



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 courtesy of CIRCAC & Alaska ShoreZone partnership

Board of Directors Meeting

Friday, September 9th, 2022 – 9:00 a.m.

Seldovia Conference Center
328 Main Street, Seldovia, Alaska 99663



COOK INLET REGIONAL CITIZENS ADVISORY COUNCIL

BOARD of DIRECTORS MEETING
Friday, September 9th, 2022

Seldovia Conference Center
Seldovia, Alaska

Please contact CIRCAC staff or visit www.circac.org for more information.

****AGENDA****

8:15 am **Continental Breakfast**

9:00 am **Call to Order/Roll Call**

Approval of Agenda *(Action Item)*

Safety Minute *(Information Item)*

Approval of Minutes – April 8, 2022 Board of Directors
Meeting; April 8, 2022 Annual Meeting *(Action Items)*

Welcome & Introductions

Agency Ex Officio Directors Remarks

CIRCAC Member or Public Comment
(3 minute limit per speaker)

9:40 am **Presentations on Related Activities**

- Hilcorp Alaska, LLC: Tidal Energy Concepts –
David Duffy, Hilcorp Land Department

- Marathon Petroleum Company: Marathon Maritime Operations Update – Captain Marc Bayer, VP Marine Operations
- U.S. Coast Guard: Sector Anchorage Overview Update – Captain Leanne Lusk, Commander Sector Anchorage

11:15 am Executive Committee Report *(Information Items)*

- Annual Recertification
- 2022 Statement of Financial Position & Operating Budget – through July 31st, 2022
- Proposed Amendments to CIRCAC Bylaws

12:00 noon Break for Lunch

12:45 pm Executive Director’s Report

1:15 pm Staff Reports - Status of Programs & Projects
(Information Items)

- Protocol Control Committee
- Prevention, Response, Operations and Safety Committee
- Public Outreach
- Administration
- Environmental Monitoring Committee

2:10 pm Calendar & Miscellaneous *(Information Item)*

- CIRCAC Board Meeting – Dec. 1st & 2nd, Anchorage

Closing Comments

2:35 pm (est.) Adjourn

Note: Seldovia Bay Ferry departs at 4:30pm for Homer

U.S. Department of
Homeland Security

United States
Coast Guard



Commander
Seventeenth District

P. O. Box 25517
Juneau, AK 99802-5517
Staff Symbol: d
Phone: (907)463-2025
Fax: (907)463-2037

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JUN 29 2022

Cook Inlet Regional Citizens' Advisory Council
Attn: Mr. Michael Munger, Executive Director
8195 Kenai Spur Hwy
Kenai, Alaska 99611

Dear Mr. Munger:

After review of the recertification package submitted by the Cook Inlet Regional Citizens' Advisory Council (CIRCAC) dated May 10, 2022, I certify the CIRCAC as an alternative voluntary advisory group permitted under 33 U.S.C. 2732(o) of the Oil Pollution Terminal and Oil Tanker Environmental Oversight and Monitoring Act of 1990. This recertification terminates August 31, 2023.

Under the guidelines established by the Coast Guard in 2002, this re-certification is part of the streamlined application process and as such only substantive changes were reported by your office and public comment was not sought by the Coast Guard.

I look forward to the Coast Guard's continued work with you toward our common goal of improving the safe and environmentally sound transportation of oil in Cook Inlet and its surrounding communities.

Sincerely,

A handwritten signature in blue ink, appearing to read "N. A. Moore".

N. A. MOORE
Rear Admiral, U.S. Coast Guard
Commander, Seventeenth Coast Guard District

Copy: Sector Anchorage
CGD17 (dl)

Protocol Control Committee Staff Report

Since the April 2022 CIRCAC Board meeting the Protocol Control Committee reviewed and developed comments for submission to the Alaska Department of Environmental Conservation three Oil Discharge Prevention and Contingency Plans.

Those Plans were:

Cook Inlet Energy, LLC Oil Discharge Prevention and Contingency Plan for Cook Inlet Area Production Operations, ADEC Plan #: 17-CP-2016

Harvest Alaska, LLC Cook Inlet Oil Discharge Prevention and Contingency Plan, ADEC Plan #:17-CP-2081

Andeavor Logistics LP, Kenai Refinery Storage Facility and Truck Terminal, ADEC Plan #: 17-CP-2019

Other business conducted by the Committee:

Approval of Allocation of CIRCAC 2021 Undesignated Funds

PROPS Staff Report

Arctic and Western Alaska (AWA) Area Subcommittees

Staff participates in two AWA sub-committees. Since the last Council meeting, staff has met with two Geographic Response Strategy (GRS) sub-committee participants representing the U.S. Coast Guard and the University of Alaska Fairbanks. The State of Alaska has worked to transfer the information on each GRS pdf contained in the GRS catalog to a new Geographic Information System (GIS) platform format. However, not all of the information from the GRS pdfs has been transferred. The information remaining to be transferred is the geophysical locations for the tactical deployment of response equipment and the associated icons used to depict the tactical deployment, i.e. locations for response equipment deployment and the icons used to represent the tactics used at those locations placed on the GIS base map.

Because CIRCAC has been a participant since the original development of GRS and their eventual presentation to the State of Alaska in 2008, we have held the GRS project in our budget for further development, e.g. 26 stream crossing GRS developed in 2019/2021. The subject of this meeting was to discuss a way forward; how to accomplish the completion of the GIS catalog transition, and how CIRCAC might facilitate that information transfer and verification. The next step will be to develop a project description and a scope of work.

To aid in the process to complete the GRS information transfer, future GRS site additions, and maintenance of the GRS catalog, staff arranged a meeting between the ADEC GIS personnel, the USCG GRS workgroup lead, and Nuka Research (CIRCAC's original GRS contractor). The purpose of the meeting was to discuss current GRS work being conducted elsewhere in the U.S. and Canada. Nuka Research, acting as an instrumental part of those projects, is in a unique position to provide details that can play an important time-saving and resource saving role in the development of Alaska's GRS catalog. Likewise, the Alaska GRS program will act as a template for other regional and area plans around the country.

