



**NOAA Teacher at Sea
Lynette Swiger
Onboard NASA Ship LIBERTY STAR
July 16 – 23, 2008**

NOAA Teacher at Sea: Lynette Swiger

NASA Ship LIBERTY STAR

Geographical Area: South Atlantic Ocean off the coast of Florida

Date: Friday, July 18, 2008

Weather Data from the Bridge

Wind SW at 9 knots

Seas SW at 2-3 feet

Air Temperature 83 F

Barometer 29.98

Cloud Cover 60%

Science and Technology Log

Today was our first day of operations. We had planned to sail to the northernmost point of our cruise yesterday and then work our way south. However, due to a tropical depression occurring off the coast of Georgia and South Carolina, we turned around and stayed near Jacksonville for our first day of operations and will then move to our most northern point to work backwards. After experiencing choppy seas of 7-8 feet during the late afternoon and evening yesterday, I heartily agree with the decision. I have learned that there is quite a difference between three foot waves and seven foot waves.

Today I will talk about the equipment that we will be using to conduct our survey. This is fascinating stuff and helps me to better understand the enormous impact that technology has on our lives now as well as the increasing impact that it will have in the future. One of the most important pieces of equipment that we are using is the Remote Operated Vehicle, or ROV. This is an unmanned vehicle that is tethered to the ship and remotely controlled to perform various tasks. On this cruise, the ROV takes video and still pictures of deep coral reefs and fish found in the Atlantic Ocean from North Carolina to Florida. The video and pictures are seen in bright color on a large screen television as well as two different monitors in the operations room. The ROV is operated through the use of two joysticks. One commands the ROV to move forward and back or right and left. The other joystick commands it to move up and down or crab



NOAA Teacher at Sea, Lynn Swiger, helps carry buoys onto the ship.

to the right or left. Other switches will change cameras, pan and tilt, adjust light intensity, or change thruster speed. The operator is using all of the this apparatus at one time while watching two computer areas – one tracking our movement through GPS and compass, and one showing



Lynn takes some time to write in her journal on the deck of the ship.

real-time and camera shots. The scientists are using the videos taken through the ROV to find fish and other underwater creatures in the area of our cruise, and the still pictures it takes are used to assess habitat.

Another important piece of equipment that we will use is the camera cage. It is a round cage with openings to insert four waterproof video cameras that are spaced 90 degrees apart. This means that when the cage is lowered into the water, the cameras, working together, will take pictures in a complete circle

around one area for twenty minutes. This is different from the ROV because these cameras are stationary. The cage is not commercially available, but was made by Steve, the Fisheries Methods and Equipment Specialist, from simple drawings and descriptions that the scientists gave him. The cage securely holds and protects the cameras while they are underwater and is quite an impressive piece of equipment.

One other piece of equipment slated for use on our cruise is the fish cage. This will be used to trap fish in particular areas. The fish will be analyzed for type, size, age, etc. All of this equipment combined will help the NOAA scientists understand the fish life and habitat that are in this area of the Atlantic Ocean. My next log will talk about the purpose and importance of this cruise.

Some Animals Seen Today from ROV

Vermillion Snapper, Tom Tate Fish, Spot Fin Hogfish, Tattler Fish, Hermit Crab, Pencil Urchin, Arrow Crab

We also saw several lionfish. This fish is not native to the Atlantic Ocean and is becoming an overpopulated problem.

Coral, Etc. Seen Today from ROV

Sea Whips, Gorgonian Soft Coral, Bushy Black Coral, Sponge, Sea Fan, Sea Anemone

We also saw Oculina Coral which is coral found only in very deep areas of the ocean.

New Vocabulary

Remote Operated Vehicle (ROV)

Marine Water (not referring to a member of the armed services)

Freshwater (hint – the opposite of marine)

Marine Protected Area (MPA)

Crew/Career Interview

I would like to take a few minutes in each log to talk about some of the different careers that combine to make a success of a cruise such as this. Since I am in a part of the world that is completely different from West Virginia, I thought that a discussion of ocean-related careers might be of special interest to those students interested in the ocean and its surroundings. I spoke earlier about the ROV and how we are using it to successfully complete our mission, so today I will talk about Lance and his career as an ROV operator.

An ROV is an unmanned vehicle that is tethered to the ship by an umbilical, and remotely controlled to perform various tasks. ROVs are used in many ways, both in freshwater and marine environments. ROVs are used for video documentation; for fisheries studies; by geologists to investigate underwater ridges, canyons, and pits; and by oil companies to maintain rigs, install equipment, and clean structures. Lance attended the Florida Institute of Technology for two years and specialized in underwater technology. ROV operators are in high demand and must have a good technical aptitude, possess the ability to troubleshoot, have some electronic skills, and be good at visual spacialization. Video games can provide good practice for some areas of this career. This career provides the opportunity to travel to many parts of the world, learn about a variety of subjects, be near the water, and meet and work with different people.

Question of the Day

How can pollution in the Tygart River in Marion County, West Virginia affect fish habitat and populations in the Atlantic Ocean?

Personal Log

I am learning to maneuver on a moving ship, and it's quite an interesting process. I have learned that I should move slowly rather than quickly and purposefully as I am used to doing. I have also learned to know where hand rails are located and to use them often. When we went to bed on Thursday evening, the ship was still docked but was scheduled to leave at midnight. This means that I awoke on Friday morning to a gently rocking ship and I could not move in the same manner as when I went to bed the night before. I learned this quickly when I hopped out of bed and subsequently staggered across my stateroom. Before I could regain my balance, the ship changed motion and I staggered backward to my original starting point. As I reached the bathroom, hoping to remain quiet for the person sleeping in the adjoining stateroom, I let go of my hold on the door and reached for the bathroom handrail. The door slammed open and before I could grab for it, it changed direction and slammed closed. So much for being quiet! My wet soap bar shot off of the soap dish and across the room three times before I learned to nestle it in a paper towel, and all of my toiletries fell over in the cabinet before I learned to lay them on their sides.

Friday evening was interesting because we were sailing into a tropical depression, and the waves rose to seven feet. This was not pleasant and the 24-hour meclazine tablet I had taken at 9:00 am

felt like its effectiveness had expired. I subsequently took another one at 5:00 pm and fell into a deep trancelike state from which I couldn't awaken until 10:00 pm. I later found that most people on the ship also spent their time lying prone on their bunk beds as this was the safest place to be at that time, so I didn't feel quite so guilty.

It is now 6:00 pm on Saturday. I have not taken motion sickness meds for more than 24 hours, and it seems that the crew's prediction that my body would acclimate itself to the motion has come true. I hope this is true and that the six different motion sickness remedies I brought can be taken home and put on my medicine shelf.

Happy Sailing! Lynn