



**NOAA Teacher at Sea**  
**Miriam Sutton**  
**Onboard NOAA Ship NANCY FOSTER**  
**June 17 - 22, 2005**

## Log 2

Day 2: Saturday, June 18, 2005

Latitude:

Longitude:

Visibility: <1 nautical mile (nm)

Wind direction: 040°

Wind speed: 3-8kts

Sea wave height: 0-1'

Swell wave height: 2'

Sea water temperature: 13.3°C

Sea level pressure: 1010mb

Cloud cover: Fog

We awoke this morning in a heavy layer of fog which has taken most of the day to burn off into an overcast sky. While the low visibility posed additional caution to the ship's crew, the scientists continued to scan the seafloor in search of maritime heritage resources (shipwrecks). Four sites were investigated today....

Today progressed with many more challenges in the logistics surrounding the deployment and data collection of the sensors compared to our first day of remote sensing. The first struggles began while at the first location when the cables became unplugged during deployment... twice. After a quick assessment of the problem, the scientists decided to make adjustments to the cabling device to reduce the tension and maintain the connection between the couplings on the sensor cable. Once the signal was back online, we continued searching two sites before lunch. During our lunch break, NOAA engineers began to work on ways of reducing electrical interference between the remote sensing equipment and the ship's engines. After talking with the scientists and NOAA crew, I learned that the NANCY FOSTER is propelled by a main engine and two *Z drives*. *Z drives* are like thrusters that assist the ship in maneuvering, especially at slow speeds. Here is a brief rundown of the conflict between the engines and the sensing equipment:

- The sensing equipment needs to be towed at a slow and steady speed of about 3.5 to 4 knots.
- NOAA's crew can maintain this speed in calm seas with little current using the main engine only.
- As seas pick up or current increases, the NANCY FOSTER gets a bit squirrely and can slide off course from the predetermined transect line. Using the *Z drives* allows the NANCY FOSTER to run a steadier course.
- The electromagnetic field generated by the ship's *Z drive* creates interference with the remote sensing equipment, especially the side scan sonar.

- NOAA engineers are onboard and have been experimenting to find a happy medium so that the Z drives can be used for better tracking but will not interfere with the remote sensing signals.

After several trials, the issue was resolved and the NANCY FOSTER is tracking smoothly along the Stellwagen Bank National Marine Sanctuary while the side scan sonar and the magnetometer are searching away for more seafloor anomalies. (See Photo D)



Electrical Engineer working on a grounding system for the winch

I am truly amazed at the teamwork between the scientists and NOAA's crew. From a teacher's perspective, I see a group of people who are willing to do anything possible to help a group of scientists complete their investigation. I also see a group of scientists who are most appreciative of the overwhelming effort exhibited by the crew and willing to share various aspects of their research that the crew finds interesting. This cooperative environment generates an atmosphere of respect and camaraderie that is conducive to individuals sharing their individual talents in a collaborative effort toward the success of the entire group on board the NANCY FOSTER. What a pleasant setting to be a part of during my first adventure at sea.



Safety First!!