

# CIRCAC





Photo by Terril Efird

## COOK INLET

### Regional Citizens Advisory Council

*The mission of the Council is to represent the citizens of Cook Inlet in promoting environmentally safe marine transportation and oil facility operations in Cook Inlet.*

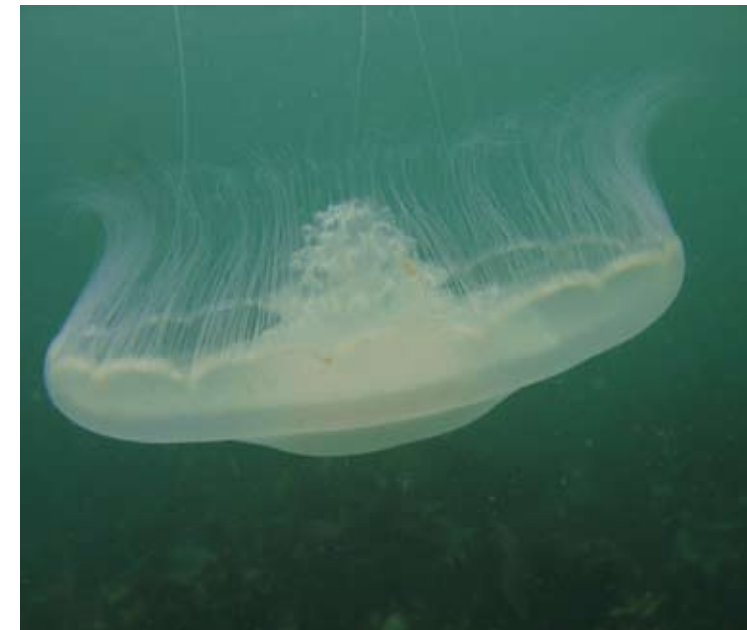


Photo by Nathan Stewart

## 2009 Annual Report



Photo by Terril Efird





Photo by Susan Saupe (Cook Inlet RCAC)

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## EXECUTIVE LETTER

Last year, as our organization continued to pursue its mandates under the Oil Pollution Act of 1990, many of our past projects stepped to the forefront when explosive events at Mount Redoubt threatened the oil storage facility at the Drift River Oil Terminal. If oil had spilled, these projects, which include our extensive research in physical oceanography and shoreline ecosystems, would provide incident responders with information necessary to model oil spill trajectories and to understand which shorelines are most at risk from oil.

While the Council focused considerable efforts on the events surrounding the Mount Redoubt eruption, we made progress in many other areas. The ShoreZone mapping project was updated by improving the digital imagery database for Cook Inlet and nearshore habitats were characterized in the lower regions of Cook Inlet. We moved forward on navigational safety issues by installing the first of a series of the digital video cameras for an Ice Forecasting Network. We also secured funding to begin a navigational risk assessment for Cook Inlet.

In this year’s Annual Report, you will learn more details about the Mt. Redoubt eruption and the events surrounding the response, including our proactive approach to help prevent a potential oil spill at Drift River. We also highlight some of our most interesting projects and the progress we have made as we strive to fulfill our mandates.

As a new decade opens, we look forward to the new challenges that lie before us and recognize that we will not succeed alone. Sustaining our partnerships and cooperative efforts will allow us to improve oil spill prevention and response capabilities for Cook Inlet. With these, we are committed to continue working closely with Cook Inlet’s citizens, regulators, and oil industry.

Michael Munger  
Executive Director

Molly McCammon  
President





Photo by Nathan Stewart

## BOARD OF DIRECTORS

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Division of Homeland Security & Emergency Management

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Grace Merkes - Vice President  
Gary Fandrei - Secretary/Treasurer  
Liz Chilton

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Molly McCammon  
Rob Linsdsey

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Grace Merkes  
Robert Peterkin II

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Jay Stinson  
Molly McCammon  
Bob Shavelson

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Marilyn Sigman  
Woody Koning  
Steve Hackett  
Steve Hunt  
Bob Flint  
Deric Marcorelle  
Paul Blanche

