



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

Daily Log: Day Seven

Date 6/26/05

Latitude: 3953.84 N

Longitude: 07354.58 W

Wave Height: 1 foot

Swell Height: 1 Foot

Weather: partly cloudy

Visibility: unlimited

Wind Speed: 4 mph



Science and Technology Log

Today's log will be an outline of a

typical day aboard the DELAWARE II Clam Survey. Our day begins with an 11:10 wakeup call. A quick routine and I am out the door. Coffee in the galley, a few guys watching the final minutes of game seven of the NBA finals. I quickly take advantage of the time to organize my folder of materials that has fallen into disarray. There is very little space other than the galley to do any written work on board. Every available space is filled with equipment of some sort related to our survey. There are no tables or chairs in our staterooms, these are only for sleeping. It's now 11:50 PM, and time to go aft to relieve the other crew. There are six people on this crew, and they are all busy measuring clams and weighing meat weights. They are happy to see us and noticeably tired. Within

minutes, we are coming on to our first station. Stations are either randomly selected by the computer or selected by our chief scientist. Unlike a commercial fisher, we survey many different strata and depths. We are not exclusively concerned with the areas of highest concentration of biomass, but instead want to obtain data that will give an overall glimpse of the entire ecosystem. It is my job to go up to the bridge as we approach the station and coordinate the Shipboard Computer System (SCS) with the activities of the



deck crew and the Officer On the Duty (OOD). This morning, Ensign Nathan Priester, Navigator, is on duty.

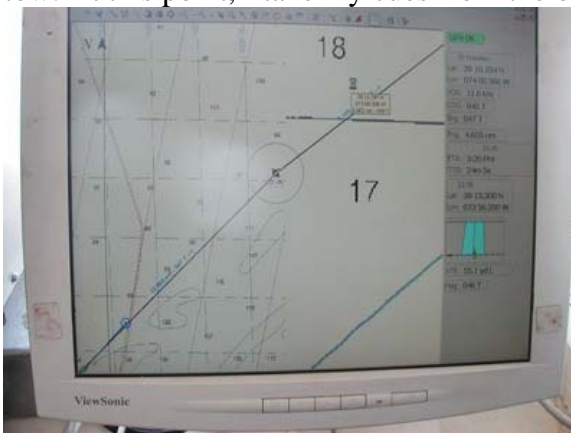
The first activity on the SCS is to synchronize the computer clock to a constant satellite feed and software called Dimension Four. Once I am assured that the computer clock has not drifted I open the program software to the clam survey data. This screen requires that I enter information that will catalog the data for each specific event at designated areas called stations. Station numbers are related to exact coordinates of latitude and longitude for the desired tow. Today we are off the coast of Virginia at Latitude: 33651.231N.

Longitude: 07526.591W. Next to be entered are the numbers for strata (general area) and the tow number (the number of tows in that strata). The computer will then use this data to not only monitor the aspects of the tow, but also as a file to catalogue the species data that will later be recorded on deck. The next information has to do with the depth of the tow. A number is entered that correlates to the length of the hauser that is to be released. A hauser is a 3" rope that is used to tow the dredge once it is on the bottom.

Today the hauser length will be 110 ft.; I also need to enter the information for the winch cable. The winch cable is heavy wire that is used to lower and raise the dredge. The length out is slightly longer than the designated hauser length; this means that when the dredge reaches the bottom the tension is transferred over to the more flexible hauser for the tow. Today's cable information is designated 125 ft and the Crane. Having entered this info, my next job is to go to the back of the bridge and activate two switches that will lower the hydrophone. This is a device that is lowered down beneath the ship that communicates with the Survey Sensor Package (SSP) adhered to the dredge. This sensor package provides a constant stream of information regarding dredge position, attitude to the bottom, speed, depth, temperature, and more. This communication will also provide a track line that can be monitored on the bridge and the wet lab. Now we are ready for a tow. At this point, I take my cues from the officer on duty and the deck crew. The deck



crew is on the radio and the OOD, on the bridge, has a video feed of the stern deck. The crew calls in that the dredge is being taken off the chains, and I input the start of the "event" in the computer. An internal clock starts running and monitoring data. When the dredge is 10 meters out the crew asks for "Power On", I now enter this into the SCS, and the 440-volt power is turned on to the pump and the sensor package. At this point the sensor package is being read



by the hydrophone, and a constant stream of data is being entered. The pump is now delivering water at high pressure through a manifold with a dozen nozzles. This pressurized water is blown onto the substrate (ocean floor) creating a slurry of clams, substrate and shell hash in front of the oncoming dredge. When the dredge comes to the end of the cable, the tension is transferred to the shorter hauser line and the crew announces “on the hauser”. This is my cue to enter “start tow”. This command starts an internal clock that measures a tow of exactly five minutes. With five minutes to spare, I now need to enter further cruise information and input weather data. The OOD keeps the vessel going a constant 1.3 knots.

He then tells me the average rpm of the tow. Today we are averaging 135 rpm’s. The weather data consists of the percentage of cloud cover (20%), the visibility (clear), the wave height (2ft.), the swell height (3ft.) and the swell direction (160 degrees). At the end of the five-minute tow, the deck crew announces, “haul back”, and I input “end timed tow”. The next command I input will indicate off the hauser, meaning that the cable winch has now retrieved the



tension. The next command is ‘off the bottom’, and then power off. When I input each of these commands into the computer I await the call for last ten meters. This signals the end of the computer event and I exit the program, cross off the station on the log so that the number is not inadvertently reused, and electronically retrieve the audio phone back onboard. This part of my job usually takes about 25 to 20 minutes. It is now time to go aft, put on my oilers, and go out to sort the dredge contents, and input species data. That will be the subject of a future log. This process is repeated on an average of eight times per shift. There are four shifts; each crew has two shifts per day. The vessel and data collection operates 24 hours per day.

#### Personal Log:

We are now off the coast of Virginia. There is lots of military traffic out of Norfolk. We are fishing the shallower waters of the Delmarva Peninsula. We are in surfclam territory. We are having limited success which is consistent with the data of previous surveys that would suggest that clam populations are moving to colder off shore locations and further north. We are doing a lot of measurements of meat weight and saving samples in various strata for universities and scientists that have requested samples for research. All is well, the weather is great the people on board are super, and, have I mentioned the food is great?

Signing Out, Mike, dad, AKA. Mr. Lynch