Cook Inlet Harbor Safety Committee (HSC)

Staff attends all Cook Inlet Harbor Safety Committee meetings. Staff also acts as Chair for the Harbor Safety Plan workgroup and participates as a member of the Marine Firefighting workgroup. Recently staff participated in a Marine Firefighting workgroup meeting to discuss the revival of the Marine Firefighting Symposium previously sponsored by Prince William Sound RCAC and CIRCAC.

The workgroup chair (Nikiski Fire Chief Byran Crisp) and staff are working together to identify the best way to revive the symposium. Previously Prince William Sound RCAC (PWSRCAC) and CIRCAC collaborated to provide the symposium for firefighters from coastal communities around the State. The Symposium had been held primarily in Valdez but had moved to Homer prior to its conclusion.

Discussions within the HSC and as part of the Harbor Safety Plan workgroup identified Marine Firefighting as a safety concern for Cook Inlet. The Marine Firefighting Symposium is offered to firefighters around the state, serving coastal communities, and providing classroom and hands-on marine firefighting training. This training is especially important for those communities that host large seagoing tanks, dry cargo, and passenger vessels that may require shoreside firefighters to assist facility and vessel crews to fight a shipboard fire. The training introduces firefighters to marine firefighting doctrines and familiarizes firefighters with marine terminologies and various vessel deck arrangements.

Staff and workgroup members will seek to engage with potential funding partners to bring this important training opportunity back to Cook Inlet and statewide firefighters.

Tug Escort and ERTV Analyses Webinar

Staff attended this Tug Escort and Emergency Response Tow Vessel webinar. The webinar reported on an ongoing study to evaluate the potential change in oil spill risk from covered vessels, resulting from the use of tug escorts and/or placement of Emergency Response Tow Vessels by specified tank vessels.

The study area for this analysis consisted of all connected marine waters east of a line from Discovery Island light to New Dungeness light in the Strait of Juan de Fuca and south of the 49th Parallel in the Strait of Georgia. The Board of Pilotage Commission (BPC) divided this area into 13 geographic zones. Waterways within the study area that are not explicitly contained in the BPC zones were also included.

Modeling and outreach to stakeholders were used to identify the risk levels and origins. Beginning in 2020 and through 2022, modeling development gathered input through nine webinars, eight technical discussions and included over 300 participants garnering over 200 questions and comments. Some assumptions about the loss of propulsion probability, self-repair, emergency anchoring potential, momentum of drift, escort/assist tug dispatching, and laden condition of the tank vessel needed to be part of the modeling template. Outreach and modeling runs began in 2021 and will continue through the first quarter of 2023. Final report writing will follow in the spring of 2023.

Hilcorp Functional Exercise

Staff attended Hilcorp's functional exercise as an observer of the Wildlife Branch. This was reportedly Hilcorp's largest exercise to date that focused on the rupture of two pipelines when a workboat attempted to anchor in inclement weather. The anchor dragged and fouled two subsea pipelines (Bruce to GPT and CIPL line). The anchor fouling parted both subsea lines and released 100 BBLS (4200 gallons) of crude oil to Cook Inlet. This exercise married in-person and virtual attendance to the first exercise hosted at Hilcorp's command post located in Anchorage. As part of Hilcorp's acquisition of BP's assets, they took over the BP office facilities in Anchorage. This was a very ambitious undertaking that paid dividends for the Hilcorp IMT.

While the exercise objectives were met, many valuable lessons were learned regarding the use of a new command post, remote (virtual) access and overall command and control from the new command center. Some of the positive aspects experienced by the Wildlife Branch included the advantages of using Microsoft Teams over being restricted by phone only. Additionally, the use of injects, continuity of wildlife response community, Oil Spill Recovery Organization (OSRO) and Agency personnel and the resource allocation process worked well to move forward in addressing exercise injects and the response efforts mounted by the Wildlife Branch.

The most common negative aspect mentioned by many of the participants was issues with bandwidth. While this is a common issue at many exercises, it is something that requires attention to ensure operational success. We fully expect Hilcorp to address and resolve this issue.

Cook Inlet Energy Virtual Exercise

This exercise was a tabletop functional exercise of the Glacier Oil & Gas Corporation's (GLA) Oil Discharge Prevention and Contingency Plan (ODPCP), Emergency Response Plan (ERP). Staff participated virtually as an observer. This live exercise offered virtual participation for stakeholders (agencies and CIRCAC). In some respects, this exercise's virtual aspect was easier to follow the overall exercise activities within the Command Post. Exercise updates were

scheduled, and frequent enough to keep participants informed of the progress made by each section.

The scenario included a 6000-barrel crude oil leak from a tank at the Kustatan Production Facility, 4000 barrels of the initial leak then escaped secondary containment and migrated to a nearby lake. The National Preparedness for Response Exercise Program (NPREP) objectives (14 in all) were included along with 11 additional objectives for the Incident Management team to achieve throughout the exercise. Over half of these objectives needed to be accomplished for the exercise to be considered a success. In all, 16 objectives were successfully achieved.

Geographic Response Strategies (GRS)

CIRCAC's involvement in the development of the GRS system in use in Alaska, the selection of sites, and the development of the current GRS pdf catalog (referred to as legacy pdf's) has been instrumental since its inception. Staff continues to play a role in the improvement of this important response tool. As the Council may remember, in 2020, staff worked to identify and develop new GRS sites regarding highway/stream crossing locations. The "new" stream crossing sites were submitted to the Area Plan GRS Workgroup for consideration and approval for inclusion into the GRS catalog.

The "legacy" GRS pdf's contain necessary information about each site to be used by responders before deployment at sensitive sites during a spill response. That information includes site coordinates, spill response tactics and locations to deploy them to effectively protect the site, geographic details, special considerations, and other site details.

