



NOAA Teacher at Sea
Sue White
Onboard NOAA Ship DAVID STARR JORDAN
May 27 – June 7, 2008

NOAA Teacher at Sea: Sue White
NOAA Ship DAVID STARR JORDAN
Mission: Juvenile Rockfish Assessment
Date: Wednesday, May 28, 2008
Geographical area of cruise: Central Coast of California

Weather Data from the Bridge for Wed. 05-28-08 04:00 GMT

Latitude	35.01
Longitude	-120.76
Speed	0.50 kts
Course	324.00
Wind Speed	5.99 kts
Wind Direction	316.24 °
Surface Water Temperature	11.63 °C
Surface Water Salinity	33.83 PSU
Air Temperature	11.60 °C
Relative Humidity	92.50 %
Barometric Pressure	1016.70 mb

Science and Technology Log

This is the second night of collecting data for this leg of the cruise. Last night was a real



Figure 1. Bongo Plankton Tow

learning curve for those of us new to the work involved. As soon as they were aboard, the scientists in charge of the rockfish survey (Ken Baltz - the Chief Scientist, Keith Sakuma, and Brian Wells) were busy organizing equipment so they could begin at sunset. Each night the plan is to start by gathering plankton using the bongo nets. The plankton is processed and preserved for later study back at the scientist's lab in Santa Cruz. CTD (conductivity, water temperature, and depth) data is gathered throughout the day and night, and on the first night there was an electronics problem between the collection equipment that

goes into the water and the computer. Since weather has become such a factor on this cruise, the scientists did not want to lose any opportunity to gather data or specimens. After sunset, the main focus through each night is to conduct mid-water trawls to collect data on fish populations and preserve samples for later study. All of this data goes into an ongoing database.

Each volunteer had specific jobs associated with the different specimens or data being collected throughout the cruise. Figure 1 shows how Robert Cimitile and Bill Matsuba worked the bongo nets. Gabe Singer was responsible for the CTD readings throughout the night shift. Ben Gire sampled krill from each trawl for a separate *Euphausia* study, checking for species type and numbers of gravid (“pregnant”) in an area. We all worked to sort the catch from each trawl. Last night there were a number of

midshipman fish in the catch. Tonight there is a different sort of excitement since we are finding large numbers of Humboldt squid in the nets. These are processed for other research groups who are studying stomach contents and establishing the squid’s genome. Between trawls the deck crew, scientists, and volunteers “jigged” for squid using fluorescent jigs on fishing line over the



Figure 2. NOAA Teacher at Sea, Sue White, holds a live Humboldt squid!



Figure 3. Jigging for squid

port side of the ship. It was impressive to see the live squid and their reaction to being out of water. Their chromatophores pulse and change colors while they hiss water out of their siphons. Some also spray ink in the process.

These squid are huge compared to the tiny *Gonatus* or *Loligo* squid we have seen. The main fish being surveyed is the rockfish. They are few in numbers and when we do find one, it is placed in an ocean water ice bath to maintain them until Keith identifies them by

species. This is also part of an ongoing, year-to-year survey to establish their distribution and numbers up the coast of California. Since they only come up to feed at night, they are the reason the trawls can only be done at night.

It has been impressive to see the teamwork involved with working the cranes for the bongo nets and the CTD equipment, as well as the pulleys involved with the gates, and the trawl net reel located on the gantry on the aft deck. Radio communication between the deck crew, the scientists, and the bridge starts each operation. The deck crew manipulates the equipment and the scientists and volunteers assist in positioning. They all have a part in collecting the specimens as they are brought up. The bridge officers maintain the course and speed of the ship



Figure 4. Ben Gire (Volunteer) and Keith Sakuma (NOAA Scientist) with Humboldt Squid (CTD equipment is behind them to the right)

for all operations and also are vigilant about safety on the aft deck. They maintain contact with the radio and also have visual contact with cameras.



Figure 5. Daybreak and the nets are ready for nightfall

Personal Log

I feel rested tonight, but not quite used to working a night shift! Last night was the first time I think I have ever been awake for 24 hours, so my bunk looked wonderful this morning. It was easy to sleep through the day after being so tired and now it is beginning to seem more normal to work at night.

The squid are amazing animals and something I had really hoped to experience since my biology classes dissect these in

the animal unit. Seeing them alive and then being able to witness their dissection just a short time later was a singular experience that I will retell each spring now for my students. Joao, one of the fishermen, showed me how to hold the live squid behind their eyes so the arms would not “get me”. After seeing how they can latch on to fish even in the trawl net and how their beaks mince those fish, I have even more appreciation for what these animals can do as a predator!

I am learning how to recognize and name a great diversity of pelagic animals. It has been an intensive learning curve for me in the last day (or should I call it night?) but I am starting to see the pattern of the trawls and it is very interesting to see how they vary according to transect location and even distance from the coast throughout the night.

Challenge Yourself

- How has the weather changed since my last log (Monday at noon)? Calculate the differences in wind speed and temperatures. Has the ocean salinity changed? Is the pressure rising or falling?
- Do the temperature changes seem reasonable considering we have traveled north and the time of day is later?
- The Humboldt squid are very well adapted for these conditions. Would you be comfortable swimming in this water too?

“We can only sense that in the deep and turbulent recesses of the sea are hidden mysteries far greater than any we have solved.”

~Rachel Carson

What mysteries will I see next?

Sue