COPPER RIVER DELTA AND FLATS GEOGRAPHIC RESPONSE STRATEGY DEVELOPMENT

Report to Prince William Sound Regional Citizens' Advisory Council

May 2026

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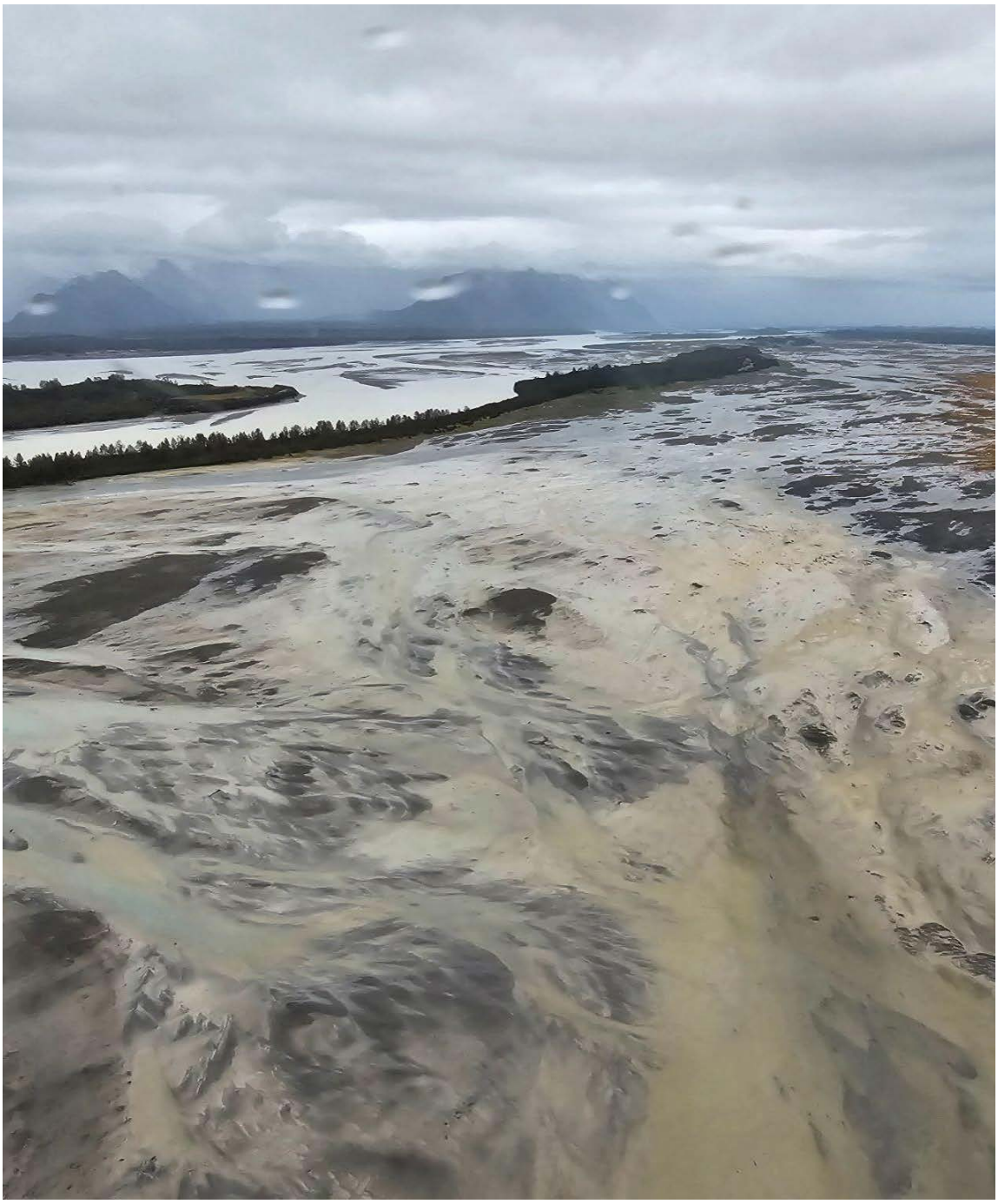
NUKA RESEARCH



CRDF Aerial Site Survey, September 11, 2025 (photo: Jeremy Robida)

The opinions expressed in this PWSRCAC-commissioned report are not necessarily those of PWSRCAC.

