



NOAA Teacher at Sea
Jennifer Fry
Onboard NOAA Ship *Miller Freeman*
July 14 – 29, 2009

NOAA Teacher at Sea: Jennifer Fry

NOAA Ship *Miller Freeman* (link: <http://www.moc.noaa.gov/mf/>)

Current location of ship: www.shiptracker.noaa.gov (choose *Miller Freeman*)

Mission: 2009 United States/Canada Pacific Hake Acoustic Survey

Geographical area of cruise: North Pacific Ocean from Monterey, CA to British Columbia, CA.

Date: July 26, 2009

Weather Data from the Bridge

Wind speed: 10 knots

Wind direction: 100° [from the east]

Visibility: fog

Temperature: 13.5°C (dry bulb); 13.5°C (wet bulb)

Sea water temperature: 10°C

Wave height: 1ft.

Swell direction: 315°

Swell height: 6 ft.

Science and Technology Log

We conducted a number of **HAB**, Harmful Algal Bloom sample tests. The Harmful Algal Bloom test takes samples at predetermined location in our study area. The water is filtered to identify the presence of toxic plants (algae) and animals (zooplankton). The plankton enter the food chain specifically through clams and mussels and can be a possible threat to human health.



Here I am checking HAB samples.

We also conducted **XBTs**, Expendable

Bathythermograph; and one fishing net trawl. The trawling was successful, catching hake, squid, and Myctophids. Fishery scientist, Melanie Johnson collected specific data on the myctophids' swim bladder. The swimbladder helps fish regulate buoyancy. It acts like a balloon that inflates and deflates



An Expendable Bathythermograph or XBT

depending on the depth of the fish. Sharks on the other hand have no swim bladder. They need to swim to maintain their level in the water. Marine mammals such as dolphins and whales have lungs instead of a swimbladder. Most of the sonar signal from the fish comes from their swimbladder. The study of the swimbladder's size helps scientists determine how deep the fish are when using the sonar signals and how strong their sonar signal is likely to be.

The scientists tried to conduct a “swim through” camera tow, but each time it was aborted

due to marine mammals in the area of the net.

During the “Marine Mammal Watch” held prior to the net going in the water, we spotted humpback whales.

They were observed breaching, spouting, and fluking. The humpback then came within 30 feet of the *Miller Freeman* and swam around as if investigating the ship.

Animals Seen Today

Fish and animals trawled:

Hake

Squid (Cephalopod)

Myctophids

Marine Mammals:

Humpback whale

Birds:

Albatross

Fulmar

Shearwater



Commander Mike Hopkins, LTjg Oliver Brown, and crewmember John Adams conduct a marine mammal watch on the bridge before a fishing trawl.