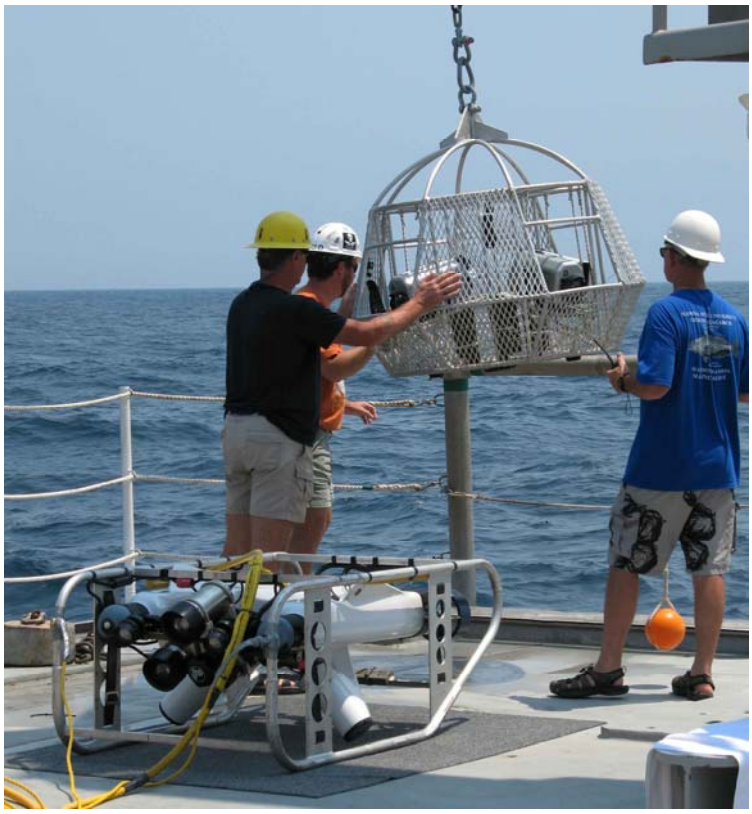
NOAA Teacher at Sea
Lynette Swiger
Onboard NASA Ship LIBERTY STAR
July 16 – 23, 2008

NOAA Teacher at Sea: Lynette Swiger
NASA Ship LIBERTY STAR
Geographical Area: South Atlantic Ocean off the coast of Florida
Date: Sunday, July 20, 2008

Weather Data from the Bridge
Wind: SW 10 knots
Seas: 1-3 feet
Temperature: 86 F
Barometer: 29.94
Cloud Cover: 10%
Visibility: 8 miles

Science and Technology Log
The South Atlantic Fishery Management Council (SAFMC) plans to establish eight Marine Protected Areas (MPAs) between North Carolina and the Florida Keys in late 2008. The goal of establishing these MPAs is to prevent over fishing of grouper and tilefish in these areas as well as to protect other fish and invertebrate species and the coral reef ecosystems. NOAA has been documenting these areas yearly since 2004 in order to identify populations and assess habitat both before and after closure to fishing. This long range project will improve understanding of the impact of fishing activities and compare coral reef and habitat in these areas. Our cruise is continuing this documentation, and the information collected will be compared to previous years' data.



Crewmembers on the LIBTERY STAR ready the camera cage for a deep sea drop.

Knowing the plan, it is interesting to have the opportunity to assist with this cruise. This is our second day of diving, and we have so far completed a total of 8 dives, 4 camera drops,

and 1 fish trap drop. We are especially looking for grouper and tilefish, but have so far seen no tilefish. This is not uncommon for tilefish as they are found further offshore in a deeper, muddy environment. Grouper, however, prefer a reef habitat such as the ones we have been exploring. Reefs provide nooks, crannies, and crevices for hiding as well as bait fish for grouper prey. It will be interesting so see if grouper populations increase after closure of the MPAs.