Contents

Acronyms

ACP	Area Contingency Plan
ADEC	Alaska Department of Environmental Conservation
CDFU	Cordova District Fishermen United
CRD	Copper River Delta (used when describing GRS zone)
CRDF	Copper River Delta and Flats (used when describing area)
ERMA	Environmental Response Management Application (NOAA)
EVOS	Exxon Valdez oil spill
GIS	Geographic information system
GPS	Global positioning system
GRS	Geographic Response Strategies
NOAA	National Oceanic and Atmospheric Administration
OSRI	Oil Spill Recovery Institute
PWS	Prince William Sound
PWS ACP	Prince William Sound Area Contingency Plan
PWSRCAC	Prince William Sound Regional Citizens' Advisory Council
SERVS	Ship Escort Response Vessel System
SSM	Site Specific Matrix
STAR	Spill Tactics for Alaska Responders
TAPS	Trans Alaska Pipeline System
USCG	U.S. Coast Guard

Executive Summary

The Prince William Sound Regional Citizens' Advisory Council (PWSRCAC) contracted Nuka Research to develop geographic response strategies (GRS) for the Copper River Delta and Flats (CRDF) area east of Prince William Sound. This area is home to numerous bird and animal species, and serves as a major bird migration route. It also has cultural and historic sites, and world-famous fisheries. It is a challenging operational area, with high energy beaches, shallow highly tidally influenced waters and channels, barrier islands, and braided river drainages.

The goal of this project was to develop approximately 10 GRS for the CRDF area. GRS are map-based plans tailored to protect pre-identified sensitive areas and/or resources from oil spill impacts. They show first responders where sensitive areas are located and recommend strategies for deploying oil spill containment and recovery tactics to protect those areas. This pre-planning can save time during the critical first few hours of an oil spill response.

A multi-agency, multijurisdictional workgroup consisting of local stakeholders, resources trustees, and regulatory agencies contributed to the GRS development process by providing subject matter expertise and local knowledge to support all phases of this work. A Steering Committee comprised of representatives from PWSRCAC, the Alaska Department of Environmental Conservation (ADEC), and the U.S. Coast Guard (USCG) guided the workgroup process.

The Steering Committee and workgroup met seven times between January 2025 and March 2026. In between meetings, PWSRCAC and Nuka Research developed interim work products for review and discussion, such as maps, draft GRS templates, tactics, and feedback from various outreach meetings. Feedback from project participants and community/public outreach meetings was overwhelmingly positive, signaling a strong interest in collaborative spill response planning.

During September 2025, site surveys and public workshops were conducted in Cordova, the community closest to CRDF. Vessel and helicopter-based surveys provided different perspectives on site conditions and access, informing the development of draft GRS. Over 20 individuals provided feedback in person during the Cordova site visits, much of which is reflected in the developed GRS Tactics Supplement.

Nine different GRS sites were assembled in total. Two are more “traditionally” structured and similar to other nearby GRS sites, in that boom is used to exclude oil from an area. The remaining sites are in the Delta and focus on free oil recovery and use of fishing vessel tender anchorages as hubs of operation. The developed Tactics Supplement provides some context into the area, response tactics, and the developed GRS. It’s envisioned that these materials will move onto ADEC’s website, where other statewide GRS information is held, after going through the Prince William Sound (PWS) Area Committee approval process.

Key takeaways from the process included:

- Recognized the importance of collaborative planning and discussing spill response plans with communities, stakeholders, and the broader response community.
- Noted renewed focus to update statewide processes for GRS approval, updates, and digitization.
- Strategies developed through this process are a collective best guess approach. It would be beneficial to test tactics and equipment and refine the logistics for operating in this challenging environment.
- Recognized the need for flexibility within the standard GRS approach to adapt tactics and strategies for challenging operating environments like CRDF.
- Noted that ongoing discrepancies in placename usage can create challenges or confusion for responders (oil spills and beyond).
- Recognized that upriver spill sources are also a concern for the CRDF; future efforts to develop inland GRS should consider these scenarios.