Most recently, staff has been working with the U.S. Coast Guard, State of Alaska, and the University of Alaska Fairbanks (UAF) to move forward on the transition from hard copy legacy GRSs to a Geographic Information System (GIS) electronic format. The GIS format enables each GRS site to be populated onto an electronic GIS base map. The base map may be accessed and is also referenced for access through various platforms. Platforms that the GRS catalog may be accessed include the State of Alaska Department of Environmental Conservation (ADEC) web page, the Regional and Area Contingency Plans (RCP and ACP), and the Cook Inlet Response Tool (CIRT).

To accommodate the GIS transition staff is working to contract with UAF to develop a process for use by GRS administrative personnel. The process will include the collection and submission of new GRS site data using NOAA's Collector Application, verification and entry into the GRS catalog and GIS format. The process will also include the verification of existing GRS site updates and GIS formatting, access, and compatibility with NOAA's Environmental Response Management Application (ERMA). Additionally, the final product must also be compatible with the CIRT.

Drill Planning Marathon

Staff has been participating in Marathon's Worse Case Discharge exercise planning meetings. This one-day tabletop exercise will incorporate the initial notifications and the assembly of a Unified Command along with a field deployment of CISPRI's response equipment and personnel.

This one-day exercise will begin in the "reactive phase" which means that the incident will be announced to facility personnel. They in turn will begin the process of making the appropriate notifications as described in the facility's State of Alaska, Oil Discharge Prevention and Contingency

Plan (ODPCP) and the federally required Facility Response Plan (FRP). Facility personnel will report to their assigned Incident Command System (ICS) positions and begin the work of monitoring initial response actions and collecting information to develop the Incident Briefing (ICS -201) form for use by the Incident Management Team (IMT) and the Incident Command/Unified Command (IC/UC). Once the Unified Command is stood up and the initial IC/UC meeting is convened and conducted the exercise will conclude. The exercise objectives will reference and be chosen from both the National Preparedness & Response Exercise Program (NPREP) and State of Alaska drill objectives lists to include the deployment of Marathon's Air Monitoring Team, CISPRI's Power App (to track response assets), and to test response times of responders to deploy equipment.

Public Outreach Report – September 2022

Advertising/Earned Media

An opinion piece ran in July in the Anchorage Daily News, Peninsula Clarion and Homer News noting the 30th anniversary of Alaska House Bill 567, which created the framework for Alaska's leading oil spill prevention and response regulations (see below for full article). We also continue several paid media campaigns and, with the return of field work this summer, have restarted outreach efforts via social media.

Training/Meetings

Staff accompanied Board members Gary Fandrei and Bob Flint to the Clean Pacific Conference in Seattle, August 23-24. The conference provided unique networking opportunities, in particular with Alaska DEC staff, and informative presentations and panel discussions on topics ranging from connecting communities for spill response and training to wildlife impacts from spills.

Staff also participated in the Marathon drill September 1st in Nikiski. This full day exercise provided an opportunity to work collaboratively on the mitigation of an oil spill scenario impacting the navigable waters of the Cook Inlet. This exercise will focus on exercising command and control measures to meet the requirements of the National Preparedness for Response Exercise Program (NPREP) and Alaska Department of Environmental Conservation (ADEC) *Oil Spill Response Exercise Guidance* objectives.

Website Update

Front end work continues on a project to redesign the CIRCAC website. During this phase, staff has been working to develop a content and site map for the design team at Sundog Media, the company that maintains our current website. Goals for the new site include a more easily navigable document library and better support for visual elements including video content. We anticipate final approval of a contract with Sundog by the end of September with a project schedule of 13-18 weeks.

Opinions

OPINION: Remaining vigilant after 30 years

By Shaylon Cochran

Updated: 7 hours ago Published: 9 hours ago



Oil spreads south from the Exxon Valdez on March 24, 1989; to the left of the Exxon Valdez is the Exxon Baton Rouge, which dumped ballast wastewater in order to take on oil from the crippled tanker. (Erik Hill / ADN archive 1989)

It's almost hard to believe it's been more than 30 years since the Exxon Valdez oil spill. One reason is because the work done since then has prevented a slide back into complacency by continuing to apply the lessons learned in the immediate aftermath of the spill.

Exxon Valdez spurred both federal and state legislatures, the industry, and the public to come together to establish laws protecting sensitive resources from another spill. One of those, Alaska House Bill 567, celebrated its 30th anniversary on June 25. This law created, among other things, Alaska's world-class set of spill response regulations. Federal legislation would reinforce these principles in 1990, when the Cook Inlet Regional Citizens Advisory Council (CIRCAC) was created. We represent 13 diverse groups from Kodiak to Anchorage, including Alaska Native groups, municipal governments and public interests like fishing, tourism, aquaculture, recreation and environmental concerns. We work closely with regulators and the industry to ensure not only that those interests are recognized and accounted for in response planning, but also to keep the public informed about issues that could potentially compromise the ability to effectively respond to an incident.

When it was clear that the planned response to Exxon Valdez was woefully inadequate to the unprecedented scope of the spill, the Alaska Department of Environmental Conservation took a lead role in adapting response strategy to meet those challenges. The end result was the most comprehensive suite of oil spill response strategies ever imagined. We remain committed to those laws — and, over the ensuing 30 years, we have worked to add strength and clarity to them.

Administration Staff Report

Cook Inlet RCAC Board of Directors Meeting – September 9, 2022

Below you will find a brief update on the primary administrative tasks performed – or assistance provided – by your Administrative staff since the April 2022 Board of Directors meeting:

CIRCAC Office – Corporate office successfully upgraded the building’s security alarm system. A lease contract is underway for a new printer, prompted by the current model’s age and need for recent repairs. A new sign post has been contracted by our landlord and construction is underway; the former log sign post blew down in high winds a couple years ago.

Elections and Appointments – CIRCAC’s Board of Directors acted to seat newly appointed/elected Directors and committee Public Members at its 2022 Annual Meeting. The 2023 election/appointment process is set to begin later this fall.

