NOAA Teacher at Sea
Ruth S. Meadows
Onboard NOAA Ship *Henry B. Bigelow*
June 11 – July 18, 2009

NOAA Teacher at Sea: Ruth S. Meadows
NOAA Ship *Henry B. Bigelow*
Mission: Census of Marine Life (MAR- ECO)
Geographical Area: Mid- Atlantic Ridge Charlie- Gibbs Fracture Zone
Date: Wednesday, July 03, 2009

Weather Data from the Bridge
Temperature: 6.2^{o}C
Humidity: 81%
Wind: 16.47 kts

Science and Technology Log
High winds and high waves put a temporary stop to our fishing with the nets. When the waves are too high, the safety of the crew comes first and we wait for the weather to clear before we can start using the trawl again.

The waves finally calmed down enough for the net to be used today. We are using a different type of net to fish the deep bottom (**benthic trawling**) than was used to fish the mid-water (**pelagic trawling**). This net is much simpler in design. It is a very large net lowered to the bottom of the ocean and then pulled behind the ship. The top part of the net is held open by floats. These floats were bought specifically for this cruise. The pressure on the bottom of the ocean is so great that normal floats would collapse. The new floats are made of glass spheres

This is one of the glass floats encased in plastic that can withstand the pressure of the deep waters.

This is the net used for deep bottom trawling that has the yellow floats attached to it.

with a hard plastic covering. Only glass can withstand the amount of pressure that is found at these depths. There are rubber tire-like rollers that move along the bottom to help prevent snags and also to stir up the sea floor and cause the fish and other organisms to move into the net where they are then funneled back into the narrow end of the net (cod-end). There are weights on the bottom section of the net to keep it on the ground.

Above: The full net after it's been retrieved on deck.

Left: A bucket with squid and other fishes.

Below: The first sort of the catch.

Of course, there are always obstacles on the bottom of the ocean floor and occasionally the net will get caught on one of these. This is a particular problem here because of the mountainous terrain. When the net gets hung up the crew works very carefully to release it from the obstacle. Sometimes the ship moves backwards as the winches try to pull on the net to release it. Sometimes the ship moves in a circle to try and pull the net clear.

So far the benthic net has gotten caught twice but the crew successfully retrieved the net without damage.

Once the net is on deck, the cod-end is opened and everybody comes out of the lab with foul weather gear (waterproof boots, overalls, jackets, life preserver and hardhats) on to collect the catch. We use lots of baskets to do a quick rough sort of the organisms caught. If the net is full, it takes a while to complete the first sort. Some of the fishes are large and some of the organisms have been torn. The organisms found on the floor of the deep floor are very different from the ones found in the mid-waters. They are much larger in size and very different in coloration.

Personal Log

The scientific crew is divided into three groups. We have a "day" shift, called a watch, that works from 12 noon to 12 midnight, and a "night" watch that works from 12 midnight to 12 noon, and then one group that works whenever a net comes up. I am on the day watch and we have all gotten into a pattern of who does what in the lab. My watch chief scientist is Dr. Shannon Devaney from Los Angeles. She works at the Natural History Museum there. Dr. Amy Heger from Luxembourg, Tom Letessier from Norway, CJ Sweetman from Connecticut and Randy Singer from Georgia rounds out our crew. CJ takes DNA samples, Tom takes care of the crustaceans, Randy removes the ototliths (this helps the scientist figure out the age) from the fishes, and Amy and I use the computer to enter the data. With some species we remove the stomach, liver and gonads from the fishes. These body parts are then measured and either frozen or preserved for scientists that are not on the trip. It has been fun relearning how to do some of the procedures.