COPPER RIVER DELTA AND FLATS GEOGRAPHIC RESPONSE STRATEGY DEVELOPMENT

Summary Report from 2025-2026 Work Group Process

March 2026

1. Introduction and Background

Copper River Delta and Flats Area

This white paper describes the development of geographic response strategies (GRS) for the Copper River Delta and Flats (CRDF), also referred to as the Copper River Delta (CRD) GRS Zone. The Prince William Sound (PWS) vicinity is broken into four areas for GRS planning and management purposes. The adjacent and nearby Copper River Zone is included as a fifth. The inland project boundaries were established based on the Area Contingency Plans (ACP) boundaries for Inland and Prince William Sound areas. The seaward boundary shown as a straight line in Figure 1 has no regulatory basis; it encompasses a small offshore area beyond the barrier islands that delineate the transition from the CRDF to the Gulf of Alaska.

The CRDF area is characterized by unique hydrographic, geographic, ecological, cultural, and environmental characteristics. This makes it both a very high-priority protection area from potential oil spills and a very challenging operating environment for spill response. The area is a large and complex section of coastline, with many rivers and drainages that flow towards the coast, braided channels, and alluvial fans. It sees major tidal fluctuations with high sedimentation and the variable environmental conditions pose significant navigational challenges. The Copper River Delta is one of the most biologically rich areas in the country and globally significant to the conservation of biodiversity. This highly productive river system supports high value commercial, recreational, and subsistence fisheries.

The CRDF is the traditional home to the Eyak, Chugach Region People, Tlingit, and Athabascan peoples. As a result of more than 10,000 years of human history in the region, CRDF contains many important cultural and historical sites, both ancient and modern.