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#### PUBLIC MEMBERS

*Vice-Chair:* Barry Eldridge  
Bill Osborn  
Bob Flint  
Deric Marcorelle  
Jerry Brookman  
Lois Epstein  
Ted Moore

## CHARTER FUNDING COMPANIES

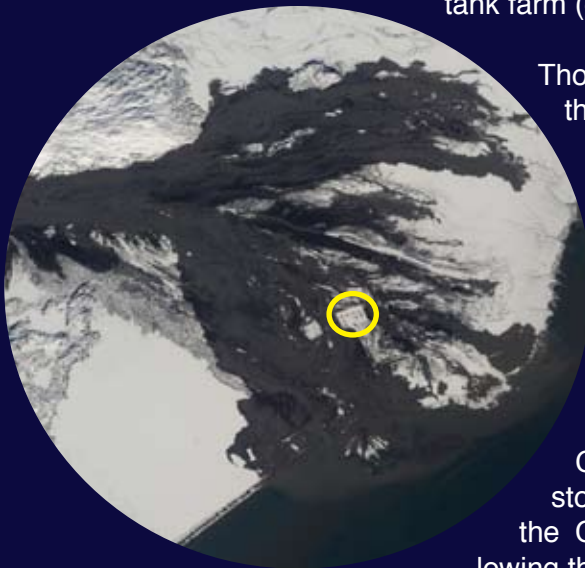
Tesoro Alaska  
Chevron  
XTO Energy  
ConocoPhillips  
Marathon Oil Company  
Cook Inlet Pipe Line Company  
Pacific Energy Resources

# MOUNT REDOUBT



Volcanic activity at Mount Redoubt started on January 25, 2009, leading to several major explosive events - the largest on April 4<sup>th</sup>. Each explosion caused pyroclastic flows and lahars to flow down the Drift River Valley, leading to the decision to shut down the nearby Drift River Oil Terminal (DROT).

Some of the lahars carried vast quantities of mud, ice, rubble and other debris stripped from the landscape as it fanned out of the confines of the Drift River Valley. The first mudflow inundated Drift River, filling in the river's basin and causing the floodwaters and mud to flow along the tertiary containment around the DROT. Some of the mudflow pushed along the runway area and around the hangar and storage leaving these areas covered with several feet of mud and debris. The satellite picture below shows the scale of the lahars as related to the tank farm (circled) at the DROT.



Though the explosions were on par with those in 1989, significant improvements to the DROT facility kept the flooding from entering the tank farm and, more importantly, no oil was released. By May, most of the oil was removed from the tanks and replaced with water for ballast. By the end of August, Cook Inlet Pipe Line Company reconfigured the pipeline from Trading Bay and Granite Point to bypass the DROT storage tanks and send oil directly to the Christy Lee loading platform. Following the completion of the reconfiguration, some of the Cook Inlet platforms that had been shut down with the closing of the DROT began to produce oil.

Cook Inlet RCAC was involved during the entire series of events – the eruptions, the DROT shutdown, and the formation of the Unified Command – through briefings with the USCG and ADEC. All the while, we urged that the volumes of oil stored at



Photo provided by Tesoro

DROT be reduced in order to minimize the risk of potential pollution. Later, we actively participated within the Incident Management Team (IMT) and hosted two public forums in Kenai.

While working in the command center, Cook Inlet RCAC staff made recommendations to the Unified Command and the IMT based on the Council's past work and research, especially in the areas of oceanography and ShoreZone mapping. For example, during this incident, Cook Inlet RCAC was also able to identify a gap in Cook Inlet surface current data and partner with the University of Alaska Fairbanks to deploy High Frequency radar units that track and record surface currents - valuable information

in the event of an oil spill. When planning for a spill, ShoreZone imagery taken at low tide showed responders the coastline underneath the frozen ice and allowed them to plan for cleaning up oil nearshore.

The Council was relieved that a disaster was averted, no injuries occurred, and no oil was spilled. However, recognizing that no response is perfect, the Council contracted with an independent third party to review response efforts, including our involvement in the process, and to provide recommendations for improvement. The report will be released in spring 2010.

