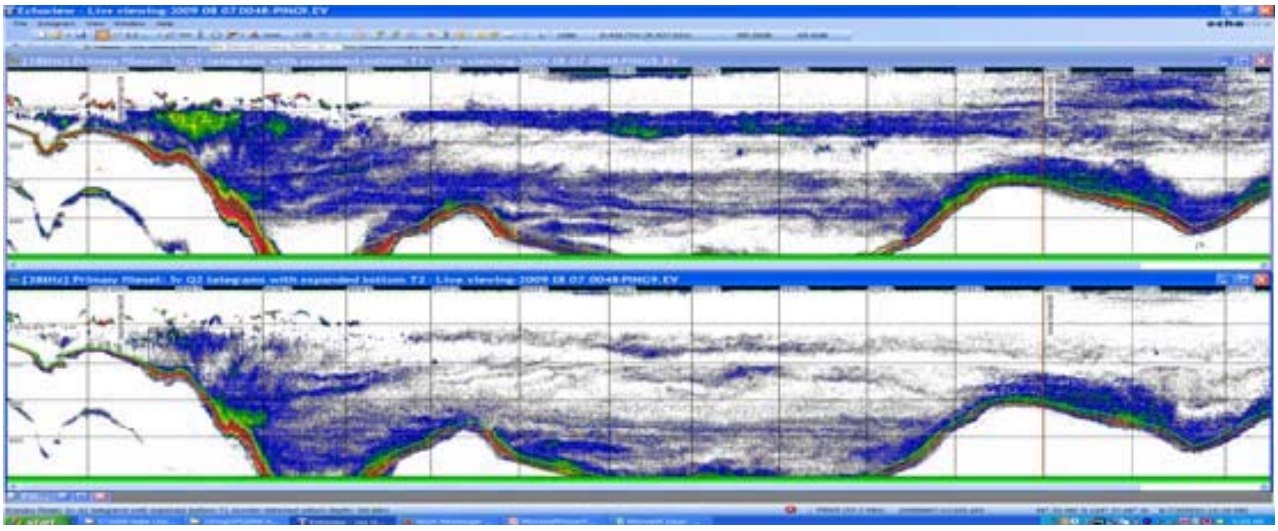
NOAA Teacher at Sea
Jennifer Fry
Onboard NOAA Ship *Miller Freeman*
July 14 – 29, 2009

NOAA Teacher at Sea: Jennifer Fry
NOAA Ship *Miller Freeman* (link: http://www.moc.noaa.gov/mf/)
Current location of ship: www.shiptracker.noaa.gov (choose *Miller Freeman*)
Mission: 2009 United States/Canada Pacific Hake Acoustic Survey
Geographical area of cruise: North Pacific Ocean from Monterey, CA to British Columbia, CA.
Date: July 22, 2009

Weather Data from the Bridge
Wind speed: 13 knots
Wind direction: 003°from the north
Visibility: clear
Temperature: 13.6°C (dry bulb); 13.2°C (wet bulb)
Sea water temperature: 15.1°C
Wave height: 1-2 ft.
Swell direction: 325°
Swell height: 4-6 ft.

Science/Technology Log
Today we did a fishing trawl off the coast of Oregon. First, the scientists used multiple acoustic frequencies of sound waves. After analyzing the sonar data, the scientists felt confident that they would get a good sampling of hake.



Here is an acoustic image (2 frequencies) as seen on the scientist's screen. The bottom wavy line is the seafloor, and the colored sections above are organisms located in the water column.

The chief scientist called the bridge to break our transect line (the planned east/west course) and requested that we trawl for fish.

The NOAA Corps officers directed operations from the trawl house while crew members worked to lower the net to the target depth. The fishing trawl collected specimens for approximately 20 minutes. After that time, the crew members haul in the net. The scientists continue to record data on the trawl house.

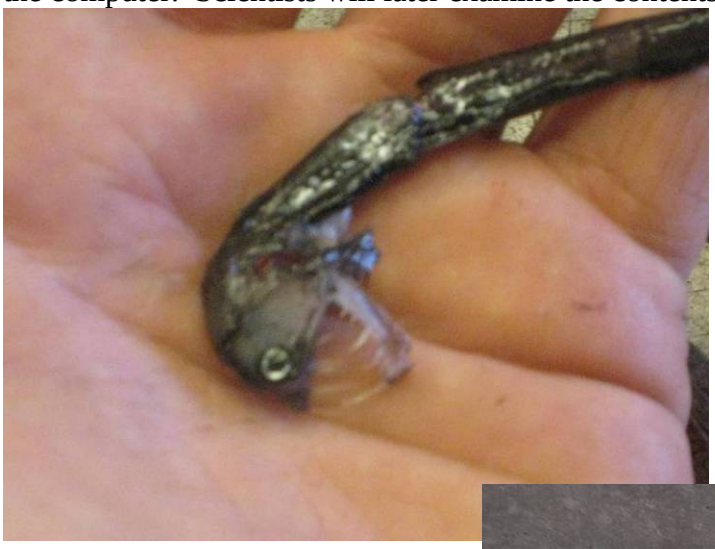
Today's total catch fit into 2 baskets, a "basket" is about the size of your laundry basket at home, approximately 25-35 kilos. Included in the sample were some very interesting fish:

- Viper fish
- Ctenophores or comb jellies
- Larval stage Dover sole, lives at the sea bottom
- Jelly fish, several varieties (*Note: Jelly fish are types of zooplankton, which means they are animals floating in the ocean.)
- Hake, approx. 30 kilos

The trawl net sits on the deck of the *Miller Freeman* and is ready to be weighed and measured.

A view from the trawl house during a fishing trawl.

The scientists made quick work of weighing and identifying each species of fish and then began working with the hake. Each hake was individually measured for length and weighed. The hake's stomach and otolith were removed. These were carefully labeled and data imputed into the computer. Scientists will later examine the contents of the stomach to determine what the hake are eating. The otolith (ear bone) goes through a process by which the ear bone is broken in half and then "burnt." The burning procedure allows one to see the "age rings" much like how we age a tree with its rings.



Left: A viper fish

Above: Here is something interesting, a hake with two mouths discovered in the trawl net.

Left: NOAA Oceanographer John Pohl and NOAA Fish Biologist Melanie Johnson discuss data about the fish collected.

Personal Log

Everyone works so very hard to make the Hake Survey successful. All hands on the ship do a specific job, from cook to engineer to captain of the ship. It is evident that everyone takes their job seriously and is good at what they do. I feel very fortunate to be part of this very important scientific research project.

Dover Sole, larval stage

A hake and its stomach contents, including krill, smaller hake and possibly an anchovy

Did You Know?
Bird facts: An albatross' wing span can be 5 feet, which equals one very large sea bird. A shearwater is slimmer and smaller yet resembles an albatross.

Animals Seen Today
Sea life:
Plankton: Ctenophore & Jelly Fish
Dover sole: larval stage
Hake
Humboldt squid
Birds:
Fulmar
Albatross
Gull
Shearwater