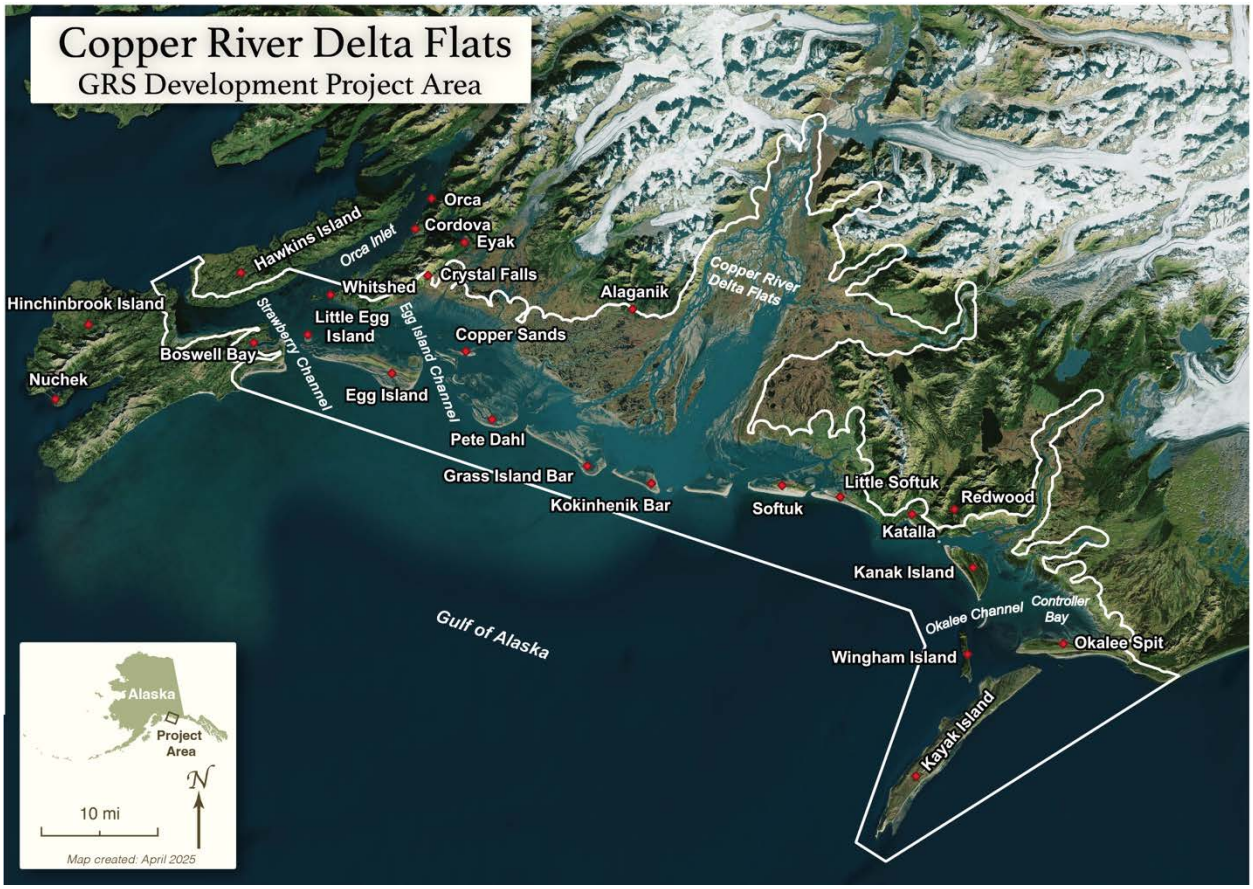


Figure 1. CRD GRS Planning Area Overview

Purpose and Approach

The goal of this project was to develop approximately 10 GRS for the CRDF area. GRS are map-based plans tailored to protect sensitive resources from oil spill impacts. They show first responders where sensitive areas are located, and recommend strategies for deploying oil spill containment and recovery tactics to protect those areas. This pre-planning can save time during the critical first few hours of an oil spill response.

Context for CRD GRS Development

The Prince William Sound Regional Citizens' Advisory Council (PWSRCAC) contracted Nuka Research to lead a multi-agency and stakeholder workgroup through a process to identify potential GRS sites, develop information about natural and cultural resource sensitivities, assist with site surveys, develop GRS strategies and tactics, and facilitate a Steering Committee and workgroup to develop a set of GRS. Completed GRS would be incorporated into the Prince William Sound Area Contingency Plan (PWS ACP) and the broader library of GRS maintained by the Alaska Department of Environmental Conservation (ADEC).

The CRD GRS zone is one of five in PWS and the only one in the region where the GRS development process has been incomplete to date. A 2022 report commissioned by PWSRCAC summarized the history of GRS development in the CRDF (Fletcher, Tostevin, and

Robertson; 2022). The report highlights past planning efforts in the region, which included the development of a 1999 Copper River Delta and Flats GRS Addendum document. This lengthy document was once a part of the PWS ACP but was removed during changes to area contingency planning architecture across Alaska circa 2018. The 2022 report recommends developing GRS in this area to fill this planning gap.

Large commercial vessels, and the local and regional fishing fleets, already pose potential spill risks to the CRDF area. Another driver for GRS development in the region is the anticipated increase in tanker traffic through PWS as a result of new oil production and transportation through the Trans Alaska Pipeline System (TAPS), anticipated to begin in mid-2026. One example of vessel risks came in April 2021, when an unladen oil tanker, which was inbound to the Valdez Marine Terminal to pick up cargo, arrived ahead of schedule and briefly moored in the Gulf of Alaska. Weather picked up causing the tanker to drag anchor, which they subsequently had trouble retrieving, prior to entering the more protected waters of PWS (Brehmer, 2021). In another example, during the CRD GRS development process in November 2025, a fishing trawler lost power and drifted offshore, nearly running aground off Kayak Island (National Fisherman, 2025). These events renewed interest in the project, and reinforced that it was appropriate to update spill response plans for this region.

It is important to recognize that in the two and a half decades since the original CRD GRS Addendum document was developed, there have been advances in vessel technologies, navigational safety systems, and spill response methods and equipment. These were also key considerations for initiating a modern GRS development process for the CRDF. Finally, there has been an increased focused on area planning in the past several years by the U.S. Coast Guard (USCG) and ADEC, as well as movement to digitize statewide GRS - additional elements that made the project timely and added momentum.

