



NOAA Teacher at Sea
Justin Czarka
Onboard NOAA Ship *McArthur II*
August 10 – 19, 2009

NOAA Teacher at Sea: Justin Czarka

NOAA Ship *McArthur II* (link: <http://www.moc.noaa.gov/mt/>)

Track the *McArthur II* online at <http://shiptracker.noaa.gov/default.aspx>.

Mission: Hydrographic and Plankton Survey

Geographical area of cruise: North Pacific Ocean from San Francisco, CA to Seattle, WA

Date: August 14, 2009

Weather Data from the Bridge

Sunrise: 6:29 a.m. Sunset: 2033 (8:33 p.m.)

Weather: patchy mist

Sky: partly to mostly cloudy

Wind direction and speed: Northwest 10-15 knots (kt)

Visibility: unrestricted, reduced to 1-3 nautical miles (nm) in mist

Waves: northwest 3-6 feet

Air Temperature: 17.50°C / Water Temperature: 17.63°C

Science and Technology Log

Today I rotated to a new job assignment. I have been working with the CTD water samples, storing nutrient samples, and preparing chlorophyll samples. Now I work with Jay Peterson, researcher from Oregon State University, Hatfield Marine Science Center, Newport, Oregon, deploying, retrieving, and preparing live samples from the vertical net and bongo net on a cable.

The nets collect all types of plankton, both plants and animals. As with all the sample collections occurring aboard the *McArthur II*, communication is the backbone of the operations, or “ops.” For the vertical net and bongo net, two people manually place the nets over the ship’s starboard side, while a winch operator deploys and retrieves the nets from the ocean, and the bridge navigates the ship. For vertical nets, the goal is to take the net to 100 meters (m) depth and then hauled up vertically. The purpose is to catch organisms from the entire water column up to the surface. It is the same depth for the bongo net, but the goal is to have the cable at a 45° angle with the ship moving at a steady 2 knots (kt). Both nets have flowmeters to determine the volume of water that goes



The vertical net gets rinsed off after the tow.

through the net. Once back on the deck, the nets are rinsed from the top to the bottom so that everything in the net can be analyzed. The samples are placed in jars or buckets to observe under microscope. We find euphausiids (krill), copepods, Tomopteris, Chaetognatha (arrow worms), fish larvae, Phronima, and even bird feathers! You have to check out these animals online, as they all have fascinating features. More importantly, while small in size, they are an essential part of the food web. Without them, many species would struggle to find food.

Personal Log

Today we had a day of plenty in terms of sighting marine mammals and other species as well! The day started out near shore at Newport, Oregon and the Yaquina Head Lighthouse. The *McArthur II* travels roughly in a zigzag approach near shore to off shore and back for this mission. Getting



A Doliolid, which feeds on plankton, was caught in the vertical net before being released into the ocean. Note the pinkish lines, the muscle bands, and blimp-like shape.

ready for the day watch, I saw some whales off the port (left side facing forward on a ship). That was just the beginning. As we headed due west on the Newport transect line (44 39.1' N latitude) we spotted brownish and reddish jelly fish, albatross following along the starboard side during bongo tows, sea lions skirting by the stern, and a shark fiddling with driftwood presumably looking for small fish that were utilizing the log as a habitat. Later in the day, we navigated near breaching humpback whales on the starboard side. Towards evening, a group of 5-6 pacific white-sided dolphins followed along for 10 minutes or so.

Being out here witnessing the wildlife in their environment is fascinating. You start to internalize the ocean planet as more than a vast emptiness. There exists a tremendous amount of species diversity living above and below the surface. Yet sadly, since few of us spend regular time away from our land habitats, we tend to neglect the essential nature of the ocean. The ocean truly sustains us, whether providing the majority of our freshwater (through evaporation and, consequently, rain), supporting our nutritional diets, and driving the weather we experience daily. Teacher at Sea really reinforces this revelation since I get to spend an extended amount of time away from my terrestrial existence learning to appreciate the ocean's influence on our lives. May we gain enough understanding to ensure the sustainability of the ocean ecosystem.

Animals Seen

Humpback whales
Jellyfish
Albatross
Sea lion

Shark
Doliolid
Albacore tuna
Pacific white-sided dolphin