



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: Tuesday, June 23, 2009

Weather Data from the Bridge

Position: Northwest Harbor

Clouds: overcast

Visibility: 10 miles

Wind: 10 knots

Waves: less than 1 foot

Temperature: 8.5 dry bulb

Temperature: 7.2 wet bulb

Barometer: 1008.0

Science and Technology Log

Disposing of all the trash made by people from eating, working, and other day to day tasks was something I was wondering about. So, I asked crew members on the deck department how all this waste was disposed of. They showed me the incinerator. The incinerator is the main device for dealing with waste management at sea, but if the amount of trash builds up too much, it is dealt with when the ship arrives back in port.

The incinerator burns waste at very high temperatures of 850 degrees Celsius to 1150 degrees Celsius. If you're not familiar with the Celsius scale (like me), you won't realize that that equals 1562 degrees Fahrenheit to 2102 degrees Fahrenheit! The high temperatures are created using diesel as fuel with air vents helping to ventilate the fire as it burns. The ash that is left when the waste is done burning takes up much less volume than the waste did and it is disposed of when the ship arrives back in port.



The mess hall is a place where people tend to gather.



Here, I'm readying cardboard to be placed in the ship's incinerator. As you can see in the bottom right corner, trash tends to build up rather quickly. This picture was taken in the morning and the line up of trash to be incinerated was already building.

There is a central location on deck near the incinerator for trash collection. Personal trash from state rooms can be placed there in bags for disposal. The trash from the kitchen, deck, bridge, and survey departments are also placed there. Workers from the deck department burn the trash in the incinerator periodically throughout the day.

If the ship didn't have an incinerator, the trash on board would build up very high and very quickly! Each day since I came on board, there is a pile of waste to be incinerated. From cardboard boxes, to printer paper and food waste, to used rags from cleaning, most materials are disposed of in the incinerator.

The ship also has a collection area for recycling. There are collection bins for glass, metal, aerosol cans, and batteries in a central location near the mess hall. However, plastics are incinerated. The temperatures in the incinerator are so high it seems that the plastic is basically vaporized. Naturally, there is also a filter on the exhaust pipe of the incinerator so that toxins do not enter the atmosphere. Additionally, the ship is going to begin recycling plastics in the near future.

Personal Log

People may be wondering how it is possible to feed almost 50 people everyday without stopping at the

grocery store. I found that the *Fairweather* is well equipped to deal with everyone's food needs and more! I took a tour of the storage facilities and found them equivalent to a small grocery store. There are stockpiles of dairy, meats, fresh fruit and vegetables, breads, freezer storage, and dry storage. According to the Chief Cook, the ship could theoretically sail for up to 60 days without going to a port if necessary.

Every day, there are three main meals and two between meal snack times offered. Fresh fruits and vegetables are in large supply; most foods are not prepackaged, but are created on the ship. Vegetarian choices are available at every meal. Coffee, tea, milk, water, and a variety of fruit drinks are always



Here I am examining the ship's food stores. This is the fresh fruit and vegetable section of the cooler, but there are many other sections as well.

available any time of day or night. Condiments in abundance are located on every table, too, and not just ketchup and mustard. Different kinds of salad dressing are also available in the mess refrigerator at every meal.

The first meal of the day is breakfast. Breakfast is served from 7 to 8 in the morning. Each day at breakfast, there are a large variety of foods offered. Today's breakfast choices were as follows: fresh fruit, grits, bacon and ham, vegetarian sausage, French toast, hash browns, made to order eggs, breakfast sandwiches, and omelets, and hot and cold cereal. I always get the fresh fruit because I love the blueberries and pineapple!

Then, there is a midmorning snack offered sometime between breakfast and lunch. These snacks are usually coffee cakes or breads. Today's snack was apple bread with nuts. It was made from scratch with fresh ingredients!

Next, lunch occurs from 12 to 12:30pm. Each day at lunch, there are usually salads, soup, a choice of two main courses with a vegetarian alternative, side dishes of pastas, potatoes, or rice, and a side dish of vegetables. Today's lunch menu included the following: kielbasa and kale soup, grilled reuben, grilled pastrami and Swiss sandwich, grilled cheese, and tater tots. I love it that there is a vegetarian choice; even though I am not a vegetarian, I try to limit my meat intake.

After that, an afternoon snack is offered sometime between lunch and dinner. These snacks are



usually cookies. Today's snack was chocolate chip and peanut butter cookies. They were still warm when they were offered.

Finally, dinner is from 5 to 5:30. Dinner choices include a main dish and a vegetarian alternative, a variety of side dishes, and a dessert prepared on the ship. As with all of the other meals and snacks, there is a focus on freshly prepared food instead of prepackaged items. Today's dinner menu included the following: mustard crusted rack of lamb, paella de marisco, herb cheese stuffed eggplant, creamy orzotto, sautéed bok choy, and lemon blueberry jelly roll for dessert. It's hard to resist desert

I chose a lemon blueberry jelly roll for dessert! Yum!

because it's so freshly made and delicious, so I usually have dessert at dinner, but avoid the two snack times during the day.

Additionally, the mess hall has facilities that are available for snacking at any time of the day or night. Salad ingredients, ice cream, frozen burritos and hot pockets, cold cereals, and fresh fruit are always ready to be eaten. If you're not careful, you can be overwhelmed with all of the food choices on board and gain a lot of weight while at sea!

Speaking to the crew about food is interesting. Many of the crew has not so fond memories about “other” ocean ships that they have been on that did not offer such wonderful food choices. Some crew members expressed the feelings that the morale of the crew basically depends on the food. I can see how a long trip at sea can be made more comfortable with the knowledge that the food will be great!

Create Your Own NOAA Experiment at Home

NOAA ships use the Celsius scale to measure temperatures, but many people in the United States use the Fahrenheit scale. You probably think of a day that is 100 degrees Fahrenheit outside as a hot, summer day, but did you know that this equals 37.8 degrees Celsius? A cold, winter day is usually about 35 degrees Fahrenheit, but that is equal to 1.8 degrees Celsius.

You can use a website from NOAA to easily convert Fahrenheit to Celsius and vice versa. Just go to <http://www.wbuf.noaa.gov/tempfc.htm> and type a number into either the Fahrenheit or Celsius box. Then, click off the box and the temperature is automatically converted for you. Try typing in temperature that you are familiar with like your body temperature (about 99 degrees Fahrenheit), the temperature that water freezes (32 degrees Fahrenheit), and the temperature that water boils (100 degrees Celsius).

You can also use a formula to convert temperatures. This is helpful if you don't have the internet.

For Fahrenheit to Celsius, use this formula:

$$C = (F - 32) \cdot \frac{5}{9}$$

For Celsius to Fahrenheit, use this formula:

$$F = C \cdot \frac{9}{5} + 32$$

Many thermometers also are scaled for both Fahrenheit and Celsius, so that you can read both temperatures on the thermometer itself.