



**COOK INLET**  
REGIONAL CITIZENS  
ADVISORY COUNCIL

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COOK INLET NAVIGATOR September 2018

## U.S. Coast Guard Honors CIRCAC with Meritorious Public Service Award

The U.S. Coast Guard recognized CIRCAC's continued vigilance to protect the safety and welfare of Cook Inlet waters with a *Meritorious Public Service Award*. The award recognizes outstanding support to the United States Coast Guard in safeguarding marine transportation and the environment.

Read [more](#).



*Pictured from left: Captain Sean MacKenzie, Commander Sector Anchorage, CIRCAC Executive Director Michael Munger and President John Williams; and Captain Patrick Hilbert, District 17 Chief of Prevention.*

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## CIRCAC supports studies to enhance our understanding of oil behavior

What happens when oil comes into contact with marine snow and what are the ramifications for Cook Inlet? To find out, CIRCAC is funding some of the logistical costs of "The Potential Role of Marine Oil Snow Formation and Oil-Suspended Mineral Particle Aggregation in the Fate of Spilled Oil in Cook Inlet, Alaska," a Master of Science project by Jesse Ross of the Coastal Response Research Center (CRRRC) at the University of New Hampshire.

Marine snow is made up of biological aggregates that naturally form in the top layer of the ocean and settle to the seafloor. Extensive research has been conducted on minerals and sediments aggregating with oil slicks and dispersed oil. However, biological components such as marine snow present a new element that has only recently been studied as a transport mechanism following the Deepwater Horizon incident when significant percentages of spilled oil settled to the seafloor after mixing with marine snow. These findings suggest that both marine snow and minerals can be major pathways that warrant consideration during an oil spill response. An understanding of



UNH graduate student Jesse Ross deploys particle traps in the water column this August. Jesse deployed 14 traps through the course of the summer. Each trap remained in the water column for one and a half hours before being retrieved.

the existing conditions in areas of oil extraction could better inform decision making in the event of a spill.



Tracking buoy and flag mark the site for recovery. Once retrieved, the samples that settle to the bottom will be collected and transported to New Hampshire for the laboratory experiments.



Jesse's interest in oil spill research was sparked as an undergraduate working for Dr. Nancy Kinner of CRRC. This led to his focus on emergency pollution response and, as part of his master's thesis, Jesse spent this summer in at Kasitsna Bay Lab, across Kachemak Bay from Homer, collecting samples of marine snow to characterize its potential role in the fate of spilled oil in Cook Inlet.



According to Jesse, his greatest challenge this summer was translating the Gulf of Mexico sampling methods to accurately measure the settling rates and volumes of marine snow in Cook Inlet's more extreme and demanding environment. He worked hard to design his study to reflect a gradient from mineral- dominated aggregates to more biologically dominated aggregates in Kachemak Bay's water column.



In addition to the water sampling in Cook Inlet, the proposed research consists of additional laboratory experiments at the University of New Hampshire where marine snow will be grown in roller tanks and mixed with sediment, oil and chemical dispersants. The marine snow aggregates that form will then be tested for settling rates and total petroleum hydrocarbons (TPH), and placed into a flume for resuspension studies.

"Spill response scientists know oil mixes with sediment," Jesse said. "Marine snow presents a new component with biological factors to add to response considerations. Past spills have shown that aggregate quantity and size increase with oil in the water. This project explores this observed phenomenon with inputs specific to Cook Inlet. We are looking to

This short video shows the instrument being deployed through the water column. Once suspended at sampling depth, you can see the particles as they fall through the water column into the sediment traps. Also note living biological resources like jelly fish swimming by.

characterize the biological and sediment particles existing in Cook Inlet and explore how they could change the fate of spilled oil."

Visit our [Flickr](#) page for more photos on this study and other events.

## CALENDAR OF EVENTS

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