



**NOAA Teacher at Sea**  
**Kristin Joivell**  
**Onboard NOAA Ship *Fairweather***  
**June 15 – July 1, 2009**

**NOAA Teacher at Sea: Kristin Joivell**

NOAA Ship *Fairweather*

Mission: Hydrographic survey

Geographical Area of Cruise: Shumagin Islands, Alaska

Date: Monday, June 29 and Tuesday, June 30, 2009

**Weather Data From the Bridge:**

Position: North of Big Koniuji Island

Clouds: mostly clear

Visibility: 10+ miles

Wind: calm

Waves: 0 feet

Temperature: 12.0 dry bulb

Temperature: 10.0 wet bulb

Barometer: 1023.2

**Science and Technology Log**

Since the ship is operating in waters that there is not much information about, verifying current charted information is important. Before launches are sent into a new area to collect data, shoreline verification is an operation that must be completed. First, existing charts and new pictures of the coastline taken from a plane are used to determine a rough estimate of the shoreline.



**Taking a compass bearing for a previously uncharted danger to navigation. The rock found is only visible at low tide which makes it all the more hazardous.**



**This sea star was brought to the surface in a bottom sample.**

Then, the shoreline verification team is sent into the area in a small boat. The boat's course is determined based on a buffer zone of the mean high water line on shore so that it can avoid any known, previously charted hazards. The boat travels a set path just outside of this buffer zone while logging information about bottom depths and looking for dangers to navigation.

Sometimes hazards are found that are not charted on existing maps. So, the team must identify these hazards and log their specific locations. An advanced GPS device is used along with a compass to determine the location of the hazard from the boat. The

hazards are logged on a computer to record their positions. Then, that information is used to both warn the other survey boats from the *Fairweather* working in the area, and to update new editions of the charts. Sometimes hazards that are currently charted are found in a different location. Once in a while, charted hazards are not even there at all! All of this new information about hazards is also added to the new editions of charts. It's somewhat terrifying to think that current charts sometimes have mistakes on them that could affect travelers so negatively.

Checking what is on the bottom of the ocean is also important information. To anchor a ship, some materials are more desirable than others. For example, hard rock is not as desirable as mud or sand because the anchor will just drag along hard rock and not catch as well. So, bottom sampling is another important operation that must be completed so that ships can anchor safely and properly.

To take a bottom sample, a scoop is deployed from a small boat or the ship. The scoop has an automatic trigger that closes it when it hits the bottom of the ocean. Then, you pull the bottom sampling device back up to the boat or ship and open the scoop. Observations about gathered materials are made on the computer. There are all kinds of designations to specify the nature of the materials gathered. Many of the samples we gathered were fine sand, but some included medium gravel, soft coral, and broken shells. A few samples even included sea stars and a sponge!

The most difficult part about bottom sampling is that you have to pull the line up from the ocean floor with the bottom sampler attached. The bottom sampler is a heavy, metal object so, pulling up all the line and the sampler from over 100 feet below gives you a workout. Rotating positions on the boat helped especially since there were four of us on board. That way, everyone's arms had a chance to rest through three turns until it was your next turn to haul up the line and bottom sampler.

I liked bottom sampling a lot because it was a surprise every time the sample was brought back up the boat. Also, it gave me a chance to look at some of the creatures that live in the ocean in Alaska. Seeing the sea stars and the sponge were the highlights of the day.



**Retrieving the bottom sampler. It's interesting to open it up and see what's inside. Depending on material found, ships can determine more desirable and less desirable anchoring locations.**

## Personal Log

Free time is a priceless commodity on the ship. Everyone works to complete many tasks each



**This is a small halibut caught by one of the crew. It was quite small, but they can grow to be over 400 pounds.**

day. Sometimes unexpected events occur that interfere with regular schedules. The Plan of the Day even has a disclaimer on it that states: “Tasks are subject to change at any time. And they will.” So, when a person has free time and isn’t catching up on sleep, choosing an activity is difficult. Movies are shown each night and the computers are internet capable, but sometimes it’s good to get out on deck or off the ship instead of sitting in a room on board.

One of the things you can do on the ship in your free time is go fishing. You need an Alaska fishing license to do this, so I like to watch the licensed fishermen on board and examine their fish before

they are released back into the ocean. It’s interesting to see how many different kinds of fish are caught on the ship. In just the past few days, people have caught halibut, flounder, and cod. Someone even recently caught a red octopus eating a baby crab! Unfortunately, I missed that catch by about 10 minutes.

Comparing the freshwater fish that I know to these saltwater fish is a great free time activity.

Another free time activity that is popular is going ashore to hike and explore. We sometimes even have the opportunity to build a fire on the shoreline. There is a lot of driftwood available, but the lack of garbage on the beaches never stops surprising me. There are none of the common waste materials that you find commonly on the beaches in the Northeastern United States.

However, there are some plastic materials like bottles and bags. One plastic bottle found even had Korean writing on it. A often looked for and rarely found item are glass fishing floats. Today’s



**Panning for gold on Herendeen Island. The mica in the water is deceptively similar to gold flake.**

fishermen use plastic fishing floats, but the glass ones are much older and looked for to use for decorations. The crew suggested that I look for them, but I didn't find any at all.

Panning for gold is also something that can be done while ashore. I assisted a fellow crew member on the quest for gold, but we were unsuccessful. The rocks in the area have mica in them, so the streams are full of glittery chips. These looked to me like gold, and I thought we had struck it rich, but I was wrong. Standing in the cold stream and searching for gold nuggets is something that I will definitely remember for a long time.

### **Create Your Own NOAA Experiment at Home**

You can explore the types of water organisms in your area like a NOAA crew member. If you are planning on fishing, make sure you have the correct fishing license for your area. Rivers are great places to start because you don't need a boat to fish on them; you can just fish from the riverbank. Also, if you don't want to fish, you can examine the macroinvertebrates that live under rocks. In the rivers and streams in Central Pennsylvania where I'm from, you can find mayfly and stonefly nymphs, caddisfly larvae, and water pennies in abundance. The Pennsylvania Fish Commission has lots of great materials available to help with identification of organisms. Looking at water from lakes, rivers, streams, and ponds under a microscope is also an interesting experience. You can learn a lot about the health of your area's watershed by examining the organisms in the water.