Recertification, 2022/2023 Application – The letter approving our recertification was signed and delivered by the U.S. Coast Guard July 5. This becomes effective September 1, 2022 to August 31, 2023. Note, the next recertification application will be a triennial review.

Financial Audit and Tax Return – The FY2021 financial audit is nearly complete. Auditor fieldwork was conducted at the end of June. The Executive and Audit Committees will meet following completion to review and accept the audit report and findings, as well as review the FY2021 tax return.

Accounts Payable – Staff continues to process payables weekly, utilizing online processes when applicable. We have maintained a review and written approval procedure of all accounts - by the Executive Director, staff, and Officers.

Budgets – Reconciliations of credit card and bank accounts for this quarter are ongoing. Development of the 2023 draft operating and program budgets is underway.

Grants – Staff assists with the Bureau of Ocean Energy Management (BOEM) grant under the EMC. Staff has implemented tools and training to aid in the organization and distribution of grant funding. Staff continues to monitor and renew its Bureau of the Fiscal Service’s user provisioning system (ISIM) registration and login.

Scholarship Program – Payment to the schools of both 2022 CIRCAC scholarship recipients have been made. CIRCAC again partnered with Marathon Petroleum Corporation this year on a joint scholarship for students entering the AVTEC Maritime Training Center.

Corporate Funding – Funding is on schedule for 2022 to date; the second round of invoices were distributed in May and all payments have been received.

Bylaws and Policies – As per policy and Board direction, staff is engaged in an ongoing review of Council bylaws and policies for necessary changes and updates.

Insurance and Employee Benefits – Several of CIRCAC’s corporate insurance policies are about to renew. In addition, staff facilitated the open enrollment period for employees with Aflac coverage.

Organizational Support – Administrative staff participates with the Cook Inlet Harbor Safety Committee.

Staff and Training – Staff completed an American Grant Writers' Association online grants management course. Training of administrative tasks are ongoing.

Support – Administrative staff supports directors, public members, staff and guests in logistics for both virtual and in-person committee meetings, conferences, and board meetings. Such events include Clean Pacific, EMC, Executive, PROPS, and Protocol Control Committee meetings. Staff continues to utilize various online platforms to effectively attend virtual meetings by teleconference, videoconference, and webinar.

Environmental Monitoring Committee (EMC) – September 2022 Update* (since last Board meeting)**

Staff Report: Susan Saupe

* *If pressed for time, you can skip the background information under each section and jump to the underlined September 2022 Update sections to see just the most recent activities.*

** *I have only included information on those projects with activities to report since last Board meeting.*

Chemical and Biological Monitoring Program

1. On-line Data Access

Background: On-line access to Cook Inlet data, such as contaminants and other environmental parameters, has been a high priority for CIRCAC and we've been working with partnering organizations to develop accessible data portals and visualization tools. For contaminants, this is an especially complex problem since the various studies differ in their sampling locations and dates, contaminant types, sample matrix, field and analytical methods, etc... In 2016, CIRCAC submitted a study plan idea to BOEM to compile and provide on-line data access to Cook Inlet contaminant data.

In their 2021 Annual Studies Plan, BOEM indicated their intent to support a study to compile and synthesize contaminants data for Cook Inlet that included recommendations for future monitoring. We were notified in April 2021 that a sole source Notice of Funding Opportunity (NOFO) for CIRCAC was published on Grants.gov (Opportunity number M21AS00345). We gathered a team of experts and submitted a full proposal and three-year budget in May 2022 to:

- a. Conduct a meta-analysis of existing contaminant data sets to evaluate the comparability of prior statistical designs and analytic methods and, when combined, as representative of baseline conditions in the Cook Inlet area
- b. Identify and compile appropriate organic and inorganic contaminant data (e.g., hydrocarbons, metals, U.S. EPA priority pollutants, and technologically enhance naturally occurring radioactive material [TENORM]), as well as a comprehensive list of any known or potential contaminant sources for the Cook Inlet area.
- c. Compare contaminant data against Federal and State regulatory or other scientific threshold levels.
- d. Recommend a study approach, including a sampling plan, that would enhance assessing baseline contaminant conditions in Cook Inlet and monitor contaminants in areas potentially impacted by Federal OCS oil and gas related activities.

The study team includes personnel from CIRCAC, Kinnetic Laboratories, Inc. (KLI), Axiom Data Science, Inc., and Payne Environmental Associates, Inc.

We finalized a Cooperative Agreement (CA) between BOEM and CIRCAC (M21AC00022) in September 2021 for the project *Synthesis of Contaminants Data for Cook Inlet: Evaluation of Existing Data as "Baseline Conditions" and Recommendations for Further Monitoring*, with a total budget from BOEM of \$325,000 with additional match from CIRCAC. Our first tasks under the CA were to submit a Draft Science Plan and host a Post-Award meeting with BOEM in October 2021. The Science Plan was finalized in early 2022 and is underway.

September 2022 Update: We submitted quarterly financial and project progress reports for the periods January - March 2022 and April - June 2022. I gave a brief summary of the project to the Kachemak Bay/Lower Cook Inlet Marine Working Group to solicit input on data needs and delivery. We've been continuing to gather and compile historical data sets and are finalizing a questionnaire for distribution to agencies and organizations (now that more personnel are back in office situations and are back from field work) to ensure we are not missing any unpublished data. It has been difficult to schedule meetings during the spring and summer and we hope that we can get participation by stakeholder groups this fall.

In August, we received an amended Cooperative Agreement from BOEM obligating additional project funds for the continuation of our three-year project beyond our initial Year 1 spending authorizations.

Coastal Habitat Mapping Program

Alaska ShoreZone

1. ShoreZone Imaging, Mapping, and Website

Background: CIRCAC has sponsored ShoreZone (SZ) aerial surveys and mapping since 2001 when we initiated the Alaska program in Cook Inlet and demonstrated a pilot version of an on-line data and imagery portal. We have been working to update the information and imagery from those earliest survey to take advantage of newer, higher-resolution technology.

