



NOAA Teacher at Sea Mike Lynch Onboard NOAA Ship DELAWARE II June 20 – July 1, 2005

Daily Log: Day Three
Date 6/22/05
Latitude: 3726.163N
Longitude: 07444.980W
Wave Height: 1 foot
Swell Height: 1 Foot
Weather: clear
Visibility: unlimited
Wind Speed: 7 mph

Scientific Log:

Our first real shift for the DELAWARE II Ocean Clam

Survey began this morning off the coast of Long Island. The shift started at midnight, so we were awaked at 11: 15. Our first dredge occurred at 2:15 AM. We are working in a crew of six. Two of us input data into the FSCS computer as the deck crew coordinates with the boatswain in charge of the winch. Safety is a big issue on the NOAA vessel, and scientists are not allowed on deck while the dredge is being lowered off the stern. A high voltage cable is fed out along with the winch cable, and no one is allowed on the deck until the dredge is in position for tow. Our job upstairs is to coordinate with the Officer of the Day when each step is being done and input his into the computer. Each actual tow takes five minutes, but the entire process of lowering the dredge, dredging and raising the dredge onto the deck takes about 25 minutes. When the dredge is brought up, our job begins, We often start by placing a smaller mesh screen at the front of the dredge in order to capture the contents and releasing the dredge into a tow to wash away some of the debris and substrate soil. When the dredge is brought in the second time it is hauled up to



an enormous table where the contents are released for inspection of our crew. It is then our task to sort through large amounts of shell hash, rock and substrate and find the living organisms. Our trawl today has been averaging at depths of 60 meters (180ft. or 30 fathoms in you want to be really cool and nautical). This is Ocean Quahog territory. True to form, our first three station trawls resulted in large numbers of Ocean quahogs as well as the assorted species. For commercial fisherman, these other species are often referred to as discard. These are

unwanted species, or at least not the targeted stock. Today along with the quahogs, we caught several varieties of clams. These smaller clams were varieties such as Asterias, Astarte, Astrope, and Razor. We also collected Sea Scallops and Horse mussels. We

found the occasional Hermit Crab as well as Moon Snails and a variety of conch named Stimpson's Whelk. We captured a multitude of Astropes, a variety of spiny starfish.



Few fish are caught in bottom dredges, but we did catch one small Sea Robin and a small Skate. At first, I thought the unwanted species were called by-catch, but through interviews with on board fishermen and scientists I was informed that the term by-catch more commonly refers to sea mammals, reptiles or marine birds that are accidentally caught or killed in commercial fishing. For example, in the area of scallop dredging, there has been a great deal of controversy surrounding the by catch of endangered species of Sea Turtles. After each tow the catch was sorted, measured for length, and weight and catalogued into the computer database. What used to be done by pencil and paper is now done via electronic scans and scales. For quahogs under 40 mm, or above 110 mm in length, we conducted meat weigh measurements as well. This is hard work, and the ship conducts non-stop tows and data collection 24 hours a day. We are learning fast and having fun. The six-hour shift flew by and I was exhausted. A great morning, in bed by 7AM, and ready for the next shift at 11:30 AM. What a weird schedule. We have all been at it for a day and a half, and no one seems to know what day it is.

As part of today's log, I need to share what I have learned about the mysterious Ocean Quahog. The IO\Ocean Quahog, (*Antica Islandica*) is found from Newfoundland to Cape Hatteras. They are usually found in depths from 8 to 256 meters. They are a relatively cold-water species and are rarely found in waters above 16 degrees Celsius. Their population densities are greater in off shore waters and they prefer a substrate of fine sand. In Maine they are found in shallower waters, but the populations are small, and the species grows at a slower rate. The average size is about 70mm. But today we had one at 110mm. What are really incredible about Ocean Quahogs are their ages. The scientists we interviewed today estimated that most of the many of bushels of quahogs we captured were in the 45 year old range. Quahogs can be in excess of 170 years old. Their most dramatic growth occurs in their first twenty years of life and the growth process slows significantly. Their ages are incredible, I may have to feel guilty the next time I spoon into clam chowder. Marine biologists have been finding that the Ocean Quahog, like the Atlantic Surf Clam, has shifting population strata. Surveys conducted over the past two decades and commercial fishing statistics show a pattern in which the Surf Clams are establishing themselves in deeper areas where quahogs previously predominated, and that the quahog populations are showing patterns of migration further offshore and further to the North. One scientist onboard speculated that clam and quahog surveys might be

important in the study of global warming. Ocean Quahogs have a commercial market value. The principal commercial fishing for the species occurs off the Delmarva Peninsula, New Jersey, Long Island and even Southern New England. In 1993, the commercial harvest of Quahogs reached its zenith at 25,000 metric tons. In 2000, the harvest had diminished to 14,000 metric tons. The decline in the fishery has been in part due to increased regulations under the Surf Clam- Ocean Quahog Fishery Management Plan (FPM), but also due to a decrease in the number of clamming boats and a depressed commercial market. Despite the reduction in total landings, the Quahog stock may be in jeopardy. The total landings are less than two percent of the total environmental stock, but any greater landings may threaten replacement levels and sustainability of this slow growing species.

Personal Log:

Things were going along well until electrical problems with the dredge shut us down. Time to go to work on a different sort of problem.

Signing off, Mike