



NOAA Teacher at Sea
Jenny Holen
Onboard NOAA Ship OSCAR ELTON SETTE
September 17 – 21, 2006

NOAA Teacher at Sea: Jenny Holen

NOAA Ship: OSCAR ELTON SETTE

Mission: Hawaiian billfish larval and eggs survey

Day 2: Monday, September 18, 2006

Weather Data From Lab

Location: 40 miles out from the Big Island of Hawaii

Depth: 4099 meters or 12,297 feet

Water Visibility: Clear

Water Temperature: 27.21 C

Salinity: 34.77 PSU

Wind Direction: 335.29 degrees, West

Wind Speed: 11.54 knots, Breezy

Air Temperature: 26.6 C

Cloud Cover: Cloudy

Science & Technology Log

The plankton tows have not been as successful as the chief scientist, Bob Humphreys, would have liked. Few billfish larva and eggs have been found, and more are needed to generate a genetic analysis sample. Bob believes this might be due to an eddy that is forming about 45 miles off shore, swooping the plankton out there. As we slowly start to migrate offshore, we are still obtaining plankton samples every hour until sunset. Today, instead of helping to look for billfish eggs, I took microscopic plankton photographs with my Mic-D microscope given to me by NOAA's South East Plankton Monitoring Network program, in South Carolina. These individual plankton species photographs will be a get asset to the lesson plans I am generating from this research expedition of which could ultimately be used by teachers all over the world through NOAA's website.



NOAA researchers aboard the SETTE, cleaning off the residue plankton still attached to the net into a plankton container.

The plankton samples that we got today were almost the same as they were yesterday, nothing too new. However, I did get some background information on why this particular study is so crucial to the future survival of large billfish, such as Marlin. Currently, some scientists believe that blue Marlin may be migrating between Hawaii and South America, but others are still not sure. Hawaii is a nursery ground for the larval and probably juvenile stages. Adults are migratory and apparently have a magnetic sense that



NOAA chief scientist, Bob Humphreys, taking the freshly caught plankton and transferring it from a funnel into quart bottles, to be later filtered again into higher concentrations (less seawater) which will be viewed underneath microscopes aboard the SETTE.

allows them to migrate across to South America where there may be higher food nutrients. The importance behind obtaining this knowledge is to help conserve the declining population due to commercial and sport fisheries. If we knew where the mothers primarily spawn and if there are resident versus transient populations, then we could gain a better grasp of their overall ecology, life cycle, and habitat range.

Unfortunately, the farther away from the island you go to get this valuable data the less protected you are from wind and large waves. Hence, at about lunchtime I got extremely seasick and was out of commission for the rest of the day. I hope enduring all of the rocking and rolling will give rise to better plankton samples tomorrow!

Recommended books:

G. Wrobel & C. Mills. 1998. Pacific Coast Pelagic Invertebrates. Monterey Bay Aquarium Publisher, California. (ISBN0-930118-23-5)

D.L. Smith. 1977. A Guide to Marine Coastal Plankton and Marine Invertebrate Larvae. Kendall/Hunt Pub. Company, Iowa. (ISBN0-8403-1672-0)

Personal Log

Once again, I am amazed to witness and be part of a science research expedition that portrays through every member of the ship, from the cooks to the deck hands and Bridge Officers, the enthusiasm and positive attitude for the current research at hand. Everyone here is extremely helpful, especially when I got sea sick and ending up hurling in a bucket in the kitchen. The professionalism is evident by everything they do, which gives an air of importance towards the research being done. I wish more people, teachers, and high school to college students could participate in an experience like this. It takes the illusion of scientists being a far away myth to being a regular Joe who cares about the environment and the conservation efforts towards the animals it holds.

Another cool thing about this trip is that the author from the acclaimed book *Archipelago (the North West Hawaiian Islands)* is here on the ship taking photographs of all the unique plankton we are catching for a National Geographic article. I think that is amazing to know that not only is this research voyage being documented by NOAA

scientists, but that the world will get to see and learn about plankton through journal media. Education is the key to conservation.

Interview for the Day

Today I interviewed one of the head scientists of the plankton cruise. His name is Michael Musyl working with NOAA through the University of Hawaii in Oahu in conjunction with the Joint Institute for Marine and Atmospheric Research (JIMAR). Michael had always had an interest in fisheries ever since he was a kid, fishing from a fishing pole. He took his education career after high school to Northern Illinois where he got his B.S. in zoology. After which, Mike did a five-year masters program in fisheries Biology from the University of South Dakota, to then go on and get his PhD from New England in Freshwater fish population genetics. He then used his knowledge and experience with the Arizona Fish and Game department for two years and then taught college biology and ecology for one year at the University of New Orleans.

Mike decided to go get a post doctorate from South Carolina in molecular genetics of blue fish tuna and ended up working with NOAA on electric tagging of pelagic fish and sharks through the University of Hawaii. Mike is currently studying the post release survivability of these fish through archival tagging which broadcast the information to satellites. He is also studying the post release mortality of fish captured in long line nets, to see how long they live after being rescued.

A typical year of work for Mike is answering emails, collaborating with fellow scientists around the world, developing and maintaining research projects, analyzing data obtained from research expeditions, writing about four to five papers for journal publications, and spending about 50% of his time on ships like OSCAR ELTON SETTE obtaining project data. Life as a scientist is busy, as well as exciting!