Visit our website for a timeline of events and actions.





*Photo by Mandy Lindeberg (Alaska ShoreZone)*

## SHOREZONE

**C**ook Inlet RCAC introduced ShoreZone habitat mapping in Alaska in 2001 when we sponsored the first of many aerial surveys to photograph, map, and inventory nearshore habitats in our areas of concern. Those initial surveys led to efforts by over 30 participating organizations to survey and map the entire Alaskan coast. This statewide partnership was described as “unprecedented in size and scope” when it received a 2009 Spirit Award by Coastal America, recognizing outstanding partnerships in protecting, preserving and restoring the nation’s coastal resources and ecosystems.

One of Cook Inlet RCAC’s goals is to provide the very best possible ShoreZone imagery and data to oil spill planners and responders. To accomplish that goal, we collected high resolution digital video and over 13,000 aerial photographs of the entire Cook Inlet shoreline during a particularly

low six-day tide window in June 2009. These images replaced the lower resolution imagery collected in 2001-2003. The data and imagery are served at:

<http://alaskafisheries.noaa.gov/habitat/shorezone/szintro.htm>.

In addition to serving 1-second captures of the video on the NOAA web site, we developed a new stand-alone product where users can access hours of high resolution flash video of Cook Inlet, the Kodiak Island archipelago, and the Katmai and Kenai Peninsula coasts. This high resolution imagery will be invaluable to oil spill planners and on-scene commanders in emergency situations where fast internet access might be limited.



# MACROCYSTIS SURVEY

**I**n late August 2009, Cook Inlet RCAC coordinated a dive survey project at a series of *Macrocystis* kelp beds in the Kodiak Island Archipelago that were discovered during 2002 and 2005 ShoreZone surveys. Based onboard the R/V *Waters*, we worked with three University of Alaska graduate student divers surveying kelp beds on Afognak, Shuyak, and Kodiak islands to look at the geographic extent of the kelp beds and quantify densities of the kelp and associated invertebrates, algae, and fish.

*Macrocystis* is common on the U.S. west coast and in southeast Alaska, but naturally occurring beds of it had not previously been reported or described in the western Gulf of Alaska. It is not clear whether these kelp beds have had a long presence in the area or whether plants or fertilized eggs were introduced to the region more recently via prevailing currents, ballast water, or by the herring-roe-on-kelp fishery.

Whether the kelp beds were established naturally or introduced by human activities, the existence of these newly documented kelp beds have implications for oil spill planning and response, shoreline access, and habitat availability for forage fish, birds, and marine mammals. If the kelp expands geographically, these plants may be able to out-compete the other two Alaskan canopy kelps (bull kelp and dragon kelp) since *Macrocystis* has a different reproductive cycle and the potential to biochemically deter grazing invertebrates.



Photo by Terril Efird

*Invertebrates, such as this crab, find the *Macrocystis* plants suitable areas to forage.*



Photo by Terril Efird



The survey team: Nathan Stewart (UAF), Sue Saupe (CIRCAC), Melissa Deiman (UAF), and Terril Efird (UAF).

