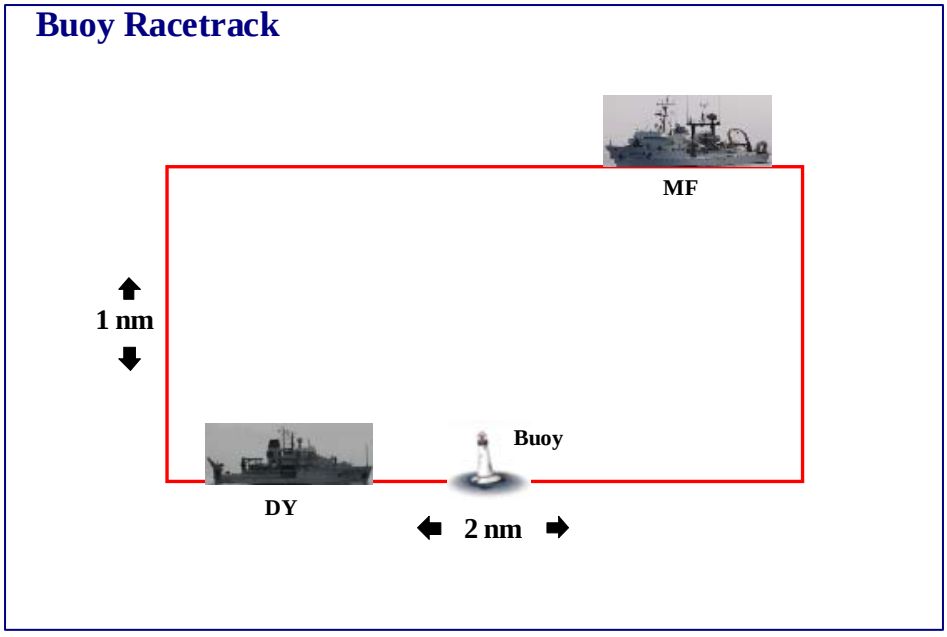
NOAA Teacher at Sea
Katie Turner
Onboard NOAA Ship MILLER FREEMAN
July 10 – 31, 2008

NOAA Teacher at Sea: Katie Turner
NOAA Ship MILLER FREEMAN
Mission: Eastern Bering Sea Pollock Survey
Geographical area of cruise: Bering Sea
Date: July 30, 2008

Weather Data from the Bridge
Visibility: 10 miles
Wind Direction: 050
Wind Speed: 7 knots
Sea Wave Height: 0-1 foot
Swell Wave Height: 2-3 feet
Seawater Temperature: 8.3 ˚C.
Present Weather Conditions: partly cloudy

Science and Technology Log
This was the final day at sea for this cruise and we have just returned Dutch Harbor. The cruise has been challenging for the scientists as they have had to scale back their study, and even eliminate some experiments. Fifteen days of cruise time were lost while repairs were made to the ship. Conditions while working at sea are unpredictable and require acceptance, patience, and flexibility.

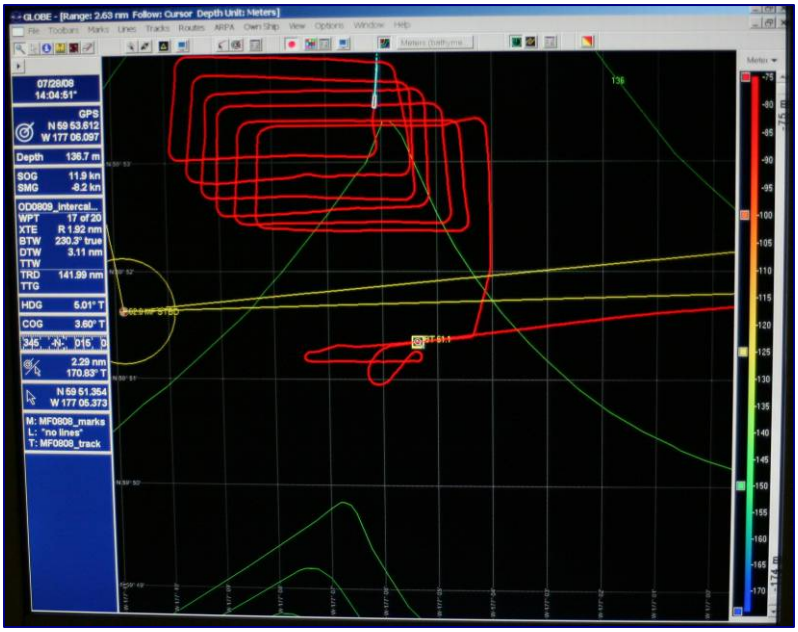
The Buoy Experiment
In addition to the side by side comparison study, a unique experiment was designed and performed during this cruise to investigate how walleye pollock (*Theragra chalcogramma*) behave in the absence versus presence of either vessel, to augment the comparison study. Transducers were mounted on a buoy, which was deployed from OSCAR DYSON,



