



**NOAA Teacher at Sea
Methea Sapp-Cassanego
Onboard NOAA Ship DELAWARE II
July 19 – August 8, 2007**

NOAA Teacher at Sea: Methea Sapp-Cassanego

NOAA Ship: DELAWARE II

Mission: Marine Mammal Survey

Day 3: Saturday, July 21st

Weather Data from Bridge

Visibility: 7nm

Wind Direction: West-northwest

Wind Speed: 5-10 mph

Swell height: 6 to 8 feet

Science and Technology Log

Yesterday and today were spent traveling down 3 transect lines. Each transect line is a total of 18 miles long and sits 5 miles apart from its neighboring transect. The 3 transects are further divided into stations so that each transect contains 6 stations which are evenly spaced by three miles. The boat captain and crew ensure that the boat is correctly positioned according to the transects and stations. Upon arrival at a given station the bridge radios the dry lab and preparations begin in order to launch an instrument called a vertical profiling package. The vertical profiling system on board the DELAWARE II is the property of Dr. Mark Baumgartner of the Woods Hole Oceanographic Institution and is operated by Melissa Patrician, Oceanographic Technician at Woods Hole Oceanographic Institution.



Peter Duley stands with the vertical profiling package, which is the property of Dr. Mark Baumgartner, Woods Hole Oceanographic Institution. (Photo is property of Woods Hole Oceanographic Institution and Northeast Fisheries Science Center)

This trio of instruments is bolted to the inner rim of a round aluminum cage that helps

protect the sensitive instruments and allows multiple instruments to be lowered in one convenient package. Three instruments are on this particular cage: One is a conductivity, temperature, depth (CTD) sensor which also happens to measure phytoplankton concentrations via a fluorometer. The second implement is an optical plankton counter (OPC). This instrument functions by projecting a beam of light against a sensor plate. When particles (marine snow, copepods, krill, or other types of plankton) pass in front of the sensor plate they block the beam of light and are thus recorded by a remote computer. The computer software then enables the scientist to sort these light-interrupting events by particle size. The third instrument is a video plankton recorder (VPR), which may take as many as 30,000 photo frames per sample. The resulting images help to give researchers a visual confirmation as to the various life forms inhabiting the water column.

After each instrument has been checked and is in sync with its perspective computer the vertical profiling package is lowered from the deck via a motorized cable. The instruments are lowered to within a meter of the seafloor and then are immediately lifted back to the surface. During the down-and-back journey all points of data collected by the 3 instruments are loaded onto three computers for later analysis.

Researches hope that by sampling the water column they can gain a better understanding of the biotic and abiotic factors that affect copepods and their distributions. Copepods are of particular interest as they are a primary food source for a multitude of marine animals from fish fry to whales.