

Web posted Tuesday, December 13, 2005

## **Survey adds information to Cook Inlet database**

**By HAL SPENCE**

Peninsula Clarion

Scientists are accumulating a wealth of information about Cook Inlet currents that could prove invaluable in predicting the movement of future oil spills or other pollutants, according to officials with Cook Inlet Regional Citizens Advisory Council.

Over the past summer, researchers with the University of Alaska, the Kachemak Bay Research Reserve and the National Oceanic and Atmospheric Administration and other organizations conducted hydrographic surveys, used satellites to trace the movements of drifter buoys and deployed surface ocean-current radar systems.

They also did extensive coastal mapping using helicopters, completing aerial surveys of Kodiak, Afognak, Shuyak and many other islands, and gathered various species samples for further study.

Collecting detailed data about how currents move water within the inlet basin, Shelikof Strait and Kachemak Bay is a high priority for CIRCAC, which has been helping coordinate studies by various agencies.

Sue Saupe, CIRCAC's director of science and research, said hydrographic studies in the Cook Inlet area began a few of years ago with measurements taken over a 25-hour period to get a feel for how ebb and flood tidal effects.

Broader data collection efforts conducted in the past year or so have focused on changing seasonal conditions beyond those of the daily tides.

"Our next goal is to look at multiyear changes," Saupe said, including how Alaska's coastal currents could change the inlet water system over decades.

Global warming may cause or have an influence on the pace of such change, but unless there is a reliable database derived from long-term measurements available for comparison, assertions about the impact of climate change are hard to make, she said.

Over the summer, hydrographic surveys were conducted on a monthly basis along five transects, or paths, at the boundaries of Cook Inlet. They included lines spanning the Kennedy Entrance and Shelikof Strait in the south, the mouth of Kachemak Bay and others linking Anchor Point to the Inlet's west side, and East and West Foreland. CIRCAC has proposed expanding the survey to include lines between English Bay and Augustine Island and English Bay and the Alaska Peninsula.

Data collected included temperature, salinity, dissolved oxygen and transmissivity (a measure of water movement). Such sampling provides useful information on the influence of freshwater from the Alaska coastal current and upper Cook Inlet rivers, CIRCAC said in its fourth quarter report.

Studying salinity at different depths in and different areas provides information that helps differentiate between long-term water transport and short-term tidal currents. According to CIRCAC, that data "is vital to understanding potential transport of oil spills or other pollutants."

These currents also influence the transport of nutrients and larvae for marine food webs, Saupe said.

Continuing a project funded by the U.S. Minerals Management Service studying water and ice dynamics in the inlet, CIRCAC purchased an additional 15 drogue buoys that use underwater sails or parachute-shaped devices to create resistance to seawater movement at depth. Satellites take signals from the buoys on the surface and can determine the effect of subsurface currents on their movements.

CIRCAC worked with Dr. Scott Pegau of the Kachemak Bay Research Reserve and Dr. Steve Okkonen of the University of Alaska Fairbanks, who were responsible for heading up the hydrographic studies. Neither scientist was available for comment this week.

Working with NOAA researchers, CIRCAC has been reviewing the recent deployment of surface ocean current radar system in central Cook Inlet. That data will be available to oceanographic modelers.

Together, these programs will provide tools for predicting water movement in the inlet and oil spill underwater plume trajectories, CIRCAC said.

Among CIRCAC's congressional mandates is identifying sensitive habitat along the inlet's shores and to foster long-term partnerships with industry, government and local communities. That effort has enabled CIRCAC "accomplishes more of its scientific objectives than by working alone," said CIRCAC spokes-man Steve Howell, director of public outreach.

For her part, Saupe led a survey team on several Cook Inlet islands, taking species samples at 112 sites and collecting biophysical data at more than 160 sites. Among other things, researchers documented two examples of major range extension for a species of kelp (*Macrocystis integrifolia*) on Afognak and Kodiak islands.

Saupe said the Kenai Peninsula Borough provided some funding for physical oceanography, which CIRCAC used as matching funds for other money through the Minerals Management Service. The current year budget for the hydro studies is about \$160,000, Saupe said.

"We are very pleased with the study," she said. "We want to keep it going for at least another year."