



**NOAA Teacher at Sea**  
**Mark Silverman**  
**Onboard NASA Ship LIBERTY STAR**  
**June 7 – 14, 2006**

**NOAA Teacher at Sea: Mark Silverman**

NASA Ship: M/V FREEDOM STAR

Mission: South Atlantic MPA's:  
Pre-closure evaluation of habitat  
and fish assemblages in five  
proposed no fishing zones

Day 1: Wednesday, June 7, 2006



Nancy and Mark on the bridge of the NASA ship FREEDOM STAR ready to begin an awesome week as NOAA Teachers at Sea.

**Weather Data from Bridge**

Visibility: excellent - over 10 miles

Wind direction: ESE

Average wind speed: 9 knots

Harbor wave height: light chop

Air temperature: 75 °F at 1900 hrs.

Cloud cover: partly cloudy

Barometric pressure: 1014 millibars

**Science and Technology Log**

Upon arrival Tuesday, June 6, we loaded equipment onto the ship such as: Chevron fish traps, a four-camera video array, an ROV (Remotely Operated Vehicle), a Blue Spectra Line (1 cm diameter, rated to 27,000 lbs, cost \$2.00 foot), a Seabird 19+ CTD (Conductivity, Temperature, Depth), buoys, and bait. Next, we toured the ship, settled into our staterooms, were introduced to our survival suits, and received an informal technical briefing from Andy David, the Principal Investigator, from NOAA fisheries. We also were introduced to the rest of the NOAA scientists and the crew of the FREEDOM STAR.

Wednesday, June 07, 2006 was the official start of day 1 of our cruise. We met with the Captain of the FREEDOM STAR, Dave Fraine, who graciously gave us a tour of the bridge and an overview of ship operations, navigation, and piloting. At 1100 Capt. Fraine briefed the entire crew on safety regulations and drill procedures. We also had a fire drill and an MOB (Man Overboard) survival drill. Walter Exell, Chief Mate, relieved Capt. Fraine and is the captain for the rest our cruise. At 1600 the vessel shifted to Port Canaveral from Cape Canaveral Air Force Station to take on fuel in preparation for departure on June 8<sup>th</sup> at 0001.

**Personal Log**

“Awesome!” That’s an understatement for our experience so far and the actual mission hasn’t even started yet. The FREEDOM STAR is state of the art with all the comforts of home and then some. Everyone on board—officers, crew, and scientists—are friendly,

professional and informative. The other Teacher at Sea, Nancy McClintock has also been a great partner to work with. We got to see parts of the NASA Air Force Station we would never normally see. In the near distance are gantries and the enormous Vehicle Assembly Building. One gantry we passed while driving on base even had a small rocket on it! We also had the privilege of seeing dolphins, manatees, and alligators, since the port is in a protected natural area.

The quarters are quite comfortable with two bunks, chairs, and a sink. Two staterooms share a shower and toilet. The galley is adjacent to a large “living room” with a big (45”?) TV and two ample sofas on the second of four decks. There is satellite TV service and a cell phone antennae for reception throughout the cruise as well as Internet and email services.

The level of technology on the ship is impressive. As well as radar, GPS (Global Positioning System), and a very state-of-the-art bridge, there is a dynamic positioning system with bow and stern thrusters that can hold the vessel’s position within a few feet. We actually pulled away from the dock sideways to move to the fueling station! The science equipment is also impressive from the \$18,000 CTD to the ROV worth over \$100,000 (I’ve actually seen this ROV before on Discovery Channel!).

Our first meal on board was dinner on the 7th and I will definitely not be losing weight on this trip. It’s a good thing I ran this morning! The food was delicious with a fancy salad, chicken fried steak, plenty of “carbs” and a delicious dessert, too. I’ll have to work hard this week to even things out!

I’m really looking forward to our first data collection, tomorrow, after sleeping while we cruise from 0001 (1 minute past Midnight) until about 0700.

Hasta mañana,  
Mark

### **Question of the Day**

How many gallons of commercial diesel fuel does a NASA ship like the FREEDOM STAR (176 feet in length) hold?

### **Addendum: Glossary of Terms:**

- **MPA: Marine Protected Areas** are areas closed to all fishing, both commercial and recreational.
- **ROV: Remotely Operated Vehicles** robotic vehicles tethered to a crane that will be employed to search for spawning aggregations, determine habitat coverage, topography and composition, and detect new sites for inclusion into the sample site universe using video cameras, and data.
- **CTD: Conductivity, Temperature, and Depth**, utilized for physical oceanographic data acquisition. The CTD actually collects more data than its name implies such as light transmission, salinity, and dissolved O<sub>2</sub> (oxygen).
- **M/V: Motor Vessel**
- **NOAA: National Oceanic and Atmospheric Administration**
- **NASA: National Aeronautical and Space Administration**



NASA ship M/V  
FREEDOM STAR  
docked at the  
Cape Canaveral  
Air Force Station.