Photo by Terril Efird



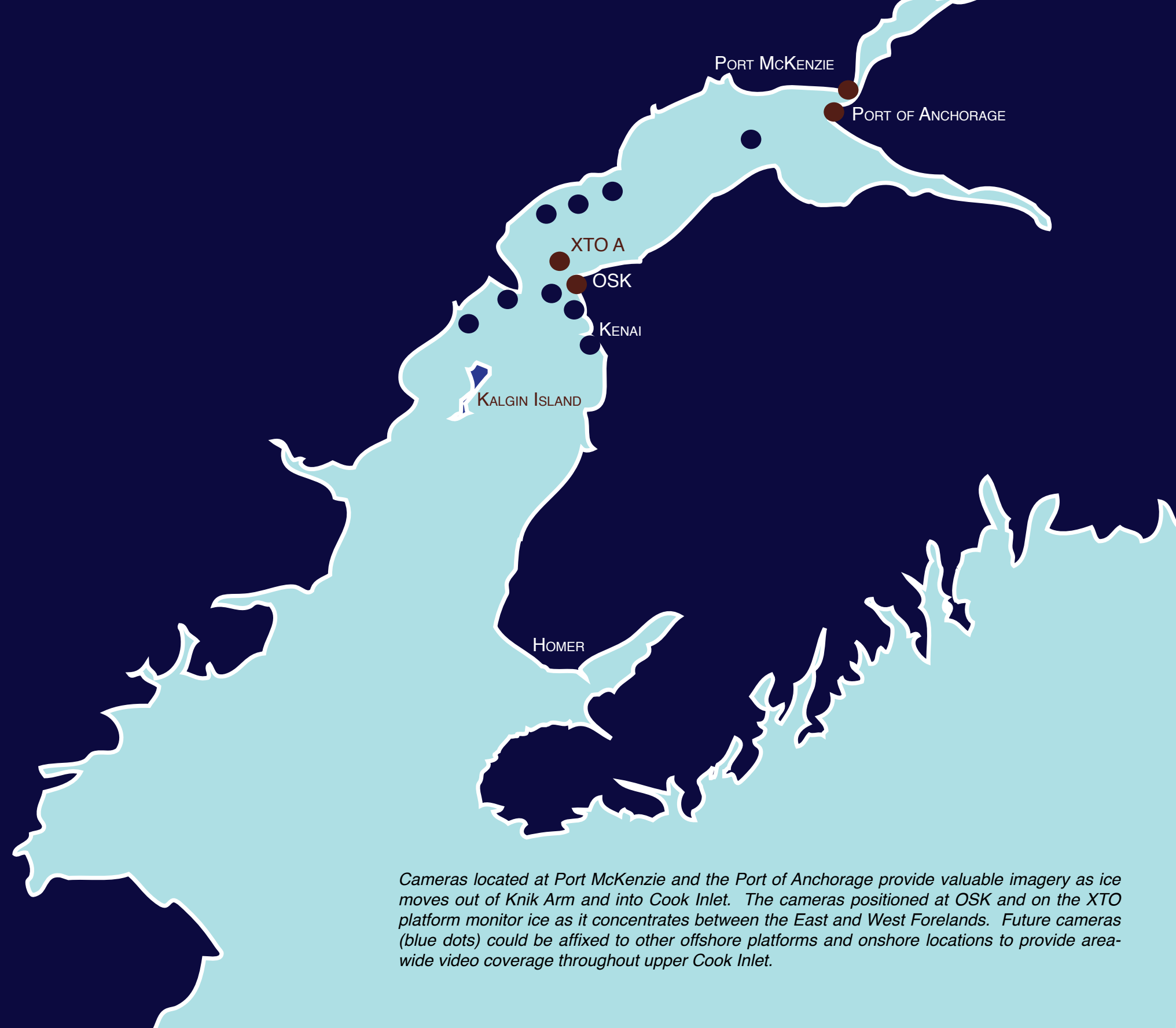
*Macrocystis* can grow in a very dense band along the shoreline, which could have impacts for shoreline access for oil spill response. By studying this kelp now, we will be able to tell if it expands along the coast and be better able to evaluate how that might affect nearshore habitat.

Photo by Terril Efird

# ICE FORECASTING

**M**uch of the ground work for an Ice Forecasting Network was completed in 2009. We ordered and received the high definition digital cameras and negotiated our data carrier service contract for the network. The first camera was installed at the Offshore Systems, Kenai (OSK) facility in Nikiski in October and work began with the Port of Anchorage and Port McKenzie to install the second and third cameras. To provide an opposing view to the OSK camera, the fourth camera will be affixed to XTO Energy's offshore platform A (XTO A). The initial network of four cameras will be operational in 2010.

The real-time video imagery delivered by the Ice Forecasting Network will increase the level of accuracy for the ice analysis and forecasts provided by the National Oceanic and Atmospheric Administration (NOAA). The network also has applications for emergency and spill response – in winter *and* summer since the cameras will remain operational in ice-free months. Responders could access the cameras to locate mariners in distress or oil in water prior to deploying equipment and personnel. Once the initial responders are on site, the activities can be monitored from the command center.



