NOAA Teacher at Sea
Terry Welch
Onboard NOAA Ship RAINIER
June 23 – July 3, 2008

NOAA Teacher at Sea: Terry Welch
NOAA Ship RAINIER
Mission: Hydrographic survey and mapping of ocean bottom features.
Geographical area of cruise: Pavlof Islands, Gulf of Alaska, east of the Aleutian Islands.
Date: June 27, 2008

Weather Data from the Bridge
Wind: N10
Precipitation: rainy, drizzle
Temperature: High 51
Seas 2-4'

Science and Technology Log
NOAA (National Oceanographic and Atmospheric Administration) Ship RAINIER is currently anchored off of Cove Bay, near the Pavlov Islands, just east of the Aleutian Islands. Our mission is to conduct a hydrographic survey around these islands and collect data on what the ocean floor looks like, which will be used to update marine navigational charts. All marine vessels including, commercial, recreational and government vessels use these charts to navigate around the waters safely, so having reliable, updated charts is very important.

One of the RAINIER's launches heads out to start surveying the ocean floor.

Using Multi-beam SONAR that is mounted to the bottom of several small skiffs or "launches", surveyors leave the RAINIER and head out to assigned areas. From there, they survey the ocean floor in "lines" that traverse back and forth in the assigned area, much like an aerial surveyor would do when mapping an area by airplane. Sending these small launches out to survey is much more efficient and cost effective since several boats can cover different

areas every day. The launches are operated by a Coxswain who follows predetermined lines and the Hydrographer in Charge (HIC) sits at a computer and gathers the data from the sonar system. SONAR uses sound waves that are emitted at regular intervals from the boat and bounce down to the ocean floor and back up.

NOAA Teacher at Sea, Terry Welch, assists in a hydrographic survey aboard the launch.

Physical factors such as salinity (saltiness), temperature, and conductivity of the ocean water affect the system, so a special instrument called a CTD is lowered into the water every four hours to gather this data and input it into the system. How salty is the ocean in this area? It varies in this area between 14.5 – 14.9%.

Personal Log

The day was quite enjoyable and a big learning curve for me. There are a lot of boat terms that I'm learning along with the hydrographic science we do. I'm happy to see that there are many women who work on the ship at all levels from basic seamen (ABS – or Able Bodied Seaman), cooks, to NOAA officers who navigate and run the ship. Women appear to make up 25+% of this crew. All crew have been very helpful and informative.

A mother Grizzly bear and her three cubs play on the beach at Volcano Bay.

A personal highlight was seeing six Grizzly or brown bears today from our launch boat. A mother and her three cubs hung out on the beach for a while.

My camera does not have the best telephoto lens, but you can see a rough picture of them below. It must be a good year for bears seeing that the mother had triplets. When food is more scarce, bears will have less cubs in a season.

Question of the Day: Does the ocean salinity (how salty it is) change ocean to ocean and within different depths?

New Terms/phrases:

Coxswain - is the skipper in charge of a boat, particularly its navigation and steering.
Hydrography – the science of measuring and mapping the ocean floor.
Hydrographer – a person who gathers data on ocean floor features.
CTD – Instrument which collects physical characteristics in the sea water including conductivity (flow of electrical current), temperature and depth. This data helps correct for the difference in the speed of sound waves. Sound speeds of sonar vary with depth, temperature and saltiness of the water.
SONAR – Sound Navigation And Ranging – similar to echolocation that marine mammals use.

Animals Seen Today:

- Six Grizzly bears (a mother bear, her three cubs on one beach and two other bears near by).
- Two Bald Eagles
- Sea otters
- Halibut