



NOAA Teacher at Sea
Rebecca Himschoot
Onboard NOAA Ship OSCAR DYSON
June 21 – July 10, 2007

NOAA Teacher at Sea: Rebecca Himschoot
NOAA ship OSCAR DYSON
Mission: Summer Pollock Survey
Day 4: June 24, 2007

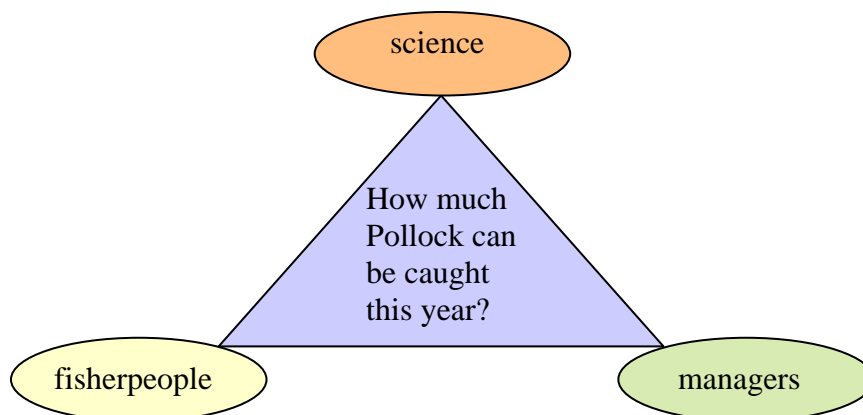
Weather Data from Bridge

Visibility: less than .5 nm (nautical miles)
Wind direction: 260° (SW)
Wind speed: 18 knots
Sea wave height: 4-6 foot
Swell wave height: 0 feet
Seawater temperature: 2.9°C
Sea level pressure: 1006.0 mb (millibars)
Cloud cover: fog

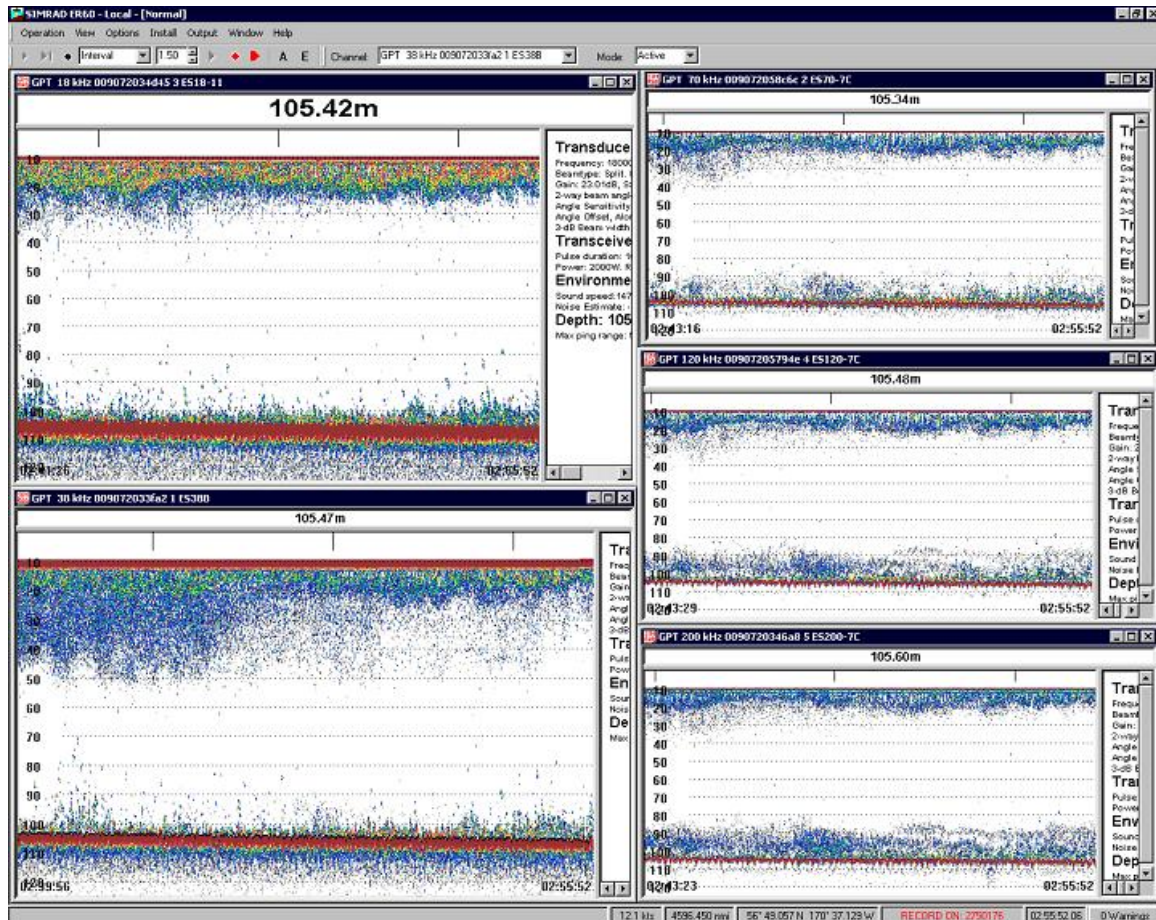
Science and Technology Log: What Is the Summer Pollock Survey?