Limitations to Project Scope

In addition to vessel traffic, there are other potential oil spill sources threatening the CRDF area, including spills from local fuel storage facilities or upstream releases from any variety of sources, including from the trans-Alaska pipeline. The pipeline crosses numerous streams and waterways that feed into the CRDF, posing a credible risk scenario. However, PWSRCAC's congressional mandate to focus solely on the Valdez Marine Terminal and related tanker traffic limited the project focus to a coastal tanker spill. While the developed CRD GRS tactics may be applied or adapted for any sort of incident, or for spills that migrate into or out of the CRD zone, the workgroup project focused on a hypothetical tanker incident with oil moving towards the shore from the Gulf of Alaska and built tactics accordingly. Inland GRS, which are outside of the project scope, are discussed in Section 4 as an area for future work.

2. CRD GRS Development Process

Project Management

PWSRCAC hired Nuka Research to co-manage this process with PWSRCAC staff. Key steps to the project management work plan included:

- Scoping and establishing CRD GRS Steering Committee and workgroup within existing PWS Area Contingency Planning structures (e.g., PWS Area Committee, GRS Subcommittee), and convening regular meetings over the course of the project to develop and review materials.
- Conducting community outreach and public workshops in Cordova, and (if weather and timing allowed) conducting vessel and/or aerial field surveys to collect site data.
- Developing a set of approximately 10 GRS for the CRD zone following a process and format consistent with the wider body of Alaska GRS.

Pre-project work began with PWSRCAC staff socializing the project concept with the PWS Area Committee and GRS Subcommittee. The project was kicked off officially in January 2025, with the first of seven workgroup meetings (all held virtually). The Steering Committee met more frequently in between workgroup meetings to oversee project management, and provide technical feedback to the process and outcomes. A project website was established as work was initiation, which was maintained and updated throughout the project lifecycle. Figure 2 summarizes the project management approach and key milestones.

Figure 2. CRD GRS Development Process and Timeline

Steering Committee and Workgroup

The CRD GRS Steering Committee and workgroup met regularly between January 2025 and March 2026, seven times in total for the workgroup, and slightly frequently for the steering committee. The Steering Committee included representatives from PWSRCAC, ADEC, and USCG. The workgroup process included participation from over 30 organizations, with typical workgroup meetings involving 25-35 virtual participants, and on two occasions more than 40. Table 1 lists all participating organizations, which include Tribal, local, state, and federal governments, response organizations, industry, stakeholder organizations, and local community members.

Workshop participation was intentionally broad, to bring together as many experts, regulators, trustees, and stakeholders as possible. Because this was the first GRS development workgroup convened in Alaska in a decade or more, there was a high level of interest in engaging in the process and participation was strong throughout the project.

Table 1. Organizations that Participated in CRD GRS Workgroup

Organization	
Alaska Department of Environmental Conservation (ADEC)	Native Village of Eyak (NVE)
Alaska Department of Fish and Game (ADFG)	Noble Ocean Farms
Alaska Department of Natural Resources (ADNR) - Office of History & Archaeology	Nuka Research
ADNR - State Abatement and Impaired Lands	Oil Spill Recovery Institute (OSRI)
Bureau of Land Management (BLM)	Prince William Sound Regional Citizens' Advisory Council (PWSRCAC)
Bureau of Ocean Energy Management (BOEM)	Prince William Sound Science Center (PWSSC)
Chugach Alaska Corporation	Ship Escort Response Vessel System (SERVS)
Chugach Regional Resource Commission (CRRC)	Tatitlek Corporation
City of Cordova	Tatitlek Village
Conoco Phillips (representing PWS shippers)	U.S. Coast Guard (USCG)
Cook Inlet Regional Citizens Advisory Council (CIRCAC)	U.S. Department of Agriculture (USDA)
Copper River Watershed Project	U.S. Department of Interior (DOI)
Cordova District Fishermen United (CDFU)	U.S. Environmental Protection Agency (EPA)
Eyak Corporation	U.S. Fish and Wildlife Service (USFWS)
National Oceanic and Atmospheric Administration (NOAA)	U.S. Forest Service (USFS)
NOAA Fisheries	Weston Solutions (EPA contractor)
NOAA Sea Grant/ Alaska Sea Grant	

