



**NOAA Teacher at Sea
Mary Ann Penning
Onboard NOAA Ship ALBATROSS IV
July 9 – July 20, 2007**

NOAA Teacher at Sea: Mary Ann Penning

NOAA ship ALBATROSS IV

Mission: Sea Scallop Survey

July, 15 2007

North Atlantic Ocean

Weather Data from the Bridge

Visibility: 4 nautical miles(nm)

Wind direction: 196 degrees

Wind speed: 59 knots (kts)

Sea wave height: 2 feet

Swell wave height: not available

Seawater temperature: 24.3 degrees C

Sea level pressure: 1013.2 millibars (mb)

Air Temperature: 25.1 degrees C

Cloud cover: partly cloudy, hazy

Scientific Log

We have traveled along the continental shelf of the eastern seaboard since we set sail from Woods Hole almost a week ago. The route of the ship zigzags from one location to another, visiting previously selected underwater stations, where scallop and fish specimens are collected. Some areas are in shallower water than others and some have been closed to commercial fishermen, while others have just recently opened.

NOAA maps showing these locations are posted in our workroom outside the fantail (rear deck of the ship where we work) along with charts showing the distance between the tows. The NOAA



Penning at the Limnoterra Boards (measuring boards) measuring the length of a goose fish caught along with the scallops in the dredge.

officer on the bridge works in tandem with the three skilled fishermen who control the dredge equipment – the gantry and the winch. We wait for 15 minutes while the dredge is towed over an area approximately 4500 square meters. The ALBATROSS IV is working nonstop. The teamwork is incredible!

When the dredge is opened on deck, it is amazing what we find. Usually eight of us, on hands and knees, sort a pile that can be about eight by six feet wide and about one to two feet high. It's like playing in a sand pile looking for hidden treasure. Sometimes the pile is somewhat dry and packed with sand and rusty red sand dollars that camouflage the scallops. Sometimes the catch seems to be wet and slimy and filled with nothing but astropectin, the starfish that gobble the baby scallops whole. As a result there are very few adult scallops in that area. At one station it was projected that there were about 30,000 astropectin. That would be about five per square meter. And if we took into account the ones that we missed, there could be approximately ten per square meter. When we first entered an area named Elephant Trunk, recently opened in March, the pile dumped from the dredge seemed nothing but scallops. The catch was very clean and we just shoveled them into baskets. At another station we measured 792 scallops. Expanding on the sampling size with a special formula, it was determined that there were 7,920 scallops at this location. Imagine the economic value of this one station alone.



Before the sorting begins, the pile dumped from the dredge is photographed with location information.

Mixed in with the haul can be a variety of other organisms such as crabs, starfish, little skates, goose fish with their big mouth and ugly teeth, various sizes of four spotted flounder, and sea mice with their spiny edges. Usually we find a variety of hakes: red, spotted or silver, (commercially known as whiting). These fish seem to “hang around”

scallops. We collect and count the fish and crabs, too, at some points. At one such “crab station” I counted 146 crabs. I’m getting a “hands on” course in fish and scallops.

After sorting scallops into round, laundry type plastic baskets and fish into separate buckets, the residue is shoveled into baskets and accounted for too. Using various sampling techniques, it is determined how many scallops or baskets of scallops will be weighed and measured on three sophisticated, computerized measuring devices. But still everything has to be done by hand. Age and growth samples on five scallops are taken at various sites which are packaged and taken back to the lab to be evaluated. At one site we analyzed 60 scallops for age and growth. The rings on scallops are analogous to tree rings. After cleaning our equipment with hoses spraying sea water, we're ready for the next station.

All these techniques are employed about once an hour around the clock for an expected total of 200 stations. That's a lot of scientific data for someone to analyze.

Personal Log

Where can someone spend their "down time" on a cruise like this? While waiting for the catch to come in, most of us like to sit around the Chief Scientist's office or the similar space across the hall. It's close to the fantail where we do most of our work. I like to read if I only have a few minutes. I finished *Harry Potter and the Sorcerer's Stone* this way. I brought a laptop computer with me and I finally realized I could work on my logs from there. A lounge upstairs, where you can watch satellite TV or movies, provides ample entertainment. In that same area is the computer room where we can e-mail from the ship, however no internet is available. Occasionally, I like to go to the galley for a snack which, fortunately or unfortunately, is right down the hallway from our workspace. Fresh fruit is available, along with cereal and popsicles or ice cream. There may be leftover dessert from dinner, too. Our rooms are downstairs one level, but as a courtesy to those sleeping from the opposite watch, we don't enter our rooms then. Sometimes I like to go out and just look at the water. There was a sliver of a moon last night with the planet Venus peering over it. That was an awesome sight!

Questions of the Day

How big can scallops grow? What is their habitat like? Why is this data on scallops collected? Who or what benefits from this labor intensive work? Join me in my next log as I discuss these important mollusks with Dr. Dvora Hart, a scallops' expert, participating in our scientific survey.