The oldest imagery is along the outer Kenai Peninsula coastline and northern Kodiak Island. By partnering with the National Park Service (NPS), we coordinated a survey project that would cover the entire outer Kenai Peninsula coastline, including all of the Kenai Fjords National Park shorelines. This survey was initially planned for 2020, but was delayed until 2022 due to COVID concerns and scheduling conflicts.

The Alaska ShoreZone Program is currently administered and hosted by NOAA (https://alaskafisheries.noaa.gov/mapping/sz_js/) where the data and imagery are served along with shore station species-level intertidal data and nearshore forage fish data. The SZ habitat data and imagery are also served by the Alaska Ocean Observing System (AOOS) through their on-line data portals that allow integration with dozens of other data layers; which allowed us to develop the Cook Inlet Response Tool (CIRT) to integrate ShoreZone imagery and data with other information useful for oil spill planning and response (<https://portal.aoot.org/cirt.php>).

CIRCAC is also funding redesign of the Shore Station Database for species level data to better integrate with the newer JavaScript SZ website at NOAA.

September 2022 Update: We conducted aerial ShoreZone surveys in June 2022 along the outer Kenai Peninsula coast, an area that had last been surveyed in 2002. We contracted with Coastal and Ocean Resources, Inc. (CORI) to conduct the surveys, with my participation as Coastal Biologist for portions of the survey - taking high resolution digital still photographs and providing narration on biological habitat observed along the shorelines. CORI was also training a new Coastal Biologist, so we ensured calibration and training on local habitats and species.

We completed 6 days of surveys that started in Windy Bay and surveyed along the southern outer Kenai Peninsula coast (including offshore Chugach and Perl Islands) and around Gore

Point to include all of the coastline up to Cape Resurrection on the eastern entrance to Resurrection Bay. The National Park Service provided some funding to ensure that they survey encompassed all of the Kenai Fjords National Park shorelines. They also worked with our contractors to obtain permissions for staging helicopter fuel on the coast.

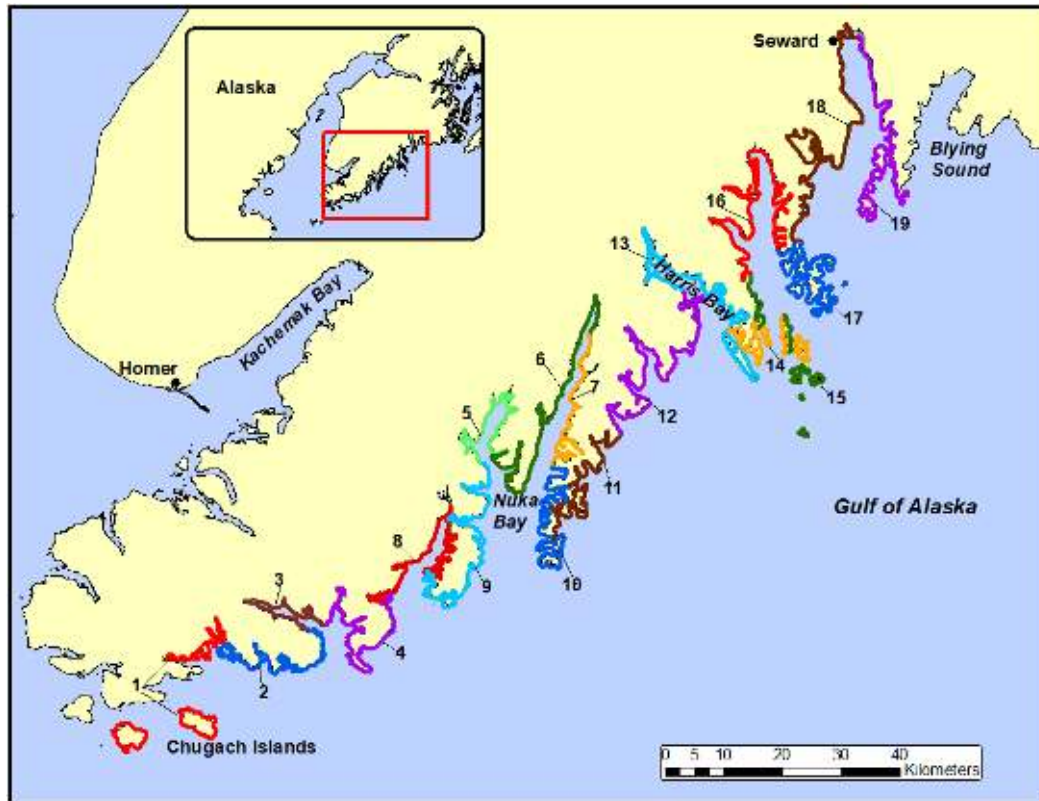


Figure 1. ShoreZone survey area, June 2022. Numbers are video files in sequential order.

We are seeking partners and funds to re-map the biophysical habitat data to the new imagery and the more updated digital shoreline provided by NOAA's Continually Updated Shoreline Product (CUSP) program. We also continue to seek funds and partners to update ShoreZone imagery and mapping along the northern Kodiak Island archipelago.

2. Environmental Sensitivity Index (ESI) Maps:

Background: NOAA's ESI data and maps provide shoreline habitat and shoreline use data to aid in oil spill planning and response. Data collected for ESI go hand-in-hand with the imagery and data reported by ShoreZone methods and we have worked hard to integrate the two programs. With budget shifts within NOAA, they are looking to better coordinate ESI with related datasets and determine how best to focus future data updates and methods of serving the data to the oil spill planning and response community.

During a June 2021 meeting with multiple agencies and organizations who use ESI maps for oil spill planning and response, we discussed priorities for updating ESI information in Alaska. The Cook Inlet region was identified as a high priority, though NOAA indicated it was unlikely they would have the funding to update maps in the traditional method.

