



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: Thursday, June 11, 2009 58°52.54 N; 136°41.59 W

Weather at 9:45 AM

Temperature: Dry Bulb: 7.8°C (46°F); Wet Bulb: 6.7° (44°F)

Cloudcover: OVC

Visibility: 10+ nautical miles

Wind direction: 285, 7 kts.

Sea Wave Height: -0

Sea water temperature: 8.3°C (41°F)

Science and Technology Log

Today's log is an accounting of our voyage up Glacier Bay to the Margerie Glacier. Along the way we received information about Glacier Bay from Lewis, the National Parks Service employee whose assistance we enlisted. At approximately 5:30 AM Lewis came on board. He was delivered by boat in the Sitakaday Narrows, near Bartlett Cove. We actually entered Glacier Bay a few hours later. Our destination- Margerie Glacier, at the border of the United States and Canada.

Margerie Glacier's height is 250 feet. The glacier also extends another 100 feet below the water line. The Statue of Liberty is 307 feet tall by comparison.



Margerie Glacier



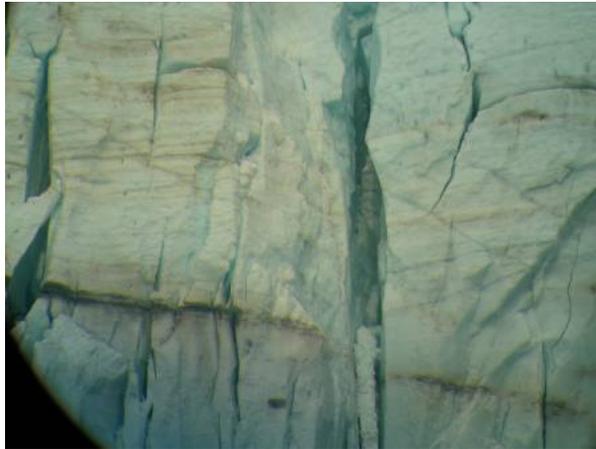
Reid Glacier, south of Tarr Inlet

The Reid Glacier, south of the Tarr Inlet, is 150 above the waterline and is $\frac{3}{4}$ mile across. It is the fastest moving **Tidewater glacier**, moving at approximately 8 feet per day. A Tidewater glacier is defined as "a glacier that terminates in the sea, where it usually ends in an ice cliff from which icebergs are discharged".

Questions of the Day:

1. Why does the ice look blue? The ice in the glacier absorbs shorter red and green wavelengths.
2. Why is part of the glacier black? Rocky debris mixes in with the ice.
3. Why are the edges jagged? Because glaciers advance and recede constantly they leave jagged patterns on the ice edges.

I took several photographs through the Flying Bridge's high powered binoculars, or "Bug Eyes". As you can see the crevices are very deep and unstable, causing the ice to break off and drop into the water. Ice breaking away from a glacier is called **calving**.



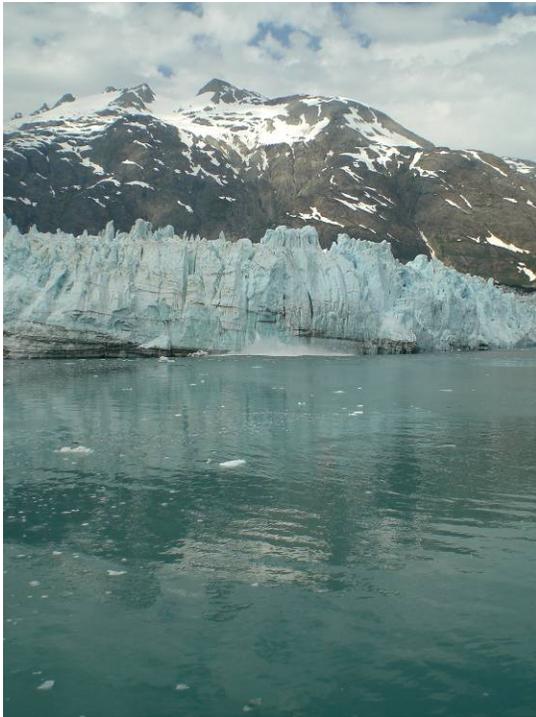
Interesting patterns as seen through the high powered binoculars



Top of the glacier



Black debris covers part of the glacier



Left: Margerie from a distance with calving splash;
Below: Launch up close and personal with the glacier.
Compare those two!



