



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

Location: Off the coast of Maryland

Date: May 15, 2010

Weather Data from the Bridge

Air temp: 16.6°C, clear skies, 10% cloud cover

Water conditions

SST: 13.16°C, Salinity: 31.7ppt

Science and Technology Log

Got sea stars?

We have pulled up some impressive loads of scallops so far on this trip! Our largest load included 2,083 scallops (which is about 750 lbs). When they come up in the dredge you can hear them coming. They clatter in the net as they get hauled out and dumped out onto the deck. But even when we are so tired of counting the scallops and lifting the heavy baskets, the scientists and crew members have said, “Just wait! You haven’t seen anything yet!” referencing the fact that there were many more scallops to come.

But today, in a location where in years past have been home to a large numbers of scallops, we didn’t find many. In fact at our last station, there were only five. Instead, the net bulges with the sea star, *Astropectin*. “Where are all the scallops?” is a question that the scientists keep asking themselves because this data is so surprising to them. Today we passed many fishing boats, in fact at one point there were at least five on the horizon surrounding us. I had thought that was an important clue that meant we were bound to find lots shellfish, but that hasn’t been the case. Because this data is surprising, it has the scientists asking another question “Is there a problem with the collection gear?” Fortunately, there are many systems set in place to guarantee that everything is working properly.

During experiments at school, we try to make sure that students know to standardize the procedure and limit variables so that they can be sure the results they attain are based on the one variable they isolated and not due to some other environmental factor. That principle couldn’t be more true on this scallop survey. It is of the utmost importance that all the data that is collected, is collected the same way at each location, and as it was collected in previous years. For this reason, all the specifications about the dredge (the size of the dredge, the size of the rings that let small organisms out, but trap the larger organisms) are kept the same throughout each leg of the survey and each year. In addition to this, they also measure the angle of the dredge with an inclinometer. This way they can make sure that the dredge is always in the same position as it moves along the seafloor. The tow is always for the same length of time, going at the same speed, and going in a straight line. You can see that if a tow was down for a longer amount of time that would change the amount of organisms being caught. To double check all of these procedures, we mounted a camera on to the dredge. This camera had a timer on it as well. It



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was really fun to watch the video; the dredge fell through the water column and then settled on the sea floor in a puff of mud. The dredge sped along the substrate and we could see little sea stars falling back into the net. Watching the footage, the scientists were able to double check that the angle on the dredge and the amount of time it spent on the bottom was consistent with the measurements they were getting from the inclinometer. Since this data is helping to manage such a valuable economic resource, the scientists need to be extremely confident in the data collection methods. Using this data, decisions will be made about the fishing regulations in the area which ultimately impacts people's jobs and income.

Because these scientists have carefully and deliberately eliminated so many variables they can be sure that their equipment is working properly and that they can trust their data. But that still leaves the question, where are they scallops? Have all of the scallop fishing boats that we can see in the distance totally wiped this area clean? Or is it to do with the incredible numbers of sea stars that we have seen, gorging themselves on their favorite delicacy? Hopefully, this particular region is isolated and we will have been luck finding scallops tomorrow.

Jack C's question was, "Did you catch any sharks?" And yes we have! We have caught a bunch of a small type of shark called a chain dogfish. They have a very cool pattern on their skin that looks like a chain link fence and they are usually around a foot or so long. We also caught a shark that was a little bigger called a smooth dogfish. What is great about these guys is that they are a little more resilient than some of the other fish that we catch. They make it back to the water without a problem and we watch them swim away.

My patrol of the bow of the boat certainly paid off today. I saw so many dolphins! The past couple of days I have been in awe of the handful of dolphins we have seen and by the sunfish. But, honestly, I was a little surprised that we hadn't seen more mammals. Well, the dolphins found us today! On and off today, dolphins would stop by the boat for a few minutes to play in the wake or up near the bow. They would leap and splash a couple of times and then be on their way. It was a different species than the dolphins that had visited us at night—these were grey on the top, then a tan color on the sides and white underneath. This afternoon a couple were near the back of the boat when we had a break between hauls. Knowing that the dolphins especially like to play near the bow of the boat, I went to see if maybe some of their friends were up front. Sure enough, surging through the water, weaving between each other were at least a dozen dolphins. Then I happened to look up—and there coming towards the boat were even more dolphins. They were porpoising through the water coming from ahead of the boat. You could see them coming from at least a ½ mile away by the repetitive, white splash of the water. It was like a dolphin convention was happening at the *Sharp*! They would meet each other at the bow and enjoy being pulled along by the drag in the water created by the ship. Probably the most amazing part was not only watching them but listening to them as well. Because they were so close, just about 12 feet below me as I stood on the deck of the ship, I could hear their clicks and high-pitched whistles. Watching their fun dance in the water, I noticed that many of the dolphins would swim for a few seconds together, belly to belly. Then they would speed off and find a new dance partner; I thought it was very sweet and adorable. It took me a minute to figure it out, but then I realized that they were doing a little more than just "dancing" together. Oh....They were truly enjoying themselves!



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Personal Log

I didn't realize how long it had been since I had watched the sun set. Not just the casual, driving in your car and you notice the daylight fade, but when you sit down with the intention of taking in a real sunset. When you watch from the first signs of an orange sky until the last smidge of brilliant red slips gently down over the horizon. I had the chance to watch one of those sunsets today, start to finish. It reminded me of summers out at the Shoals Marine Lab when we would actually stop teaching class just to sit out on the porch and admire something that happens every day, but is nevertheless spectacular. I am always surprised how quickly it happens. All day long, it is impossible to notice our movement relative to the sun, but it only takes a few minutes to transition from day to night. And the real highlight is not the exact moment that the sun disappears, but minutes after the sun has set, when the entire sky glows red. Tonight was the first moon that I have seen on the trip, and it was curved into a smile hanging in the sky. It grinned next to a bright star (or maybe a planet?) on the pink backdrop, above the midnight water with a large tanker drifting by in the distance.

One of my favorite parts of this adventure so far is just being able to spend all day outside. I wake up in the morning—usually around 9:00 (I haven't slept in so late since before Madelyn was born—but it is because my night shift ends at midnight—and maybe because the gentle rocking of the ship helps me sleep so fitfully!). I hurry to get dressed and then head right for the bow of the boat. There I search for dolphins and sunfish for about an hour or so before it is time to get ready for work. The past two days have been so beautiful, that I haven't wanted to be inside the boat at all during the day—for fear that I might miss something spectacular! Because of this, I haven't had the chance to do as much writing as I would like. I tried using the laptop outside—but the glare is too great. It just doesn't work! After a long and draining winter/spring, it feels so good to get recharged by the solar energy!