



**NOAA Teacher at Sea  
Claude Larson  
Onboard NOAA Ship ALBATROSS IV  
July 23 – August 3, 2007**

**NOAA Teacher at Sea: Claude Larson**

NOAA ship ALBATROSS IV

Mission: Sea Scallop Survey

Date: July 26, 2007

Time: 18:30

North Atlantic Ocean

**Weather Data from the Bridge**

Air Temperature: 21.9° C

Water Temperature: 22.6 ° C

Relative Humidity: 91%

Wind Speed: 8 knots

Wind Direction: S

**Science and Technology Log**

The ALBATROSS IV is well underway with the second leg of its Sea Scallop Survey for this year. After several tows we have collected, counted, weighed and measured not only sea scallops but, several types of fish, crabs and starfish. As a teacher, I would like to focus on the application of some the science that is going on here on the ship.

Specifically, I want to explain the work of two scientists on board Stacey Etheridge and Melissa Ellwanger who work at the FDA, Food and Drug Administration.

Sea scallops are studied by NOAA because of their importance commercially. People enjoy them baked, fried, sautéed and served up hot. In other parts of the world, Europe and Asia, certain parts of the scallops are valued commercially as a food source. These parts are the gonads and viscera, or internal organs and membranes. Last year the FDA had to close certain fishing areas were closed



**Melissa Ellwanger (left) and Stacey Etheridge (right) check the results from the test strips for PSPs.**

to bivalve molluscan harvesting because PSPs, paralytic shellfish poisoning toxins were too high for human consumption. These toxins accumulate in filter feeders and thus harvesting was closed to organisms such as surfclams, mussels and quahogs. Sea scallops could still be harvested for the adductor muscle only. Toxins in scallops, however, build up in the gonads and viscera. If a person were to eat these affected seafoods they could actually become paralyzed and it could be fatal unless the victim receives respiratory support.

The toxins are produced by certain algae that are found in the environment with the scallops. The toxins vary in potency and can actually become stronger after the scallops eat them by interacting with the digestive processes of the sea scallop. This leads us to Stacey and Melissa's experiment.

At each collection of sea scallops, they collect twelve random sea scallops to test. They dissect the scallop and separate the gonad and viscera and test them separately. They puree the organs, add extraction chemicals, filter them and then test the liquid that they filter from the organs on little test plates that look like test strips people use when they are trying to find out if they are pregnant.

The preliminary results from some of the samples they have collected have been positive for PSPs. This raises the question about whether or not those collected scallops can be sold for all of their parts or just the meaty section. The work Stacey and Melissa are doing with NOAA and the FDA is an excellent example of applied science that benefits people and helps improve one of their food sources.