*Cameras located at Port McKenzie and the Port of Anchorage provide valuable imagery as ice moves out of Knik Arm and into Cook Inlet. The cameras positioned at OSK and on the XTO platform monitor ice as it concentrates between the East and West Forelands. Future cameras (blue dots) could be affixed to other offshore platforms and onshore locations to provide area-wide video coverage throughout upper Cook Inlet.*





## ENVIRONMENTAL MONITORING

In May and September 2009, we measured metal and hydrocarbon concentrations in many of the major rivers that drain various watersheds surrounding Cook Inlet. Natural sources of metals and hydrocarbons influence marine sediment concentrations depending on the locations of various source rocks and ore deposits surrounding the Inlet. Thus, these “background source” data are integral to interpreting sediment contaminant data from our environmental monitoring program which was designed to measure effects of certain oil industry operations. As well, these data may be invaluable for assessing potential impacts of other future activities. We collected water from the Kenai, Kasilof, Douglas, Kamishak, McNeil, Iniskin, Chinitna, Tuxedni, Drift, Big, McArthur, Beluga, Matanuska, Knik, Susitna, Fox, Bradley, and Grewink rivers and Glacier Creek.

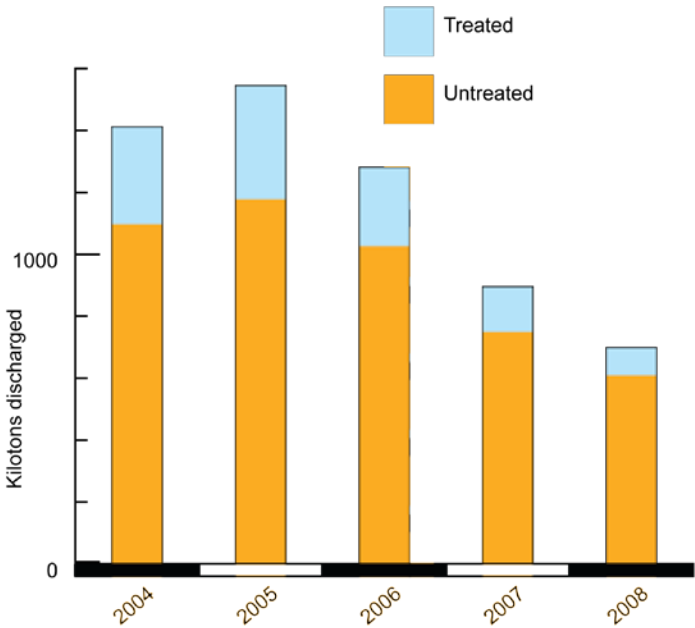
We gathered many of the scientists who participated in the 2008 and 2009 field sampling components of the Integrated Cook Inlet Environmental Monitoring and Assessment Program (ICIEMAP) for an intensive November work session in Seattle. The researchers were able to coordinate, compare, and integrate the various data types (metals, hydrocarbons, persistent organic pollutants, benthic invertebrate assemblages, water quality, and sediment type) from the various ecosystem components (water column, seabed, rivers) and begin writing the comprehensive report that is due in 2010

Photo by Susan Saupe (Cook Inlet RCAC)

## BALLAST WATER

Two reports were completed for projects that address risks of marine invasive species introductions to Cook Inlet and were funded through a grant from the U.S. Fish & Wildlife Service. One report evaluated compliance with federal regulations for ballast water reporting and management and includes a compilation of data on sources, volumes, a treatment of ballast water discharged in Cook Inlet. We wanted to assess how effective the 2004 federal regulations that require ballast exchange at sea for ships entering U.S. waters have been in minimizing the discharge of untreated ballast water (see graph below).

The second report provided information about organisms in the ballast water itself. This report was submitted to us by the Smithsonian Environmental Research Center on the potential transfer of aquatic invasive species from the western Pacific Ocean to Cook Inlet via the ballast tanks of LNG tankers that transit between Japan and Niksiki. The study quantified and described zooplankton in the ballast water of LNG tankers by sampling ballast tanks on arrival and also evaluated the survival of zooplankton during two voyages from Japan to Nikiski. Scientists were allowed onboard during the entire transits and measured the effectiveness of mid-ocean ballast water exchange in removing coastal organisms entrained in ballast tanks.



