



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

Daily Log: Day Two

Date: 6/21/05
Latitude: 3948.669 N
Longitude: 07302.329 W
Visibility: Clear
Wind: 6-8 mph
Wave height: 1ft.
Swell Height: 3ft.
Swell Direction: 150 degrees

Science and technology log:



Changing one's hours to six on and six off could be a subject for a scientific study in itself. Our first day on board was a short one. We left Woods Hole at 3PM and began our sail south. We stopped to do a test drop with the trawl and received a crash course in the computerized world of fishery research. The NOAA vessel uses two computer systems to monitor and catalog data while the dredge is in the water and throughout the term of the



bottom dredge. Computer times are constantly calibrated to ensure that different machines are reading data at the same time. The onboard systems are the Fishery Science Computer System (FSCS), and the Scientific Communication System (SCS). The computers monitor the ship's exact location, the time of the dredge, the speed, the water temperature the substrate composition and aspect of the dredge to the bottom. Later this week we will be attaching the video feed as

well.

This sure isn't your grandpa's fishing. Once the dredge is secured to the ship, and the power is shut down the scientific crew is released to the aft deck to release and sort the contents of the dredge. The clams are sorted by variety and by size. Other invertebrates and fish are sorted weighed measured and released. The contents of the dredge are analyzed and catalogued for its overall percentage of substrate, shell debris and fish and animals. The clams are then measured, weighed and analyzed for age. The weighing and measurements are done electronically and simultaneously cataloged into the database. The ages of the clams and quahogs are determined through visual inspection of growth rings. This takes a practiced eye, especially with the ocean quahogs, which grow very

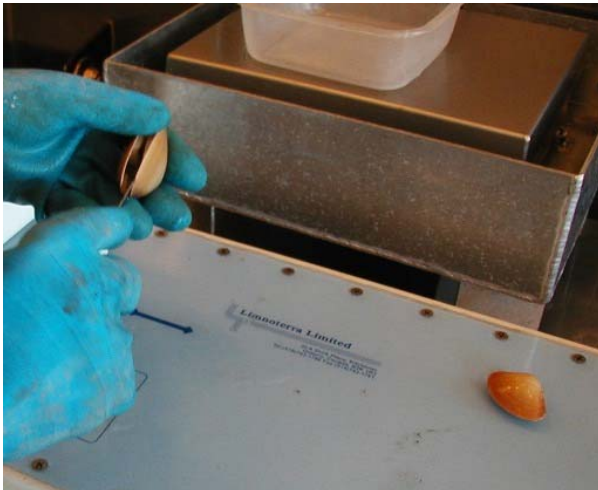
slowly and can reach ages of one hundred fifty years. One of the on board scientists indicated that they will soon receive a scanner that will be able to read the rings on the surf clams and ocean quahogs and determine their precise age and growth rate. It's all pretty amazing stuff. Needless to say, some monster computer mainframe is crunching numbers and providing some great information in determining the health of the stock, the overall biomass and the condition and patterns in the environment. It's hard not to be impressed, and somewhat overwhelmed. We all have a lot to learn about our new duties onboard. We had a quick run down on other experiments we would be conducting at the request of our chief scientist throughout our adventure, and then were on our way



to the Delmarva Peninsula (DELAWARE, Maryland, Virginia). We will start on our first stations at about 3 AM. This will be fishing for real, and learning on the job. We will start in the Delmarva area, and then work our way back up the New Jersey coastline. The New Jersey offshore waters are the area of the greatest concentration of surf clams and also the greatest concentration of commercial fishing. This area is of specific interest to the scientists who are anxious to measure the health of the stock in relation to findings of

previous surveys. It is now 1 AM, and we are awaiting our arrival at our first station. I

am spending my time reading about surf clams and ocean quahogs. I am so intrigued, I feel compelled to share. *Spisula Solidissima*, more commonly known as the Atlantic Surf Clam, can be found from the Gulf of St. Lawrence to Cape Hatteras. The largest concentrations are off the Delmarva Peninsula, New Jersey and the Georges Bank. Landings of clams off the coast of Virginia and New Jersey have traditionally accounted



for half the landings nationwide. The Georges Bank however has been closed to commercial fishing since 1990 due to high concentrations of Panalytic Shellfish Poison (PSP). The surf clam can be found in varying depths from the beach to 60 meters, but

concentrations below 40 meters tend to be low. Surf clams can reach a maximum size of 22.5cm (8.9in.), but surf clams larger than 20cm (7.9in.) are rare. Surveys are done because clam populations can, and indeed do, move. Movement predominantly occurs in the larval period. Eggs and sperm are shed into the water column, and may be carried by currents for as many as three weeks before recruitment to the bottom occurs. The ages of surf clams can be determined by counting the rings on their shells. The rings are formed when a thin tissue adheres to the inner surfaces of the shell, called the mantle, and a thickened rim of muscular tissue at the mantle edge deposit new material at the mantle edge. The resulting rings show how old the clam may be. More on the elusive Ocean Quahog will follow tomorrow.

Personal Log

Who the heck sits up reading about clams at one AM? Is this nuts or what? The life of a scientist is indeed a crazy one. I myself do not qualify as a scientist, but they sure are interesting to hang out with. I am learning tons, and anxious for our day to begin. The food is great, everyone is friendly, but the sleeping part is somewhat sketchy. I'm sure it will catch up with us all pretty darn soon.



Signing off, Mike (AKA, dad, Mr. Lynch, etc...)