



**NOAA Teacher at Sea**  
**Julianne Mueller-Northcott**  
**Onboard R/V *Hugh R. Sharp***  
**May 11 – 22, 2010**

**NOAA Teacher at Sea: Julianne Mueller-Northcott**

University of Delaware R/V *Hugh R. Sharp*

Mission: Sea Scallop Survey: Leg III

Port of Departure: Lewes, Delaware

Date: May 10-11, 2010

**Weather Data from the Bridge**

Overcast, rainy, in the 50s

**Science and Technology Log**

I am about to spend my first night aboard a boat! I arrived to Lewes, Delaware this afternoon and the driver took me to the University of Delaware's Marine Program campus. From the distance I could see the top deck of the *Hugh R Sharp*. It was much bigger than I had expected (147 ft) and I was surprised by all of the heavy equipment using for lifting and hauling the dredges, different storage vans for extra space, freezers, and lots of computers, monitors, wires, etc. I met the chief scientist of our survey cruise, Victor Nordahl of the NOAA fisheries, who spent some time explaining to me a little about the purpose of our mission for the next two weeks.

Why scallops? This was a question that I had when I learned that I would be a part of this expedition. After some internet searching I found a tremendous amount of data on scallops and learned that many survey cruises like this one take place. I love my marine invertebrates just as much as the next person (alright, probably a whole lot more!) but it seemed like a lot of energy invested in monitoring their population size. It turns out that it boils down to money; scallops are a \$450 million annual resource! Scallops are one of the most important fisheries in the Northeast United States. It is essential that this economic resource is harvested responsibly so that their populations are sustainable. NOAA's annual sea scallop dredge survey occur in three legs to carefully monitor the scallop populations, sampling areas as far south as Virginia and as far north as Georges Bank into Canadian waters NOAA's responsibility is to take an accurate inventory of the scallops, their size and age. Based on their sizes and ages NOAA scientists can use computer models to make predictions for the future of the population in an area. This information can get passed on to a regional council that then makes recommendations/regulations for the scallop fishing industry. These regulations are around the minimum size of the catch, the number of boats, the number of crew members on the boat and the number of days that fishing is permitted.

Before I left school, I asked my students what questions they had about my expedition. They had tons about scallop life history, data collection methods, life aboard a ship, human impact on the ocean and about some of the other sea life we might see while at sea. I will be trying to answer many of those questions in this log. Maddie K. asked the question, "Who eats scallops aside from people?" One species that I learned today that likes to eat scallop larvae are sea stars. During some of our dredges we will also inventory sea stars and crabs so that we can also monitor the population sizes of the scallop predators. This information provides the scientists with important clues on the future of the scallop population in an area. If there are a lot of predators then there might not be a lot of scallops in the future. I am looking forward to pulling



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up lots of sea stars in the nets. I bet we will pick up some big ones and I wonder which species we'll find. The chief scientist says that the stars and crabs are pretty hardy and usually survive the dredge without a problem. Liz B. asked if the animals are released after they have been inventoried and it sounds like most everything is tossed back overboard after it has been weighed and inventoried. I am very much looking forward to seeing what comes up in our first dredge!

### **Personal Log**

One thing that has been cool is the people that I have met. It is funny since we are in Delaware I wasn't expecting to have many connections with the people on board. But it is a small world! There is someone on board who was a judge at this year's Ocean Bowl competition—of course I had to describe to him our team's amazing second place finish. There is a cadet from the Coast Guard who played lacrosse against Souhegan and was friends with some former students. And then many people are from Woods Hole and Falmouth on the Cape, which is where I always spend lots of time in the summer.

We are heading out this afternoon with the tide around 5:30. I can't wait to get out on the open ocean. Far in the distance, I can see many boats passing by—and some are huge tankers. I look forward to going up to the bow and taking it all in. Fun adventure ahead for tonight, once we get underway we will do some practice sampling and then it is about a 4.5 hour cruise to our first station.

### **Atlantic Deep Sea Scallop**

Phylum: Mollusca

Class: Bivalvia

Species: *Placopectin magellanicus*

Physical description: large (2-8"), circular. Since it is a bivalve it has two shells (or valves). When reading about scallops in the [Audubon Society Field Guide to North American Seashells](#), something interesting that I learned is that the two shells differ in color. The exterior of the right valve is usually dirty white while the left valve is reddish or pinkish. I am wondering how they determine which is right and which is left? Inside the scallop is a large adductor muscle. This muscle allows the scallop to open and close and it is the part you eat (if you like scallops!)

Feeding: Scallops are filter feeders who enjoy their phytoplankton.

Predator/Prey relationships: One of the coolest things about scallops is that they can swim! They force water out of their shell and move right along in the water column. The purpose of this is to be able to scoot away from their biggest predators—sea stars!

Habitat: on sand or rubble, water 60-400' deep

Range: Canada to North Carolina