*Our contractors at Nuka Research found that the bulk of ballast that enters Cook Inlet does so without undergoing exchange or treatment at sea, with the ship captains citing safety or route exemptions (no ballast can be exchanged within 200 nm of shore and most of the ballast arrives via a transit between Japan and Nikiski where the ship routes skirt along the edge of the Aleutian Chain). We will use these data to push for closing regulation loopholes through USCG approvals of other onboard treatment technologies so that safety concerns about stability during exchange are not an issue.*



*The skimmer test involved the newly developed Crucial Disc Skimmer, which uses a proprietary fuzzy covering on each disc to produce a dramatic increase in skimmer efficiency.*

*Photo by Vinnie Catalano (Cook Inlet RCAC)*

*CISPRI technicians prepare a boom vane for deployment. This device can be used in a high current environments, such as rivers. Boom vanes can also be deployed from a moving vessel and used to pull the end of a collection boom away from a collection point.*



*Photo by Vinnie Catalano (Cook Inlet RCAC)*



*The 207-foot OSRV Perseverance serves as the major response platform for Cook Inlet's spill response cooperative, CISPRI. The cooperative is comprised of the seven oil and gas companies operating within the Cook Inlet region.*

*Photo by Vinnie Catalano (Cook Inlet RCAC)*

## DRILLS

The Oil Pollution Act of 1990 mandates Cook Inlet RCAC to monitor and evaluate drills to gauge the oil industry's ability to respond in a safe and efficient manner to actual events. As such, Cook Inlet RCAC takes the observation and participation in these exercises very seriously. In 2009, Cook Inlet RCAC staff observed, reviewed, or participated in the following drills:

- An XTO Energy (XTO) drill centering on a leak detected in the Middle Ground Shoal flow line leading from the XTO platforms to the shore side facility
- A Marathon Oil Company drill simulating a leak in the Beaver Creek Facility heater treater.
- A Tesoro drill involving a pipeline breach that leaked jet fuel into the Swanson River.

In addition to these drills, Cook Inlet RCAC was invited to observe a Tesoro/Alaska Shippers Response deployment in Kachemak Bay. Throughout the week-long exercise, Cook Inlet Spill Prevention & Response, Inc. (CISPRI) and Ship Escort/Response Vessel System (SERVS) deployed numerous recovery platforms, including a newly developed skimmer. A new recovery tactic was tested during the deployment that included a double boom vane collection configuration. This tactic allows one vessel to operate two collection systems, eliminating the need for two additional vessels and associated towable recovered oil storage.





Photo by Susan Saupe (Cook Inlet RCAC)

## INTERTIDAL SURVEYS

In May, Cook Inlet RCAC worked with the National Park Service (NPS) and the U.S. Geological Survey (USGS) to conduct a 10-day intertidal sampling program along the west side of Cook Inlet, within the boundaries of Lake Clark National Park coastlines. The surveys included sampling in Chinitna and Tuxedni Bays, in the Polly Creek area, and on Chisik and Duck Islands. The NPS/USGS focused on assessments of intertidal bivalve populations and major predators such as seabirds, shorebirds, and otters while the Cook Inlet RCAC team collected opportunistic ShoreZone ground station data. These shore stations were added to the Gulf of Alaska ShoreZone Shore Station Database to provide detailed lists of invertebrates and algae species present at each site, as well as semi-quantitative data on abundance and cover. We accessed our sites by skiff and lived onboard the R/V *Gyre*, a small seiner converted for research by USGS, and the F/V *Columbia*, a Homer-based seiner.

Work continued in July, as we again teamed with the NPS and USGS to conduct shoreline surveys. This time the surveys took place just downstream of Cook Inlet along the Katmai National Park coastline between Hallo and Dakavak bays. We traveled to most of our sites along Shelikof Strait using skiffs followed by our live-aboard vessels the R/V *Gyre* and R/V *Waters*.