The Alaska Fisheries Science Center (AFSC) is one of six regional centers charged with monitoring commercial fish stocks in the United States. The AFSC is located in Seattle, Washington, however the data the scientists from the Center collect is gathered from coastal areas across the state of Alaska.

For over 20 years the AFSC has been surveying Pollock stocks in the Bering Sea of northwestern Alaska in the summer months. More recently they have also been surveying stocks in the Gulf of Alaska during the same season. During the Pollock spawning months of February-March surveys are also conducted in known spawning areas. The AFSC scientists' data are one part of the fishery management triangle:



The summer Pollock survey on the OSCAR DYSON will take place in three sessions of three weeks each. The first day of each leg is spent calibrating the acoustic equipment to make sure it is accurate for the rest of the research in the next three weeks. Once the OSCAR DYSON reaches the Bering Sea, the navigation team locates the transects that have been surveyed in years past. The science team begins collecting acoustic data, and fishing intermittently to collect more data about the fish, such as exact lengths, gender and age information.



The acoustic data are collected every second. Sound waves are emitted from a transducer affixed to the hull of the ship; when these sound waves strike a surface, they return to the transducer. By calculating the time the sound waves traveled it is possible to “see” where the objects are the sound waves bounced off of. The bottom of the ocean shows up as a very strong, solid line, whereas fish in groups show up as “clusters” in the water column (the sound waves bounce off the air-filled swim bladders of the fish). By using different frequencies, the scientists are able to determine if the clusters are larger or smaller fish, including plankton-sized euphausiids (i.e., krill). This amazing system for “seeing” fish using sound waves is modeled on the feeding strategies of some of the oldest and best-adapted fishers, the toothed cetaceans such as dolphins and sperm whales.

Personal Log

Luckily the crew of the OSCAR DYSON were able to give me some very good advice about seasickness medication. We entered some moderate seas our first day out, but I'm slowly getting my sea legs. The Bering Sea is a very shallow body of water, less than a hundred meters deep in many places, so that it has a great deal of wave action in any kind of windy weather. Today we passed the Pribilof Islands, but it was too foggy to see them.

Question of the Day

Answer to Day 1 question about solstice: The word "solstice" comes from the Latin words "sol," which means sun, and "sistere," which means to rest or relax. The solstice occurs twice each year, when the Sun is at its northern- or southernmost point from the equator. The solstice is the turning point at which we experience either increasing or decreasing increments of daylight (*paraphrased from the Encyclopedia Britannica online*).

Today's Question: The scientific method includes controlling the variables in an experiment. What are some examples of variables the science team from the AFSC is controlling in the summer Pollock survey?