We discussed other potential options for moving forward, ensuring that we follow ESI guidelines, while still taking advantage of the higher resolution imagery of ShoreZone, updated

digital shorelines, and new on-line data access and visualization tools. I worked with the Oil Spill Recovery Institute (OSRI) Science Director to identify priorities and potential projects for an OSRI-led ESI project and their Advisory Board (of which I am a member) approved funding for two ESI-related projects: (1) evaluating the potential replacement of older ESI shoreline data with the most recent and/or highest resolution shoreline information – using Cook Inlet as a focus area, and (2) updating shoreline use data in the Cook Inlet area with a focus on seasonal bird concentration areas.

The EMC also allocated funds in 2021 to support the “cross-walk” of ShoreZone and ESI data for serving on AOOS data portals and on NOAA’s Environmental Response Management Application (ERMA).

September 2022 Update: We’ve received a proposal for the EMC-funded cross-walk of ShoreZone and ESI data for Cook Inlet and will work with the potential contractors to finalize a scope-of-work. This project will be coordinated with the ESI projects funded by OSRI. In July, I participated in a webinar hosted by NOAA to share their plans for a Request For Proposal (RFP) to the Coastal Response and Restoration Center (CRRC) to study new indices for NOAA’s ESI product and provide feedback and was asked to participate in an estimated year-long effort to develop matrices and methods for updating ESIs nationwide.

2. *Macrocystis Kelp*

Background: *Macrocystis* spp., or Giant Kelp, is common along the west coast of the United States, including southeast Alaska, but until our ShoreZone surveys in 2002, no *Macrocystis* kelp beds had been documented in the western Gulf of Alaska. This kelp grows in thick beds very near shore and has implications for oil spill risk and oil retention, and is likely to respond to changes in sea surface temperature and circulation related to climate change.

Recent genetic analyses have led some scientists to reclassify the two species, *M. integrifolia* and *M. pyrifera*, as one species, *M. pyrifera*. In the past, they were differentiated by morphological differences, mainly in their size and holdfast shapes, though now their genetic similarity and ability to hybridize is why these taxonomists consider them different morphologies of the same species. Further genetic analyses will determine whether this becomes the widely accepted view. When we first collected samples from the newly discovered beds in the Kodiak Island Archipelago, taxonomists identified the kelp as *M. integrifolia*, which is what we then reported. However, now those same scientists refer to the kelp now as *M. pyrifera*. We will be working with them to provide tissue samples for genetic analyses, especially as the kelp appears to be spreading and establishing itself in other rocky habitat areas along the western Gulf.

Since our first reports of *Macrocystis* beds on the outer Kenai Peninsula (one small bed in Morning Cove identified during SZ surveys in 2002) and Kodiak, Afognak, and Shuyak Island (four beds identified during SZ surveys in northern and southern Kodiak Island archipelago, respectively), additional beds have been reported, including the east side of Afognak Island and near Sand Point in the Shumagin Islands, which is a western range extension.

September 2022 Update: During our outer Kenai Peninsula ShoreZone survey in June, we documented two new *Macrocystis* beds that were not there in 2002; one not far from the original small bed documented in 2002 and one in Port Dick, which is far distant from any earlier

reported bed. Most recently (last week), I received a report that there is a bed that recently established inside of Kachemak Bay. I will be documenting that and am working on developing a team and proposal to continue surveys of *Macrocystis* kelp in our areas of concern to help identify spreading patterns and develop a prediction model based on preferred habitat and environmental conditions.

Partnership development should not be difficult. In addition to EMC's interests in *Macrocystis* - understanding expansion of kelp habitat and implications for oil spill prevention, response, and impacts - there is considerable interest by others in kelp distributions due to expanding interests in kelp mariculture. So far, only two species of seaweed are being cultivated in Alaska—sugar kelp (*Saccharina latissima*) and ribbon kelp (*Alaria marginata*), but there is also interest in the potential cultivation of *Macrocystis*. And, due to the growing seaweed mariculture industry, there is a need for understanding potential impacts to other species and habitats near the farms. In October, the Exxon Valdez Oil Spill Trustees Council announced their decision to fund two projects related to mariculture in the western Gulf of Alaska: “*Social, cultural and economic assessment of kelp mariculture opportunities for coastal villages within the EVOS spill zone*” and “*Sustainable mariculture development for restoration and economic benefit in the EVOS spill area.*” Though our interest is in better shoreline habitat data for environmental risk assessments and oil spill planning and response, we will look to leverage with specific components of studies associated with those larger projects.

Physical Oceanography Program

Cook Inlet Ocean Observing and Modeling

Background: Since 1999, EMC has supported or conducted physical oceanographic research to help better understand Cook Inlet's circulation towards improving future oil spill trajectory model forecasts. Currently, our goal is to partner with other organizations and CIRCAC's PROPS committee to develop a high resolution three-dimensional on-line accessible oil spill trajectory model. To do so, it is essential to have a realistic underlying circulation model that has been developed using and tested against real observations. To support that need, over the years CIRCAC has led or supported projects deploying satellite drifter buoys, Acoustic Doppler Current Profilers (ADCP), High Frequency (HF) ocean surface current radars, current meters, and hydrographic surveys.

In 2019, the Cook Inlet Operational Forecast System (CIOFS) circulation and hydrographic model transitioned from developmental mode to operational mode after a decades-long effort by NOAA that started with deployments of current meters and Acoustic Doppler Current Profilers (ADCPs) throughout the Inlet. The model is currently running in operational model and every six hours provides forecasts for sea surface height and three-dimensional currents, temperature, and salinity based on inputs of meteorological and hydrological conditions. Its scope includes Cook Inlet and Shelikof Strait. This model can be used operationally by NOAA's Office of Restoration and Response for oil spill modeling in the event of a significant spill. At this time, CIOFS is not available for web-access or public use. As well, verification of the model needs to be conducted and in the paucity of recent oceanographic observations or real-time

measurements, a hind-cast analysis against historical data sets will help identify model strengths and weaknesses.