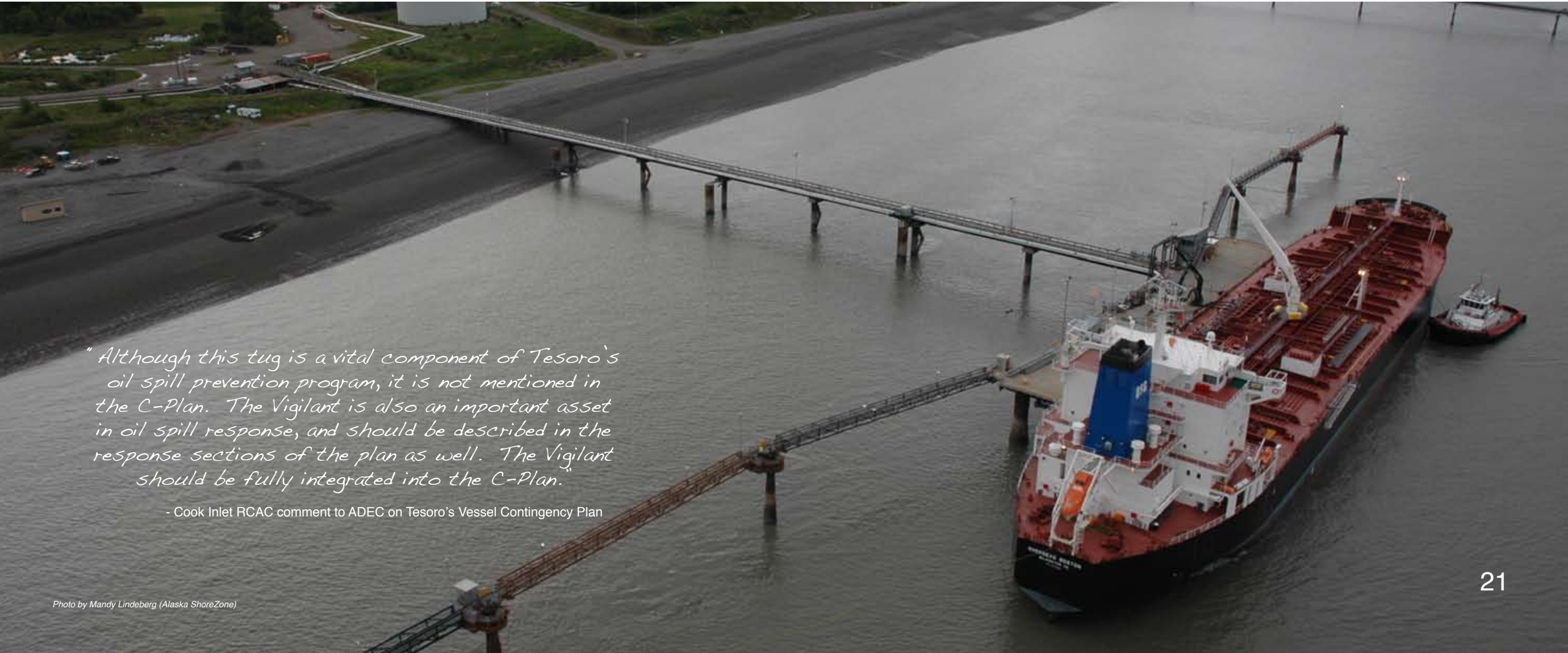
Finally, we took advantage of extremely low tides in late July to survey intertidal habitats in Kamishak Bay that were not effectively characterized by the bioband methods of ShoreZone. By selecting representative reef areas for more detailed on-the-ground assessments, we now know which invertebrate and algal species make up these habitats. These areas are known to be important for herring spawn, can provide protective habitat for emerging salmon fry, and would be sensitive to potential oil spills from upstream of the major currents in Cook Inlet.



