



**NOAA Teacher at Sea
Jill Carpenter
Onboard NOAA Ship DELAWARE II
September 5 – 15, 2006**

NOAA Teacher at Sea: Jill Carpenter

Onboard NOAA Ship DELAWARE II

Mission: Herring Hydroacoustic Survey

Day 4: Friday, September 8, 2006

Weather Data from Bridge (docked in Woods Hole for calibration and Advanced Fisheries Towed Vehicle testing—no weather data.)

Science and Technology Log:

Today was spent on last minute performance testing to verify that the ship's instrumentation is working properly. Crewmembers finished tying down equipment, the Advanced Fisheries Towed Vehicle was tested and adjusted with minor protective modifications, and the Scientific Computer System was finished being set up. The DELAWARE II is scheduled to depart tomorrow at noon.

I was also able to interview several of the crewmembers on board the ship. Each person has such an interesting story and so much knowledge to share.

The first person that I had a chance to interview was Navigation Officer Mark Frydrych. He has many duties on board the ship. As a navigation officer, he is responsible for all the charts used to navigate the ship. He starts the navigation process by creating a route on the computer, then transfers and double checks the route on the paper charts. Mark is on his first sea tour which has mostly been in the northern Atlantic Ocean. His favorite part about his job is that he gets to draw on big pieces of paper and that he has the opportunity to see some wonderful sunsets. Navigation Officer Frydrych has additional duties on board the DELAWARE II as well. Another title he holds is Junior Officer where he inventories and periodically checks the safety equipment like the fire extinguishers and escape hatches. For anyone interested in becoming an officer aboard a NOAA ship, Mark recommends pursuing a scientific or engineering degree. He says that computer experience and math classes would also be helpful. Mark would eventually like to be trained as a NOAA Corps pilot.



Navigation Officer Mark Frydrych charting the route the DELAWARE II will take.

The other person that I was able to speak with was fisheries biologist Karen Bolles. Her research involves using morphometrics (analysis of shape) to examine body shape differences among Atlantic herring spawning groups in the northwest Atlantic Ocean



TAS Jill Carpenter and Fisheries Biologist Karen Bolles with a subsample of herring collected from a midwater trawl.

(stock discrimination). This will help improve the accuracy of our herring stock assessments and harvesting strategies. Using computer programs, Karen analyzes differences among groups of herring, using characteristics such as mouth length. Because herring spawning groups mix during non-spawning time, these findings can be used to determine proportions of different spawning stock herring that may constitute research and commercial catches.

Karen's research has taken her from mid-Atlantic waters north to the Bay of Fundy in Canada. She has also been a scientific member on research vessels operating off Iceland and in the Great Barrier Reef region of Australia. Karen has survived some challenging voyages at sea, including a two-week cod survey trip around the island of Iceland that took place during extremely rough winter weather where nobody on board spoke English!

When talking with Ms. Bolles, it is very evident that she is passionate about her job. She says that she loves the feeling of helping to improve fisheries

management and stock assessments. She especially enjoys using digital image analysis systems to measure morphometric characteristics, but her main passion is working with fishermen to gain knowledge and to fine-tune her fish sampling designs. One thing about the field of marine biology that was surprising to her in the beginning was the amount of math and statistics that is used to analyze biological data. Karen's advice for individuals pursuing experience in the marine science field is to get involved with volunteer opportunities, independent studies, and internships that come your way. She stresses the importance of hands-on experience, understanding how to work with large data sets and spreadsheets, and good writing skills.

Personal Log:

I am very excited to get out on the open water and begin to use the equipment to conduct surveys and take measurements. I am also a little anxious to put to use all that I have been learning; I hope I can remember how to enter all the information accurately. See, even teachers get worried before a test!

I am enjoying talking with each of the crewmembers. I feel fortunate to be on a cruise with such a good group of people!

Question of the Day:

The fish that the DELAWARE II will be studying are classified as pelagic fish, which means that they live in the top layer of the ocean away from the seashores or ocean floor. 1. Why do you think that most of the oceans creatures live in the top layer of the ocean? 2. Research to find what percentage of sea life lives in this zone.



TAS Jill Carpenter working hard aboard NOAA ship DELAWARE II.