Table 2. CRD GRS Workgroup Meetings (2025-2026)

Meeting	Date	Purpose
1	2/18/2025	Introduce the project to all participants, discuss GRS purpose, value, and program management at broad level, solicit for additional participation in all phases of the project, and disseminate preliminary site selection information for review and input from workgroup members and their constituents.
2	3/18/2025	Introduce the Site Selection process and criteria, and discuss available resources and references suggested by workgroup members that will help inform the development of the Site Selection Matrix (SSM).
3	4/24/2025	Review project boundaries and begin populating the SSM with sensitivity information and local knowledge. NOAA's Environmental Response Management Application (ERMA) used to help guide the identification of sites for GRS development.
4	6/18/2025	Continue to populate SSM, adding in vulnerability information, and planning for community visits and workshop.
5	8/18/2025	Provide project update, discuss the upcoming community meetings and field visits in Cordova, and outline the next steps as we transition from information gathering to developing the GRS.
6	12/12/2025	Provide highlights from the September Cordova community open houses and field surveys, introduce the approach for developing GRS within the CRDF area, and review an example site, the draft CRD GRS document, and project timeline updates.
7	3/6/2025	Review the CRD GRS Tactic Supplement, discuss the GRS development process and draft GRS, and outline next steps as the project concludes.

Site Identification

The CRD GRS Steering Committee and workgroup began the process by revisiting some of the historical GRS development work that has been ongoing in Alaska since the Exxon Valdez oil spill (EVOS). The same workgroup approach that had been used since the 1990s was adapted for this project, including the process of cataloguing ecological and cultural sensitivities across the region to inform site development.

The first several workgroup meetings focused on compiling data about sensitive resources across the region, initially dividing the region into eight planning areas for the purpose of characterizing the sensitivities and vulnerabilities to oil spill impacts. A site identification matrix was compiled from Arctic ERMA, various state and federal databases, and traditional and local knowledge. Through this process, the workgroup observed that the sensitivities and vulnerabilities across the CRDF area were interconnected and complex, which made it difficult to differentiate one region from the next.

The interconnectedness of ecological and cultural sensitivities across the CRDF, combined with the practical and logistical challenges associated with vessel operations and traditional

spill response tactics in this area, led the workgroup to recognize that the CRDF area may require a different approach. While GRS tactics across most of Alaska focus on fixed booming to protect sensitive shoreline and nearshore areas, these tactics are not feasible across much of the CRD GRS zone due to the navigational challenges, tidal fluctuations, and depth limitations. There are few sites where shoreline anchoring systems could be safely deployed. This led to a different approach to GRS tactics, summarized in Section 3.

Public Outreach

In September 2025, PWSRCAC and Nuka Research organized a series of stakeholder and public outreach workshops to share project information and gather feedback.[1] Two public meetings were held at the Cordova Center on September 9 and 10, to maximize potential attendance around fishing openers. The workshops were structured informally using an open house format to allow for drop-in participation. Appendix A is a flyer that was distributed to advertise the workshops.

In addition to the public open houses, meetings were conducted with individuals from SERVS, CDFU, City of Cordova, OSRI, and the Copper River Watershed Project. The focused time spent in Cordova meeting with key local experts and stakeholders, and engaging with the community both formally and informally, was extremely valuable to promoting awareness of the work and soliciting feedback from a wide variety of local interests. Section 4 discusses some of the key takeaways from this process.

Field Surveys

In September 2025, field surveys were conducted from a combination of vessel and helicopter platforms. On September 9, vessel-based surveys were conducted from a chartered bowpicker operated by an experienced CRDF commercial fisher and charter captain. Over approximately 8 hours, the team surveyed the western CRDF as far as Kokinhenik, utilizing the navigational channels to transit the flats on a low/rising tide in the morning and returning at a higher tide where the Flats could be navigated outside of the narrow mud channels.

