



NOAA Teacher at Sea
Tanya Scott
Onboard NOAA Ship *Miller Freeman*
June 16 – 21, 2010

NOAA Teacher at Sea: Tanya Scott

NOAA Ship: *Miller Freeman*

Mission: Ecology of Juvenile Fishes

Geographical Area: Central Oregon/Washington Coast

Date: Friday, June 18, 2010

Science and Technology Log

Before telling you about my experiences in the last day or so, I'd like to give a little more information about the experiments being conducted by Oregon State University (OSU). The title of this study is: The Stock Assessment Improvement Program (SAIP) Ecology of Juvenile Fishes off Oregon/Washington. The primary purpose of this study is to assess the ecology and population of juvenile fishes between Willapa Bay, WA and Heceta Head, OR as part of a NOAA Fisheries Stock Assessment. Scientists are trying to gain a better understanding of the direct and indirect linkages between oceanographic conditions and fish survival in the marine environment. This is becoming more important as the need to manage fish stocks increases. Scientists collect data concerning biotic and abiotic conditions and assess the relationship between these factors and fish populations.

As many of you already know, there is a very similar need in NC for such studies. If you recall, our scallop season was closed for two years and only opened briefly last year for harvest. Such closures and limitations are put on species such as scallop in order to give populations time to recover from over harvesting. Similar problems are also encountered on the west coast with many species that fisherman harvest for sale to the public. One important thing to remember is that the food you order in a restaurant had to be harvested from someone, somewhere. Another good example is shrimp, which many of you love to eat! Fisherman harvest shrimp to sell in markets which in turn, are sold to restaurants and grocery stores. If fisherman take shrimp without regard for their population then problems eventually arise. It is the goal of scientists to monitor issues such as population and species health *before* they become a problem. Monitoring is the goal of the SAIP project being conducted by OSU and NOAA.

One of the challenges of this trip has been adjusting to the work/sleep schedule. Most of the samples collected by OSU scientists are done during the night. There are 4 stations a night that must be sampled and there is about an hour of transit time between each station. After catching up on a bit of sleep yesterday, I awoke around 2 am this morning to assist with the last two stations.

When a station is reached, three instruments are deployed and data is recorded. Below is a description of each:

1. CTD: I discussed this in the previous log. This instrument is used to collect data including salinity, temperature, density, turbidity, dissolved oxygen, and florescence. It is important to know what abiotic factors affect the population of juvenile fish. By knowing what factors affect their movement, scientists are better able to determine where and when populations can be found. For example, the average water temperature is 12.9 Celsius where our samples are taken.



Here I am before deploying the CTD. We are required to wear a life jacket, hard hat, and foul weather gear when working.

2. Bongo Tow: This interesting piece of equipment is deployed when the ship slows to about 1-2

knots. We usually travel at a speed of about 12 knots on average. When the Bongo goes over, everyone knows because we all slow down! The Bongo Tow consists of two nets that are lowered into the water at a depth of 100 meters. The Bongo Tow collects a small sample of the water column at this depth and is then brought back to the surface. My job has been to rinse the Bongo tow once it is onboard, collect any organisms that were caught in the nets, and preserve



I am holding a juvenile squid that I've sorted from the trawl.

them. These samples are then taken back to the OSU lab where scientists examine the contents under a microscope. They are looking for tiny organisms called zooplankton and phytoplankton. These organisms are an important food source for juvenile fish and scientists want to know what food is available where fish are found. In addition to zoo and phytoplankton we have captured krill and Dungeness crab larvae.

3. Midwater trawl: This is the most exciting part of each station rotation. This net is towed from the aft (back) of the ship for 15 minutes at a depth of around 30 meters. The purpose of this trawl

is to capture juvenile fish to be counted and measured. Once onboard, scientist work to separate all species found in the net. Below is a list of the species caught this morning as we sorted:

Flatfish larvae (very similar to our flounder), Pacific Hake, Squid, Rockfish larvae, Whitebait Smelt, Juvenile King-of-the-Salmon, Popeye blacksmelt, Slender barracudina, and blue lanternfish.

Today, we are steaming ahead to our first station about 11 miles off the coast of southern Washington. We will begin sampling tonight at 7:00 pm once we reach the station and continue to sample the remaining 3 stations. The work is usually completed around 5:00 am so I am off to catch up on sleep again as I will be up into the wee hours of the morning! One thing that I do enjoy about being up at these odd hours is watching the sunrise on the open ocean. What a beautiful way to greet each day!

Until tomorrow...

Tanya Scott