# CONTINGENCY PLANNING

**T**he Oil Pollution Act of 1990 tasks Cook Inlet RCAC to review contingency plans - the action plans that the regulated crude oil industry in Cook Inlet uses to address oil spills. Representing the public's interest, Cook Inlet RCAC works with state agencies and industry during plan reviews to insure the plans are compliant with state regulation and to reinforce the importance of protecting Cook Inlet. A thorough review of these plans is especially important since the State of Alaska lengthened the effective period from three to five years.

In 2009, Cook Inlet RCAC reviewed the Tesoro Cook Inlet Vessel Oil Discharge Prevention and Contingency Plan (ODPCP), the only Cook Inlet area plan scheduled for review. Cook Inlet RCAC's most salient concern with this plan was the lack of discussion and reference to the tug M/V *Vigilant* as part of Tesoro's spill prevention and response programs. The Council provided comments regarding the M/V *Vigilant* in various sections of the plan where it is mentioned, or where it should be discussed. We felt strongly that Tesoro's commitment to position a year-around tractor tug at Nikiski should be memorialized in the contingency plan, which it ultimately was.



*"Although this tug is a vital component of Tesoro's oil spill prevention program, it is not mentioned in the C-Plan. The Vigilant is also an important asset in oil spill response, and should be described in the response sections of the plan as well. The Vigilant should be fully integrated into the C-Plan."*

- Cook Inlet RCAC comment to ADEC on Tesoro's Vessel Contingency Plan



# PUBLIC INVOLVEMENT

**C**ook Inlet RCAC staff and volunteers attend many different workshops, conferences, and other venues each year to present information to educate others on oil production and transportation issues affecting Cook Inlet. Additionally, staff and committee members take advantage of opportunities to learn and bring information back to the organization. For example, in 2009 Cook Inlet RCAC representatives:

- Presented the GRIN project at the 32<sup>nd</sup> annual Arctic and Marine Oil Spill Program (AMOP) technical seminar held in Vancouver, B.C. The technical conference often highlights new developments in oil spill response in cold climates.
- Presented the GRIN project at the 2<sup>nd</sup> Biannual Clean Pacific Conference held in Portland OR. The RCAC also operated an information booth at the conference.
- Presented a poster of the Cook Inlet Ice Forecasting Network as part of the Contingency Planning, Preparation, and Prevention session at the 32<sup>nd</sup> AMOP technical seminar.
- Attended the Kenai Peninsula Fishermen’s Association Annual Meeting to provide updates on recent Cook Inlet RCAC activities and the Drift River Oil Terminal.
- Attended and set up an information booth at the United Cook Inlet Drift Association Annual Membership Meeting.

- Provided informative presentations on Cook Inlet RCAC to local government assemblies, chambers of commerce, and Rotary clubs.
- Attended a two-day dispersant training class held at the Ohmsett facility operated by the Minerals Management Service.
- Hosted the Kenai location for “Partners in Prevention and Response”, a conference commemorating the 20th anniversary of the Exxon Valdez Oil Spill. Six communities participated and were connected by video. Cook Inlet RCAC also presented the final segment of the event highlighting citizen and RCAC involvement with the Cook Inlet oil industry.
- Presented results from a ShoreZone verification study at the Marine Sciences Symposium in January.
- Participated in the Alaska Forum on the Environment in February along with other RCAC, university, state, and environmental representatives.
- Presented data on coastal mapping and habitat assessment projects and on the Integrated Cook Inlet Contaminants Program in March at the Kachemak Bay conference in Homer.
- Served as moderator and presenter for ShoreZone at the 2<sup>nd</sup> Biannual Clean Pacific Conference. Cook Inlet RCAC’s presentation detailed examples of using ShoreZone and other coastal mapping products during oil spills.
- Operated an information booth and distributed outreach materials at the annual Industry Appreciation Days held in Kenai in August.



Photo by Susan Saupe (Cook Inlet RCAC)

## STAFF

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Executive Director
- KAREN DELANEY**  
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- VINNIE CATALANO**  
Director of Operations
- TRENTEN DODSON**  
Director of Public Outreach
- MARITTA NEWGREN**  
Accounting & Grants Manager
- CATHY STUTSMAN**  
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Photo by Mandy Lindeberg (Alaska ShoreZone)







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