



**NOAA Teacher at Sea  
Megan Woodward  
Onboard NOAA Ship *Oscar Dyson*  
July 1 – 18, 2009**

**NOAA Teacher at Sea: Megan Woodward**

NOAA Ship *Oscar Dyson*

Mission: Bering Sea Acoustic Trawl

Geographical Area: Bering Sea/Dutch Harbor

Date: Tuesday, July 1, 2009

**Science and Technology Log**

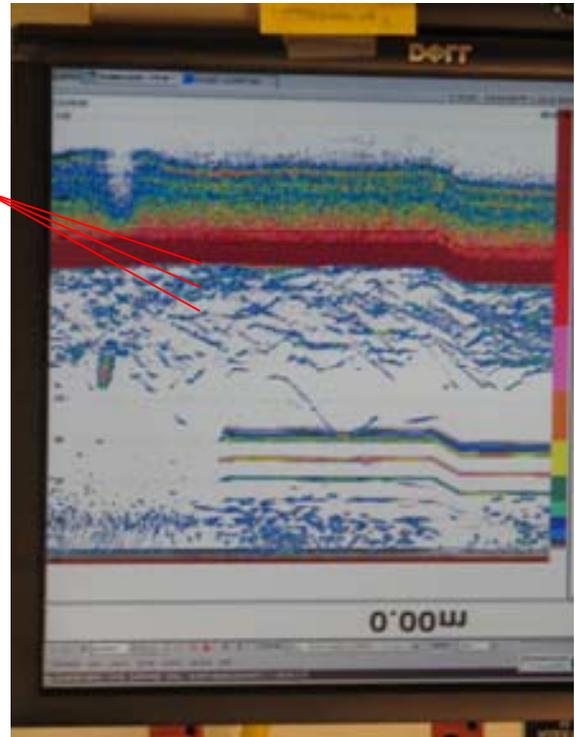
What is this trip all about? Well, NOAA is working to collect a range of pollock fish samples from across the Bering Sea. The samples collected will help set fishing regulations based on the estimated pollock fish population. The fish are looked at to assess the male to female ratio, size and age.

Pollock, a member of the cod family, are mainly found in the Bering Sea. They are typically found between 328 to 984 feet depths. Pollock lives up to 17 years, and reach maturity around age 4. The maximum size of the pollock is slightly larger than 3 feet long.



Spheres

Copper Sphere



The colors in the picture at right indicate the amount of return received from the 3 spheres seen towards the top. The other mass of colors at the bottom and surrounding the lines are fish, which are interfering with the read.

We are currently preparing to set sail. Departure time is set for 15:00 (3:00 pm). Our first anchoring will take place just a few hundred feet from where we are docked in Dutch Harbor. At that time, the Chief Scientist and other members of the science team will calibrate (check the accuracy) the echo sound system used during the course of the survey. Once the calibration is complete and the data is collected, we will continue to sail in search of pollock fish.

The echo sound system is used to measure the amount of return or “back scatter” from a ping (term to describe the sound sent down into the ocean). Depending on the size of the return, the scientists are able to determine if they are detecting fish. Pollock are known to give a return within a specific range, which provides the scientists with one of the clues that help them make an educated guess about the type of fish being detected.

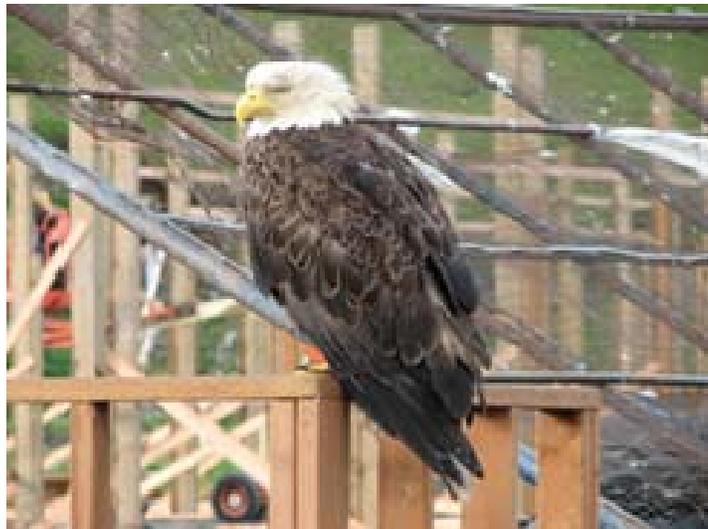
In order to calibrate the echo sound system, three metal spheres that have an expected return level are lowered into the sea. A ping is sent into the open sea, and the scientists are able to watch the amount of return from the spheres through their computer. The amount of return can be seen using a color-coded scale. Red shows the highest level of return, and gray is the color indicating very little return. The scientists can then see if each sphere is giving the expected return. If a sphere is giving off more or less than the expected return, the scientists then know how to adjust the level of return they are getting from fish throughout the project.

### **Personal Log**

After a day and a half in Dutch Harbor, I’m glad to finally be getting under way. Dutch Harbor is a small, small town. There are a few restaurants, one hotel and a Safeway. All of the other businesses are linked to the fishing industry in one-way or another.

Flying into the island was an incredible experience. The plane hummed through the air between multiple tiny landforms. The airport runway stretches out to the edge of the sea, allowing the passengers to think, for just one moment, they are making a water landing. The plane touched down just beyond the shore.

Since my arrival, I have been welcomed with warmth from all of the NOAA scientists and deck crew. Everyone has been more than willing to answer even the most ridiculous of questions I’ve had. My time the past two evenings were spent getting to know several of the Oscar Dyson officers and crew members.



**Eagle or seagull? This guy sits and waits for a food meal on top of the hotel dumpster.**

A good chunk of Monday was spent hiking Ballyhoo with two of the officers from the ship.



**This little ground squirrel wasn't bothered as we walked by.**

Ballyhoo is a steep hill behind the airport (approx 1400 ft. elevation). The hill was littered with WWII shelters. As we tromped up the hill, the wind began to pick up. By the time we were nearing the top, the wind was practically knocking me sideways. The gusts were sustained and powerful. Certainly some of the windiest conditions I've encountered. The wildflowers growing on the hillside were reminiscent of the summer blooms found on Mount Rainier. The views from the top were breathtaking. Several bald eagles swooped past the emerald hills, and the sun started to peak out as we made our way back to sea level.

### **Animals Seen in Dutch Harbor**

- Ground Squirrel
- Jelly Fish
- Bald Eagles
- Variety of Seabirds
- Arctic Fox
- Guard dog

### **New Vocabulary**

Echo Sound System - A tool used to measure the return or "back scatter" from a ping. The amount of return helps determine what is hiding under the sea.

Ping - The name of the sound that is sent into the water to create an echo/return for the scientists to read. The ping is a constant, repeated sound wave. Several different frequencies are used to detect objects.

Return - AKA back scatter, is the amount of acoustic sound waves/echo bouncing back off an object beneath the water.

Trawl - The phrase used when talking about catching fish using a large net