



NOAA Teacher at Sea
Nicole Macias
Onboard NOAA Ship *Oscar Elton Sette*
May 31 – June 28, 2009

NOAA Teacher at Sea: Nicole Macias

NOAA Ship *Oscar Elton Sette*

Mission: Lobster Survey

Geographical area of cruise: North Western Hawaiian Islands

Date: Saturday, June 20, 2009

Weather Data from the Bridge

Location: 23° 37.7'N, 164° 43.005'W

Wind Speed: 11 kts.

Air Temp: 25.6° C

Science and Technology Log

Even though the mission of this cruise is to conduct research on lobsters, we are helping out another scientist with his study on bottom fish. Three of the jobs on the rotation require bottom fishing at night. Every fish that is caught has to be “processed.” When processing a fish you have to indicate the type of species, its fork length, the gender and you have to collect its otoliths. The fork length is the distance from the fish’s upper lip to the end of the center of its tail.



Here is a picture of an otolith that has been extracted from one of the fish we caught.



These are the females gonads of a fish. It is very important when cutting open the belly that you are very careful because the knife can easily cut into the gonads as it has in this picture. Notice all the blood vessels running through the gonads. This is characteristic of a female.

To determine the fish’s gender and collect its otoliths you must dissect the fish. It is very messy business. First the scientist makes an incision from the fish’s anus all the way to the throat. From there you can open up the fish and locate its gonads, sex organs. By looking at the gonads you can determine whether it is a male or female. The female’s gonads are much larger and much more vascular, meaning they have more blood vessels in them. The scientist will then extract the gonads and place them in a jar with formaldehyde so that they can be taken back to the lab and further studied.

After removing the gonads, it’s time to extract the otoliths. Otoliths are the inner ear bone of a

fish and are responsible for hearing and balance. There are two of them—one on each side of the spine at the base of the skull. They are very small, fragile bones so it takes a little finesse in removing them. The reason the otoliths are so important is because they can tell scientists a lot of important information on the life history of the fish. The otoliths have growth rings, kind of like a tree. The growth rings can tell scientists the age of fish as well as any environmental factors it encountered during that time period.

The purpose of the study is to re-estimate the life history for these important commercial fish species. The main species they are lacking data on is the opakapaka, *Pristopomoides filamentosus*. We have not caught very many of this species, but we have been catching quite a few ehu, *Etelis carbunculus*. This species is very similar to the red snappers we have in Florida and just the other day I caught a Butaguchi fish, which is related to the Jack family.



Here is a picture of me holding up the Butaguchi I caught. If you look in the background you can see the hydraulic bottom fishing rig that was used to catch the fish.

Personal Log



Here is a picture of me in the safety boat, about to be lowered down so that we can deliver fresh fish to the near by NOAA vessel.

We are now at our second and last location, Maro Reef. There is no land to be seen for miles. At least at Necker we had something to look at. We are heading in to the last week of the cruise and it is easy to see that 30 days is a long time for some people to be out to sea. I am fortunate that I have made some really good friends or else I would be really ready to get home.

I have had the free time to read some really great books and watch some movies I haven't seen and probably would never have watched if I weren't out to sea. Anyway, I am looking forward to my last week on the ship and hope to report back many exciting things for you!