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: Saturday, June 7, 2008
Geographical area of cruise: Central Coast of California

Weather Data from the Bridge for Sat. 06-07-08 19:00 GMT

Latitude	37.81
Longitude	-122.40
Speed	0.10 kts
Course	n/a
Wind Speed	8.13 kts
Wind Direction	257.59 º
Surface Water Temperature	8.23 ºC
Surface Water Salinity	33.86 PSU
Air Temperature	19.50 ºC
Relative Humidity	45.20 %
Barometric Pressure	1014.20 mb

Science and Technology Log

Heading for San Francisco!

The weather has again had an effect on the scheduled research tasks. As the week went on the weather deteriorated so that some nights we could only do one trawl before the waves crashing over the aft deck made it too dangerous to be out there. Safety was the primary issue in everyone's mind on the ship – bridge officers and the scientists discussed weather conditions and forecasts and the deck crew were careful to point out safety concerns involving equipment or wearing protective clothing. Even with the ship feeling like it was doing a wild

Figure 1. The DAVID STARR JORDAN Deck crew watches from the bow

tango at one point, I felt very secure. Last night was a complete wash as far as doing the scheduled work. By evening the ship officers decided to stay out the night in Drake's Bay since the peninsula would give some shelter from the wind and waves. We used the time to prepare for a new group to come aboard in San Francisco, cleaning our staterooms and doing laundry.

I sorted through notes and organized the dozens of photos taken over the last 12 days. Here are some squid facts Ken Baltz, the cruise leader told me about earlier in the cruise:

- The Humboldt squid we caught were probably around 5 months old and will only live about 1 year
- These squid are one of the fastest growing organism
- They have a very rapid metabolism, eating about 20% of their body weight daily vs. our human requirement of 0.5 to 1%

Figure 2. Keith not only can tell you the scientific name of this big cephalopod, he can identify an incredible number of ocean animals

The bongo plankton tow ties in with the squid sampling in an interesting way. It shows how all of the research coordinated on the DAVID STARR JORDAN this cruise (and really all NOAA projects) is working towards understanding what life is like in the ocean and how the distribution of organisms is changing. One plankton sample from each bongo tow was preserved in ethanol. The other sample was preserved in formalin (a formaldehyde solution). The rationale behind this was that formalin denatures or destroys the structure of an organism's DNA. The ethanol sample could be used to do genetic testing. When the samples are examined back in the lab, the researchers are hoping to find paralarvae of the Humboldt squid in the same location as the adults collected this cruise. This would give credence to the idea that they are now breeding off the coast of California, rather than in the tropics as has been the accepted understanding. Bill and Robert (two of the volunteers on this leg of the cruise) had great questions while Ken was explaining this part of his research. Bill (and the others) had been using a fluorescent lure to "jig" for squid. Squid are attracted to the bioluminescence found in some ocean animals, like the "headlights" on a California Headlight fish. He asked if the squid are caught in the nets because they are hoping to feed on the small fish being concentrated there. His hypothesis was to see if luminescent lures in the net would increase the number of squid caught. Robert asked about using radioactive isotopes to label

squid and then look for the radioactive label in the paralarvae as a way to see patterns in breeding. Such intriguing thinking.

I was not alone in wanting to be awake for our entry into San Francisco Bay. We enjoyed a hot breakfast for the first time in days (and for some the first time ever on the ship!) and were invigorated by bright sunshine. Well, the sun seemed bright through the San Francisco haze after being on the night shift!

Figure 1. A unique view below the Golden Gate Bridge

Everyone was outside by the time land was sighted and we enjoyed watching the Golden Gate Bridge get closer. For days I had not noticed much traffic at sea (especially at night) so it felt like driving into a major city in that the traffic kept increasing the closer we got to the Bay. Huge shipping barges and small personal sailboats were all out on a beautiful Saturday morning.

The map distance from Drake's Bay was not far, but our speed entering the bay was such that it took several hours to get around the bend and in to where the piers are in San Francisco. Just as in leaving San Diego, the ship officers were busy piloting the ship to its place at the pier. Staff from the Santa Cruz lab were waiting to help offload specimens, some ship personnel were already off duty and looking forward to a day in the city, and my husband was patiently waiting on the pier to hear my stories of life at sea.

Figure 2. NOAA Teacher at Sea Sue White shows how gripping life at sea can be.

Personal Log

After almost two weeks at sea it was interesting to adjust to life on land. I did feel the ground moving as I walked and especially felt phantom ocean waves when I tried to sleep or take a shower (no grab bars to steady yourself on land though!). The sounds were so different too with less of the ongoing sound of the ship engine or the air system in my stateroom and more collective noise of traffic and airplanes. I had missed the simple sounds of my backyard birds, but did not notice this until I realized how wonderful the familiar can sound.

I am brimming with new information and connections to make with classroom labs and activities. I (and my husband) can hardly wait until school starts so I have a new audience for my Teacher at Sea stories.

Challenge Yourself

- Think about the area where you live. How many people in your neighborhood can you name? List the types of dogs that live in your neighborhood, too.
- Name any of the birds that may fly into your area. (Is this naming business getting harder?)
- Name any other wildlife that may inhabit your neighborhood. (Remember that wildlife can be small and not all will be mammals!)
- How many insects can you identify? Can you name specific types of one kind of insect? In other words, can you tell the difference between a monarch and swallowtail butterfly? What about a skipper and a sulfur butterfly?
- Scientists, from experience, can name an incredible number of organisms. Often they can even give the scientific name for exactly one species that differs only slightly from another. You can also increase your naming ability with practice… what would you like to become an expert in identifying???

"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