Lewis explained several interesting historical things to us.

- John Muir traveled this area in 1879, by canoe, giving vivid descriptions of what he had encountered. This opened up tourism like never before.
- In 1925 President Coolidge, by presidential order, declared this area as Glacier Bay National Monument. It wasn't until 1980 that it became Glacier Bay National Park.
- In the 1990's it was officially recognized as a UNESCO (The United Nations Educational, Scientific and Cultural Organization) World Heritage Site. Each World Heritage Site is the property of the state on whose territory the site is located, but it is considered in the interest of the international community to preserve each site.
- Glacier Bay was covered with glaciers 100 years ago. When the glaciers receded they carved out the bay as we know it today.



Margerie Glacier to the left, Grand Pacific Glacier to the right (brown area, no white ice)

Glacier Bay National Park has 3.3 million acres of land, with a park shoreline of 1,000 miles in the bay proper. Outside of the official boundary the waters three miles out cover another 300 miles. (When the Grand



Grand Pacific Glacier- The mountains are Canadian.

Pacific Glacier receded into Canada's land area the Canadians jokingly stated they should build a deep water port because now the water was on their side of the border)

Park Regulations: No more than two cruise ships may enter the park per day. This provides less disturbance on the wildlife and environment. The park director may mandate a speed limit of 10 knots, depending on whale proximity.

Recreation

- There are no trails in the backcountry.
- Geikie Inlet is a kayaker's haven
- There are five areas of

wilderness waters, four of which are closed to motorized traffic and sea planes during the summer, and one area with two sections, each closed half of the summer.

1. Beardslee Islands- forested with 200 year old trees
2. Adam's Inlet- young, flat area with moose, wolves, bears
3. Rendu Inlet- raw and exposed area, not protected
4. Hugh Miller complex- including Scidmore Bay and Charpentier Inlet, west of the wilderness boundary at the mouth of the Hugh Miller Inlet.
5. Upper Muir and Wachusett Inlets-
 - a. Muir, a large and exposed area, is closed from June 1-15
 - b. Wachusett is closed July 16-August 31

Research Projects- There are many research projects going on in Glacier Bay National Park. Academic research is continually being done by universities. There are long term weather stations set up within the park and 24 CTD (Conductivity, Temperature, Depth) stations to check. Three specific populations being studied are the brown bears, whales, and birds. These populations are being monitored to determine the extent they are affected by motor vessels, tourism, and land management. There is also huge research (approximately 40 projects each summer) on plant succession. Simply by the multitude of research projects occurring you can easily see why Glacier Bay National Park is known as a research park.

For more photographs and information log on to:
http://www.lcss.net/glacierbay/Glacier_Bay_overview.htm

Teacher at Sea Experience Summary

This trip has given me such insight on all the work done to insure the safety of all who utilize Alaska's waterways. Before coming on board I had no idea of the volume of intricate data which must be collected and processed to make navigational charts. I had no knowledge of how a NOAA ship as large as Rainier operates and the myriad of jobs necessary to make it all run

smoothly. After 11 days on the Rainier I can honestly say there is no other ship I would have enjoyed being on more- the hospitality shown me from day one was remarkable, the patience required to answer the same questions over and over was stellar, I got to take the helm, and I learned more science and nautical vocabulary than even I anticipated. Thank you, NOAA, for this opportunity and thank you, the people of Rainier S-221, who allowed me to spend part of my summer vacation living and working with you. Bravo Zulu!

