NOAA Teacher at Sea
John Schneider
Onboard NOAA Ship *Fairweather*
July 7 – August 8, 2009

NOAA Teacher at Sea: John E. Schneider
NOAA Ship *Fairweather (S-220)*
Mission: Hydrographic Survey
Geographical Area: Kodiak, AK to Dutch Harbor, AK
Date: July 6, 2009

Position
57° 43.766' N, 152° 30.946' W
(Pier at USCG base - Kodiak)

The FAIRWEATHER alongside the USCG Pier, Kodiak

Weather Data from the Bridge
Barometer: 1022mB (30.15") This is a nominally high pressure air mass characterized by cool temperatures and clear skies.
Wind: 4-6 kts (gusts to 12) 30º off the port bow (ship is facing ~60º at the pier)
Temperature: low 60's
Sea state: calm

Science and Technology Log
Our mission on this cruise is to conduct small-boat hydrographic research and documentation of the sea floor in the Shumagin Islands region. This is an area about 250 miles Southwest of Kodiak. It'll take about a full day of steaming just to get there. I took a rough estimate of an area of approximately 900 square miles in the Shumagins and found a total of about 100 depths recorded! I realize that the numbers may be hard to read, but the picture to the

These are nautical charts of the area the *Fairweather* will be surveying, called the Shumagin Islands.

left is just South of Nagai Island in the Shumagins and includes about 900 square miles. As you can see, there are very few markings in the area. Compare this with the picture to the right of an area of the same size more thoroughly surveyed.

The 1953 Coast Pilot says of the Shumagins "…comprising 15 sizable islands and many islets and rocks, extend for a distance of 60 miles from the coast of the Alaska Peninsula from which the group is separated by Unga Strait." The newest edition (2008) is worded identically! It's obvious that there is a need for research in the area and newer charts available to mariners will benefit from the data we collect in the next leg of the *Fairweather*'s tasking.

Regarding data collection and storage, yesterday I was shown the compartment (room) where the on board computer servers are kept. It is one of the significant responsibilities of the duty officers to regularly check the temperature of that compartment as the entirety of the data collected is stored on those servers. If the entire mission runs flawlessly and the data are allowed to be compromised, the mission is ultimately a failure.

Historically, soundings were taken by lowering a weighted line—called a "lead line" because the weight was often made of lead—to the bottom and seeing how deep the water is at that location. Positions were estimated by manually triangulating "fixes" using visual bearings to known landmarks. Later (from the 1950's through the 1970's) positions were established using LORAN (Long Range Radio Navigation) and Radar and depths were determined using depth sounders which bounce an electronic "ping" off the bottom.

All of these earlier methods were very prone to human error and imprecision.

Current technologies integrate multi-beam sonar interfaced with computers and satellites to determine position (within just a couple of feet) and not only the depth of the water straight down, but off to the sides. When the data are uploaded to the *Fairweather*, the computers on board coordinate the exact time, GPS position, tide level, temperature, salinity and clarity of the water at the position of the data acquisition allowing the computers to correct for the different rates of transmission of the sonar signal through differing densities of water to determine the most accurate sea floor information ever possible.

So now, as a navigation term, "by the Mark, Twain" (meaning 2 fathoms of depth) is obsolete…but the literary contributions of Samuel Langhorne Clemens remain a tribute to America's heritage!

Personal Log

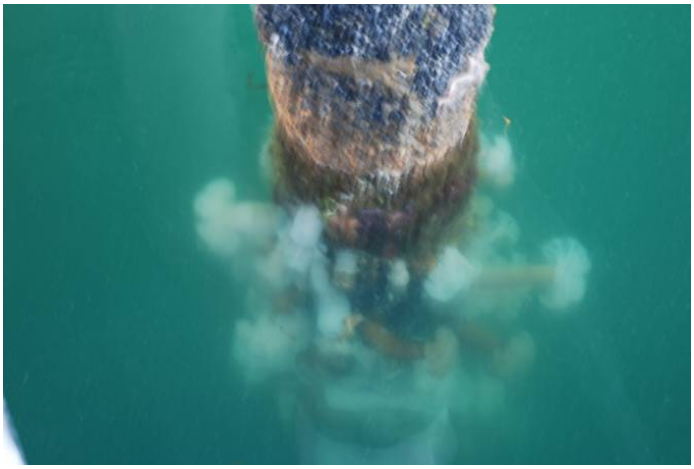
Today at the 1400 pre-cruise briefing I was fortunate to be present when two of the officers on the *Fairweather* were acknowledged as having been promoted. The response of the crew demonstrated the respect these officers had earned.

If lunch today was any indication of how the meals will be on board, I can't wait for dinner and don't want to go home! Fajitas with about 15 different toppings available, corn on the cob, salad and soup!

Animals (or other cool stuff!) Observed Today

While gazing down into the water alongside the ship, I noticed what appear to be 2 different species of jellies – one looking similar to the East Coast's *Aurelia aurelia* about 10" in diameter and the other being unknown to me. The unknown was radially symmetrical (as are all jellies) but all of them had 8 distinct lobes on the bell and measured about half the size of the other species.

I also noticed barnacles, mussels and sea anemones living on the pilings that hold up the pier. The anemones at left must have been three inches in diameter at the body tube and the tentacles extended in a halo about 10-12 inches in diameter.



Above: some barnacles on a piling; Right: our nation's symbol, the bald eagle

On a 2-½ drive this afternoon I also saw 2 bald eagles, a herd of bison, a red fox and a kingfisher. (The fox picture is a bit blurred, it was a bit skittish and I took it through the windshield.)

All the dark spots are Bison!

Bison? Is this Wyoming?!

Fox along the road!

Questions for You to Investigate

What animal did Benjamin Franklin want to use as a National Symbol?
When were the Shumagin Islands named? For whom are they named?
What is scurvy and how is it prevented?