CIRCAC has involved in numerous recent efforts to identify and prioritize physical oceanographic and modeling needs in Cook Inlet. Most recently our activities included:

- In December 2020 we submitted a subaward 5-year proposal to the Alaska Ocean Observing System (AOOS) titled “*Cook Inlet Ocean Observing and Hydrographic Modeling to Support Oil Spill Prevention and Response*” for submission in their funding request to the national program. Unfortunately, AOOS was not funded at the level that would allow this. However, they did dedicate funds towards HF Radar deployment in Cook Inlet (more on that in the September 2022 Update below).
- In early 2021, we worked with AOOS and other partners on a proposal to the Integrated Ocean Observing System’s (IOOS) Coastal and Ocean Modeling Testbed (COMT) project. Our project team included AOOS, Axiom Data Science, NOAA, UAF, OSRI, and CIRCAC. AOOS submitted the proposal titled “*Coastal and Ocean Modeling Testbed Project: Cook Inlet Ocean Forecast Model (CIOFS): Validation, Enhancement, and Development of Applications (C-VEDA)*.” Unfortunately, this proposal was not selected for funding by IOOS, however the partners are moving forward with many of the components of the proposal through other funding sources (more below).
- CIRCAC submitted a study plan idea to BOEM for their FY 22 environmental studies plan that outlined data needs for model validation in Cook Inlet. In November 2021, BOEM released a revised FY2022 Alaska Studies Plan that included their intention to fund a “*Cook Inlet Physical Oceanography: Synthesis and Modeling*” study, based in part on our study plan submission.

September 2022 update: Members of the COMT proposal team (described above) are in continued discussions to see which components of the project we can collaboratively move forward with while still addressing our individual organizational needs. We are working to combine resources to conduct a 10- to 20-year hindcast to validate the CIOFS circulation model, identify model weaknesses and data gaps, collect additional observational data, work with NOAA to improve the model, and develop a particle trajectory model as the basis of an on-line, user-accessible oil spill trajectory model for Cook Inlet.

OSRI has committed to funding the hindcast modeling; CIRCAC is funding deployment of satellite drifters; and AOOS and CIRCAC are working with UAF to deploy a long-term paired HF Radar system in Cook Inlet. We’ve identified potential properties and are working to obtain permissions or identify other potential deployment locations.

In July, UAF submitted the proposal “*Cook Inlet Physical Oceanography Data Curation, Visualization, and Analyses*” to BOEM in response to their Request for Proposals. Co-Investigators on the proposal are from CIRCAC, AOOS, OSRI, and NOAA. We found out last week that BOEM reviewed and approved the project. This project will leverage the OSRI hindcast modeling project, our satellite drifter deployments, and the potential AOOS/UAF HF Radar deployments.

Oil Fate and Effects Programs

Marine Oil Snow in Cook Inlet

Background: Marine snow is particulate matter of organic and inorganic origin that sinks through the water column. Oiled marine snow, or marine oil snow (MOS), is the aggregation of marine snow with oil droplets. The EMC has supported research on natural marine snow formation and sedimentation in Kachemak Bay in 2018 and 2019. The research also included studies on the formation of marine snow aggregates and laboratory created marine oil snow. Our interest is in how marine snow might provide a mechanism for oil to sink from the surface to the benthic environment.

Existing oil spill fate and transport models have inputs for complex ocean currents, oil spreading/mixing, and transport, but do not include data that quantifies marine snow (MS) or marine oil snow (MOS) settling; thus, the models cannot accurately predict the transport and deposition of MOS during a spill. The Kachemak Bay studies, conducted by University of New Hampshire (UNH) graduate student Jesse Ross at the Kasitsna Bay Laboratory, led to a publication that included knowledge gained from the Cook Inlet studies and presented a way to integrate MOS formation and MOSSFA (MOS Sedimentation and Flocculent Accumulation) into oil spill planning, response, and damage assessment:

Ross, J., D. Hollander, S. Saupe, A.B. Burd, S. Gilbert, and A Quigg. 2021. *Integrating marine oil snow and MOSSFA into oil spill response and damage assessment*. Marine Pollution Bulletin, 165: 112025. <https://doi.org/10.1016/j.marpolbul.2021.112025>

Follow-up studies by new UNH graduate student, Quinn Wilkens, were planned for 2020 in Kachemak Bay, but university rules against travel that year due to COVID required a shift in focus. We worked with him to develop a study plan that allowed laboratory research in New Hampshire that was still applicable to Alaska conditions and concerns. The redesigned study included using a flume tank to measure aggregate sinking velocities in different environmental conditions using a cold water phytoplankton species common in coastal Alaska, sediments sourced from Cook Inlet, and Alaska North Slope crude. Quinn's treatments included seawater only, seawater + oil, seawater + sediment, and seawater + oil + sediment. He has yet to publish his research.

September 2022 Update: We received notification that the manuscript on the results of the 2018-2019 field and laboratory studies on Cook Inlet marine snow was accepted and finally published in April 2022:

Ross, J., N. Kinner, S. Saupe, J. Schloemer, and K. Ziervogel. 2022. *Particle Sedimentation in a Subarctic Estuary: a Sediment Trap Study over Two Productivity Seasons*. Estuaries and Coasts. <https://doi.org/10.1007/s12237-022-01069-7>

The abstract that summarizes the full manuscript is:

Sinking particulate matter of organic and inorganic origin affects elemental cycles in the water and has the potential to carry marine pollutants (e.g., spilled oil) from the ocean surface to the benthos. The aim of this study was to characterize vertical particle fluxes out of surface waters in a subarctic estuary (Cook Inlet, south-central Alaska), with a history of petroleum-related activities, providing a climatic benchmark of flux conditions that can be referenced in an event of an oil spill. A free-drifting sediment trap was used to measure sedimentation rates of total

particulate matter (TPM) at sites in the lower inlet during spring/summer 2018 and 2019. TPM fluxes (TPM_flux) ranged from 9 to 412 g m⁻² d⁻¹ with 13 to 77% of particulate organic matter in the TPM (POM_flux). Correlation analysis between TPM_flux and POM_flux demonstrated that the inorganic fraction of sinking TPM was the main driver of vertical fluxes at our sites. Flux magnitude did not follow phytoplankton biomass in surface waters as measured by in situ chlorophyll fluorescence at either the coastal or adjacent continental shelf sites. Our results demonstrate that terrestrial runoff in the Cook Inlet region, which can be highly variable at times, drives vertical particle fluxes through the water column with consequences for food supply for benthic communities as well as oil sedimentation in the event of a spill.

