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CIRCAC in the Field

Recently, CIRCAC's Director of Science and Research, Sue Saupe, participated in field studies to gather data about vulnerable habitats in Kamishak Bay. CIRCAC has been keenly interested in the Kamishak Bay area for some time due to its potential vulnerability from spills elsewhere in the Inlet from established or future activities, such as the planned 2017 federal lease sale. We know that net currents within Cook Inlet can carry oil to areas downstream--as has been demonstrated through satellite drifter buoy deployments--and the eddy circulation of Kamishak Bay could collect and concentrate oil in nearshore areas important as herring spawn habitat.

CIRCAC has been a leader in coastal mapping and habitat assessments in Cook Inlet, especially in providing background data on nearshore habitats. Some of CIRCAC's earlier efforts in the area include sampling soft sediment habitats to identify potential sentinel species (such as filter-feeding and deposit-feeding clams), sampling for benthic contaminants, and conducting habitat mapping through aerial and on-the-ground ShoreZone surveys. During these earlier projects, we noted the predominance of habitats that are unique to this part of the Inlet, including incredibly wide low-angle rock ramps. These habitats have been poorly described historically and this BOEM-funded project provided the opportunity to obtain detailed information about the invertebrate and algal species that populate these shorelines and correlate the collection of habitat with detailed tidal height elevation data.

The June 2015 field sampling was made possible through a partnership among CIRCAC, the National Park Service (NPS), National Marine Fisheries Service's Auke Bay Laboratory (NMFS), and the University of Alaska Fairbanks (UAF). The NPS is managing the project with funding provided by the Bureau of Ocean Energy Management's (BOEM) Environmental Studies Program.

Mobile GPS units mapping detailed tidal elevation and position data. Photo by Mandy Lindeberg

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Along with Sue Saupe, a team of scientists including Mandy Lindeberg (NMFS), Dr. Tahzay Jones, Sarah Venator, Sam Stark (NPS), and Cathy Coon (BOEM) sampled sites with mainly relatively flat rocky ramps of either boulder or bedrock. Sites were located along the western Cook Inlet coast from Tuxedni Bay area in the north down to Chenik Head area in the southwest corner of Kamishak Bay, including sites near Oil and Iniskin Bays, in Chinitna Bay, on the outer coast near Bruin Bay, and on Augustine Island. In addition to the intertidal work, divers from UAF's School of Fisheries and Ocean Sciences, Dr. Brenda Konar and Dr. Katrin Iken, collected detailed species lists and biomass data to extend the intertidal rocky sites and include subtidal kelp assemblages. The team accessed the sites by skiff while living aboard the support vessel the R/V Island C.

Intertidal sampling transect across wide rockramp near Contact Point, Kamishak Bay. Photo by Mandy Lindeberg

This collaboration resulted from project ideas submitted to BOEM in order to fill Cook Inlet data gaps. In this case, CIRCAC submitted a study idea with the NPS that overlapped significantly with another idea for a study from NOAA to conduct a component of the Gulf Watch Alaska program. CIRCAC wanted to assess benthic nearshore habitats in Kamishak Bay and Lake Clark National Park areas where little information was available for certain habitats and where our ShoreZone aerial surveys had indicated habitats unique to the Inlet. BOEM made the project a reality through funding provided for assessments that included components of both.

In the next few years we hope to revisit a subset of the sites sampled in June and, more importantly, continue working with partners to assess additional habitats. The results of the overall study will increase our knowledge of the habitats that are potentially in the direct path of any oil spills from elsewhere in Cook Inlet and will also provide information about the species in these habitats and their relationship to small changes in tidal height, such as might occur with changes in sea level. Based on the results of this and future field work, BOEM is seeking recommendations for future longer-term monitoring.

At left, quadrat sampling along transect to collect detailed species information. Photo by Mandy Lindeberg