The presence of lionfish is another fact that's interesting and provides some concern. We have seen numerous lionfish in both days of diving. Lionfish are native to the Indo-Pacific Ocean – not the Atlantic – and have no natural predators in the Atlantic Ocean. They may have been introduced to the Atlantic Ocean by people whose aquariums could no longer contain the eighteen inch long fish. Some may also have been introduced from destruction of commercial aquariums during Hurricane Andrew. However they were introduced, they live in the same habitat as grouper and eat the same prey. It is feared that they will affect grouper populations at a time when attempts are being made to protect the grouper.

Animals Seen Today
We saw an abundance of fish species today, but I would like to take the time to talk about two in particular. The short big-eye is a cute little fish that stations itself near individual hidey-holes. When a predator, or ROV, approaches, the big-eye quickly scampers into its hole. It's sort of like the ocean version of prairie dogs!

Polychaete worms were another animal that I found particularly interesting. To me, these resemble coral, but Stacey and Michelle explained that they are worms which secrete a substance that surrounds them and creates a personal burrow. They build and colonize together and form clump-like structures. To feed, they extend their tentacles outside the burrow and collect ocean particles.

Vocabulary
Lionfish, Indo-Pacific, species, population, tilefish, grouper, offshore, ecosystem, restricted

Career Connection
Andy, Stacey, and Michelle are what we would call marine scientists. They all have a four year college and graduate degrees. Stacey and Michelle began their careers at NOAA doing summer internships. An internship means you work for someone for little or no money, but are rewarded with a great experience and new knowledge that can later help you find a job.

It's difficult to precisely define the job of a marine scientist, but one aspect involves designing and implementing projects that involve research in the ocean with follow-up laboratory analysis of the collected data.

Marine scientists find careers with the federal government (such as NOAA), state governments, colleges and universities, and private companies. Marine scientists need to be proficient in math, science, and writing, Biology and chemistry classes provide a good science foundation, while calculus and statistics are important math skills. Marine scientists routinely write grant proposals, so a good writing ability with an emphasis on correct spelling and grammar is crucial. In addition to academic qualifications, employers want to hire marine scientists who exhibit a good work

ethic, are self-motivated, show intellectual curiosity, and get along well with others. Could this be you?

Question of the Day
MPA means “marine protected area”. This is an area where fishing is restricted in order to protect and preserve fish and their habitat. Why is it important to have protected areas? What could happen if there were no MPAs?

Educational Link
Educators are often frustrated with the many requirements on our teaching day – the need to use more technology in the classroom being one of those requirements. However, the use of technology on this cruise is of critical importance, and has allowed me to see the increasingly vital part it will play in education, careers, and everyday life. As educators, we need to incorporate more technology into the classroom experience. This means not specific pieces of technology in isolation, but technology that is incorporated into a project and becomes an integral part of completing that project.

Personal Log
The weather has been beautiful, the crew is so helpful, friendly, and interested in my part on this cruise as a teacher, and we’ve “dived” into some beautiful places in the Atlantic Ocean. I had my first experience at deep-sea fishing and found that it’s difficult to reel those fish up to the ship! I also had the opportunity to drive the ROV. It was quite an experience that required me to think in two or three directions at one time and actually reminded me of a sort of video game. I’ve learned about otiliths (which I will talk about tomorrow) and pestered Stacey and Michelle with an overabundance of questions which they very graciously answer. I have learned so much already. Of course, one person that keeps everyone energized and able to work is the Dragon, the cook. I must say that the food onboard ship is wonderful. I must constantly remind myself that I have a wedding to attend three weeks after I arrive home, and I’ve already purchased the “skinny” dress. So I need carefully monitor my intake. Dragon seems to potter carelessly about the galley, but come mealtime there’s a fabulous

NOAA Teacher at Sea, Lynn Swiger, takes the controls of the ROV aboard the LIBERTY STAR.

menu and I want to try it all! There are six kinds of fresh fruit each morning and fresh salads for every lunch and dinner. Omelets, eggs to order, sausage and bacon, beef stroganoff, creamed salmon, schnitzel and lasagna, desserts….the list goes on and so does my appetite. Happy Sailing! Lynn