Additional Activities:

1. Participated as a board member at two Alaska Research Consortium (ARC) Board Meetings (June 16th and August 19th). Also working on a subcommittee to develop scope of work and contract for a workforce development project based out of the Kodiak Seafood and Marine Science Center.
2. Provided a brief summary of CIRCAC's planned activities in Cook Inlet to the spring meeting of the Kachemak Bay/Lower Cook Inlet Marine Ecosystem Workgroup.
3. Caught up on missed presentations of the ExxonMobil Oil Spill Response Knowledge Transfer Webinar series. Past webinar recordings are posted at https://www.youtube.com/playlist?list=PL5-xnKVew34ZbOgOB_EC7JXSlscXEC7BV and available for viewing if of interest.
4. Participated at an August 3rd zoom meeting for the Oil Spill Recovery Institute (OSRI) Workplan Committee to evaluate study ideas and proposals and to develop proposed FY23 budget and workplan for submission to the full OSRI board in mid-September.
5. Caught up on missed presentations of NOAA's webinar series "You don't know what you don't know." This lecture series highlights subjects related to the work of NOAA's Office of Response and Restoration (OR&R), with many having direct application to CIRCAC and our concerns. You can find out how to attend the presentations at <https://response.restoration.noaa.gov/oil-and-chemical-spills/oil-spills/orr-lecture-series-you-dont-know-what-you-dont-know>. You can also contact them at youdontknowwhatyoudontknow@noaa.gov to request access to their archived presentations.
6. On July 1, 2022, the Department of the Interior (DOI) and Bureau of Ocean Energy Management (BOEM) announced the availability of the Proposed Program for the 2023-2028 National Outer Continental Shelf Oil and Gas Leasing Program as well as the Draft Programmatic Environmental Impact Statement (Draft PEIS) for the 2023-2028 Program for public comment. BOEM also hosted a series of webinar presentations that summarized components of the proposed program and how they developed the Draft PEIS. I have downloaded the documents and the presentation materials and am reviewing them to determine whether to suggest comments be submitted to CIRCAC's Protocol Committee for submission. In the past, CIRCAC has not taken a stance for or against state or federal lease sales. Rather, we evaluate BOEM's assessments, note missing data or information, and submit comments/recommendations on draft permits for lease sale activities. For example, we might note weaknesses in oil spill risk assessment conclusions or recommend specific data collections be required as part of specific lease sale activities (e.g. seismic surveys). Documents associated with the Proposed Program for the 2023-2028 Proposed National

Outer Continental Shelf Oil and Gas Leasing Program (including the PEIS) can be found under the “What’s New” tab at <https://www.boem.gov/oil-gas-energy/national-program/national-ocs-oil-and-gas-leasing-program-2023-2028> . Handouts and Public Meeting presentation materials can be downloaded under the “Meeting Information” tab and scrolling down at the same hotlink.

7. On August 10th, I was invited by staff from BOEM’s Alaska Environmental Studies Program office to meet with the Director of BOEM, Amanda Lefton, who was visiting Alaska from Washington DC. The tour was organized by a team from the Alaska Regional Office and included participants from NOAA, CIRCAC, Center for Alaska Coastal Studies (CACS), and UAF. We had a chance to talk about our activities in Cook Inlet and hear about some of the newest research being conducted in Kachemak Bay. The tour included a boat trip across the bay to the Kastisna Bay Laboratory and demonstrations by student interns from CACS. The purpose of the gathering was to highlight how partnerships allow us to leverage assets to increase information available for future assessments and decisions.
8. On August 19th, I had the opportunity to join NOAA Administrator Dr. Rick Spinrad while he was briefly in Homer on a 10-day trip around Alaska to meet with various NOAA agencies and partnering organizations. Kris Holderied, NOAA Director of the Kasitsna Bay Laboratory, organized a small evening gathering with some of NOAA’s main partners working in Cook Inlet to meet Dr. Spinrad and his staff, including the Dr. Steve Thur, Director of NOAA’s National Center for Coastal Ocean Science.
9. In July, I had the opportunity to spend some personal time in Sitka on a boat. Since I was there during a particularly low tide series, OF COURSE I was able to collect and press some seaweed ☺.

Upcoming:

1. Oil Spill Recovery Institute (OSRI) Board Meeting, 13 September.
2. ARC Board Meeting, October.
3. NOAA ESI Committee Meeting October.
4. Due Date, comments on BOEM National OCS Oil & Gas Leasing Program, 6 October 2022
5. October 4-8, Oil Spill Science Conference organized by the Multi-Partner Research Initiative (MPRI) as parts of Canada’s national Oceans Protection Plan. The goal of MPRI is to “build a research network that brings together the best scientific expertise in oil spill research, both nationally and internationally, to advance scientific knowledge to support decision making on oil spill response and remediation strategies and to enhance Canada’s response ‘toolkit.’” The organizing committee is chaired by Dr. Kenneth Lee, the National Senior Science Advisor for Oil Spill Research, Preparedness and Response, Fisheries and Oceans Canada (DFO) and will include descriptions of planned for on-water oil spill exercises.
6. EMC Committee Meeting, 24 October.
7. November 14-30, Personal Leave
8. December 1 – CIRCAC Strategic Planning with Board of Directors, Anchorage.
9. December 2 – CIRCAC Board Meeting, Anchorage.
10. Presentations to stakeholder groups on Contaminants Database project (to be scheduled this fall with each group).