*Story last updated at 7:55 PM on Wednesday, September 2, 2009  Homer News*

**Boats of the week: Fairweather and Rainier Mapping Kachemak Bay**

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For the past two summers, Fairweather and Rainier, two sister ships of the National Oceanic and Atmospheric Administration, have been mapping Kachemak Bay for Hydropalooza. A cooperative project between NOAA, the Kasitsna Bay Laboratory, Kachemak Bay Research Reserve and the University of Alaska Fairbanks Sea Grant College, Hydropalooza started when Kris Holderied, co-director of the Kasitsna Bay lab, asked if while a NOAA ship was in the area, it could do a sidescan sonar run. Instead of just sending sonar, NOAA sent two ships.

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|  Photo by Michael ArmstrongThe NOAA ships Fairweather, left, and Rainier, right, are docked bow to bow at the Deep Water Dock last Saturday. |

"We were just in the right positions for last year and this year to work as a project area," Holdereid said.

The bay has a wide variety of marine environments to challenge new mapping techniques.

"It's a great test bed for doing this and being able to apply it to a whole range of habitat," she said.

"It's this combined effort. Let's go map Kachemak Bay," NOAA Lt. Matt Ringel, the field operations officer, or FOO, on Fairweather, said of Hydropalooza on a tour of Fairweather last Saturday.

Both ships were commissioned in 1968 along with a third ship, Mount Mitchell. Mount Mitchell and Fairweather were deactivated in 1989, and Mount Mitchell sold. In 2004, NOAA reactivated and refitted Fairweather. Rainier will be refitted at the end of the season this year.

The ships have instruments to measure bathymetry, or depth, tidal changes and shoreline. Multibeam s onar systems mounted on the ships or on small boats measure bathymetry. GPS positioning equipment ver- ifies locations of shoreline features and provides references for surveys.

The ships run surveys in long transects with broad paths, "like mowing your lawn and cutting a swath of grass," Ringel said.

Scientists sometimes use the same technology as Captain Cook: a leadline.

"We still get this out every once and a while to do sanity checks on our GPS," Ringel said.

The hydrographic field season runs from March to November. Ships often work 24 hours a day, with crew standing watches of four hours on and eight hours off. NOAA Corps officers do two-year sea tours followed by three-year land billets.

Last year, Fairweather mapped an unreported wreck of a 50-foot ship thought to be the Mandy M a mile north of the Homer Spit.

This year NOAA ships found two wrecks across the bay. While mapping the Pavlov Islands in the Alaska Peninsula, Rainier found a sunken crab boat. Some parts of the Pavlovs had never been mapped.

"How cool is that?" Holdereid said. "That takes some guts to take a ship that size into uncharted water, but that's what they do."

The NOAA ships sometimes misplace things, too. Earlier last month, Rainier lost a $250,000 multibeam sonar in Eldred Passage. NOAA asked the crew of the Alaska Department of Fish and Game's research vessel, Pandalus, if they could poke around the bottom with Buttercup, a remotely operated vehicle, or ROV, that has three videocameras.

After two days of searching, the Pandalus found the sonar 150 feet deep -- too far for NOAA divers to go. Dave Seaman, a Homer mariner, loaned them a halibut gaff with a line attached.

"And then we just drove the ROV up there and hooked it," said Mike Byerly, a fisheries biologists with ADF&G.

ADF&G has used a lot of the information acquired by NOAA, Byerly said.

"We use that data all time," he said. "It was kind of nice to repay the favor."