deep: very densely packed green, sticky mud
5. 47 feet deep: same as number 4
6. 168 feet deep: big rocks only
7. 130 feet deep: fine, green, sticky mud
8. 47 feet deep: piece of black plastic (like a coffee stirrer), very fine black silt
9. 37.5 feet deep: black sand with kelp
10. small rocks

Of these samples, green, sticky mud indicated the best locations for anchoring.

### Personal Log

We departed Trocadero Bay in the late morning. As we headed toward Glacier Bay for our tour on Wednesday we had our abandon ship and fire drills. When we did not complete the series of three drills (man overboard drill is the third one), I asked what the chances were of having this third drill. As it was explained to me we generally have the man overboard drill if we are ahead of our **dead reckoning**. When asked what that is I was told, “If we are where we are supposed to be when we are supposed to be there”. Here’s the dictionary definition of dead reckoning-  
**Dead Reckoning:** 1. calculation of one's position on the basis of distance run on various headings since the last precisely observed position, with as accurate allowance as possible being made for wind, currents, compass errors, etc.; 2. one's position as so calculated

Below: An ensign plotting the course; Right: On the chart times of arrival are written in pencil so adjustments can be made.



This was important because we were to pick up a National Park Service guide for our tour into Glacier Bay and we could not be early. A man overboard drill takes a great deal of time, because the ship must go back to its position when someone fell overboard. This entails making a huge

circle with a ship that is 231 feet long, 42 feet wide, and has a displacement of 1,800 tons. As you can imagine just the turning around alone takes a considerable amount of time.

For more information on the NOAA Ship Rainier (S-221) log on to this website:

<http://www.moc.noaa.gov/ra/index.html>