and allowed to drift while collecting acoustic data on pollock schools with the ships at a distance. As the buoy drifted along, MILLER FREEMAN and OSCAR DYSON alternately passed by the buoy on a "racetrack" 6 nautical miles (nm) long. Each ship passed the buoy within 10 meters along the racetrack about every 30 minutes, and maintained a position opposite one another.

The racetrack pass experiment will provide information on how fish respond to the ship as it approaches and passes over them, and then as it moves away. The acoustic data collected by the transducers on the buoy was monitored aboard OSCAR DYSON during the operation, and was downloaded in entirety once the buoy was retrieved for analysis.

We made a total of seven buoy passes, which took about 3 ½ hours. This experiment was done at night when pollock schools migrate up from the bottom of the ocean into mid-water regions. It was interesting to observe the navigation operations from the bridge as ships maneuvered around the racetrack in the dark. The computer screenshot below shows the track (in red) of the MILLER FREEMAN after our 6th pass of the buoy. The short, blue vertical line at the end of the red track line at the top of the screen represents the ship. (Green lines are depth contours.)



Cruise path of the ship as it followed the racetrack around the buoy

After completing the buoy experiment we picked up the transect from where we had left off and continued the side-by-side study.

Another Setback

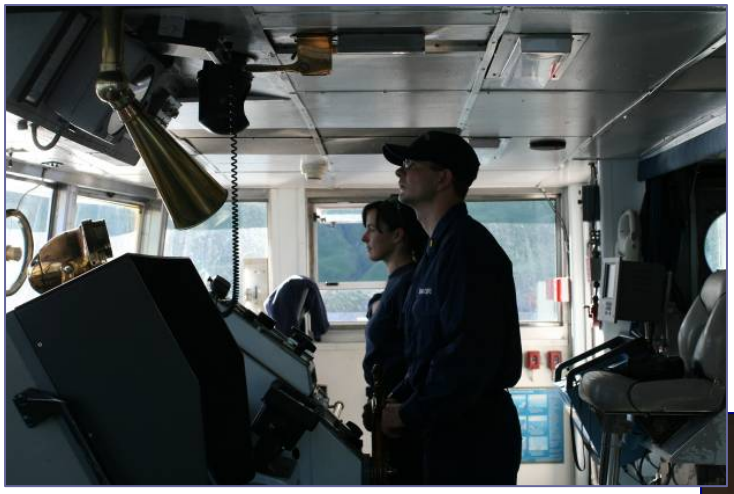
Later that day the ship developed engine problems and it was necessary to shut down the main engine to investigate. Leaks in the cooling system involving two separate cylinders had developed. This same problem occurred recently with a different cylinder, and was one of the problems that originally delayed our cruise out of Dutch Harbor. The engineers repaired the system and we were underway again within a few hours. At this point we were nearly 450 nautical miles from Dutch Harbor, with limited resources for additional repairs. In the best interest and safety of all aboard, the Commanding Officer decided to discontinue our north and westward direction along the cruise course and head the ship back to Dutch Harbor.

Personal Log

Our final day in the Bering Sea was mostly sunny. Dall's porpoise and whales were occasionally sighted off in the distance, and we watched ash clouds rise from Okmok volcano off our starboard side all afternoon as we closed in on Unalaska. The wind seemed to be carrying the

A view of Unalaska on our return

ash cloud to the southwest, and we hoped that it would not affect flights out of Dutch Harbor for those of us who are flying home. We arrived in Unalaska before 10 pm, leaving just enough time to anchor and repeat the acoustic calibration. After the scientists and I leave the ship in the morning, she will head back to her home port of Seattle, where she will have a maintenance check before the next cruise.



I have thoroughly enjoyed my stay on MILLER FREEMAN and owe many thanks to the officers and crew for their hospitality. It has been a pleasure to get to know everyone and I will have good memories of this cruise, despite the breakdowns and delays. I am especially grateful to the scientists on board, Patrick Ressler and Paul Walline, for sharing their work, helping me understand a little about acoustic surveys, and for their friendship during this experience.

Above: On the bridge bringing MILLER FREEMAN into Captain's Bay, Executive Officer Natasha Davis (official owner of ship's cat) and Ensign Otto Brown

Right: The ship's cat