On September 11, an aerial survey was conducted by helicopter. The team flew over most of the CRDF, concentrating on areas further East than had been seen via vessel days prior, all the way out to the northern tip of Kayak Island.

Figure 3 shows the global positioning system (GPS) track lines for the vessel (blue) and helicopter (pink) site surveys. The site survey process was a critical information-gathering step for developing tactical approaches to the CRD GRS, given the unique navigational challenges involved in accessing the area. Figure 4 is an aerial overflight image showing one of many braided channels that flow into this area of Coastline.

[1] ADEC and USCG were invited to participate in the outreach meetings and field surveys in Cordova but were unable to send representative for various reasons.

Figure 3. GPS track lines from helicopter and vessel based site surveys (September 2025)

Figure 4. One of many braided channels flowing into the Delta (credit Jeremy Robida)

Key Themes from Community Outreach and Site Surveys

Several key themes emerged from the Cordova public workshops, site surveys, and side meetings with local knowledge holders. These shaped the GRS tactics and approach described in Section 3 of this report.

- **Prevention will always be a top priority.** Because of the challenges in mounting an on-water spill response in the CRDF, stakeholders and regulators recognize that prevention is a top priority, to keep oil out of the system altogether. The CRD GRS project improves planning and preparedness, but the best scenario is one where no oil spill occurs.
- **CRDF is a unique location and environment,** requiring some adjustments to typical GRS fixed booming tactics, which are only appropriate for a small portion of the CRDF area.
- **There is a strong interest in GRS development** across a diverse range of experts and stakeholders. Community and public outreach generated a high level of interest in co-developing plans to protect high value sensitivities in the CRDF.
- **Local dedication, experience, and knowledge are fundamental to successful GRS development and deployment in the CRDF.** Local knowledge was critical to planning for site visits, and it will be equally important to deploy GRS or mount any sort of response in the area. The local fishing fleet is expert at assessing on-scene conditions and determining the options for safe navigation (or for no-go decisions when conditions are not favorable). The proximity to Alyeska/SERVS and ongoing participation of many Cordova vessels in the SERVS' contracted fishing vessel fleet, with its annual training program, has created a much higher level of oil spill response literacy and deployment experience than was the case 25 years ago.
- **New technologies enhance safety and create new opportunities.** Over the last 25 years, there have been improvements to satellite navigation, vessel design, and oil spill tracking/remote sensing that may enhance our ability to mount a spill response. Examples include: real-time observational weather data, annual CRDF-specific navigation maps, jet drives that allow vessels to operate even with very limited draft, enhanced cell and radio coverage, and the use of drones and other new technologies to track oil slicks and direct responders.
- **Oil spill response in the CRDF is a matter of incremental gains.** The reality of the CRDF operating environment will limit the effectiveness of oil spill containment and recovery systems. For most of the CRD GRS zone, fixed booming tactics to exclude or divert oil from sensitive sites is not feasible. Instead, the focus of response is on removing as much floating oil from the system as possible, recognizing that once oil reaches the CRDF, it poses a risk to the entire ecosystem. Even incremental reductions to the amount of oil in the system may reduce adverse impacts.

3. CRD Zone GRS and Tactical Supplement

Building GRS

GRS are site-specific spill response tactical plans that pre-identify strategies and tactics to protect pre-identified sensitive areas from oil spill impacts. GRS have been developed in Alaska since the 1990s, and there are currently 700+ GRS for coastal sites statewide.

GRS development in Alaska predated the widespread use of geographic information systems (GIS) software applications. ADEC has been engaged in a multi-year effort to digitize and modernize the current library of GRS. During the time that the CRD GRS workgroup was active, ADEC was still converting their GRS and fine-tuning the layout and design process. This timing created some complications for drafting the workgroup developed CRD GRS, as there was not a finalized template to readily populate. An interim solution was developed to balance the need to ensure that these plans are available to responders as soon as possible, while also allowing ADEC to update the contents in the future, to conform with the emerging statewide protocols.

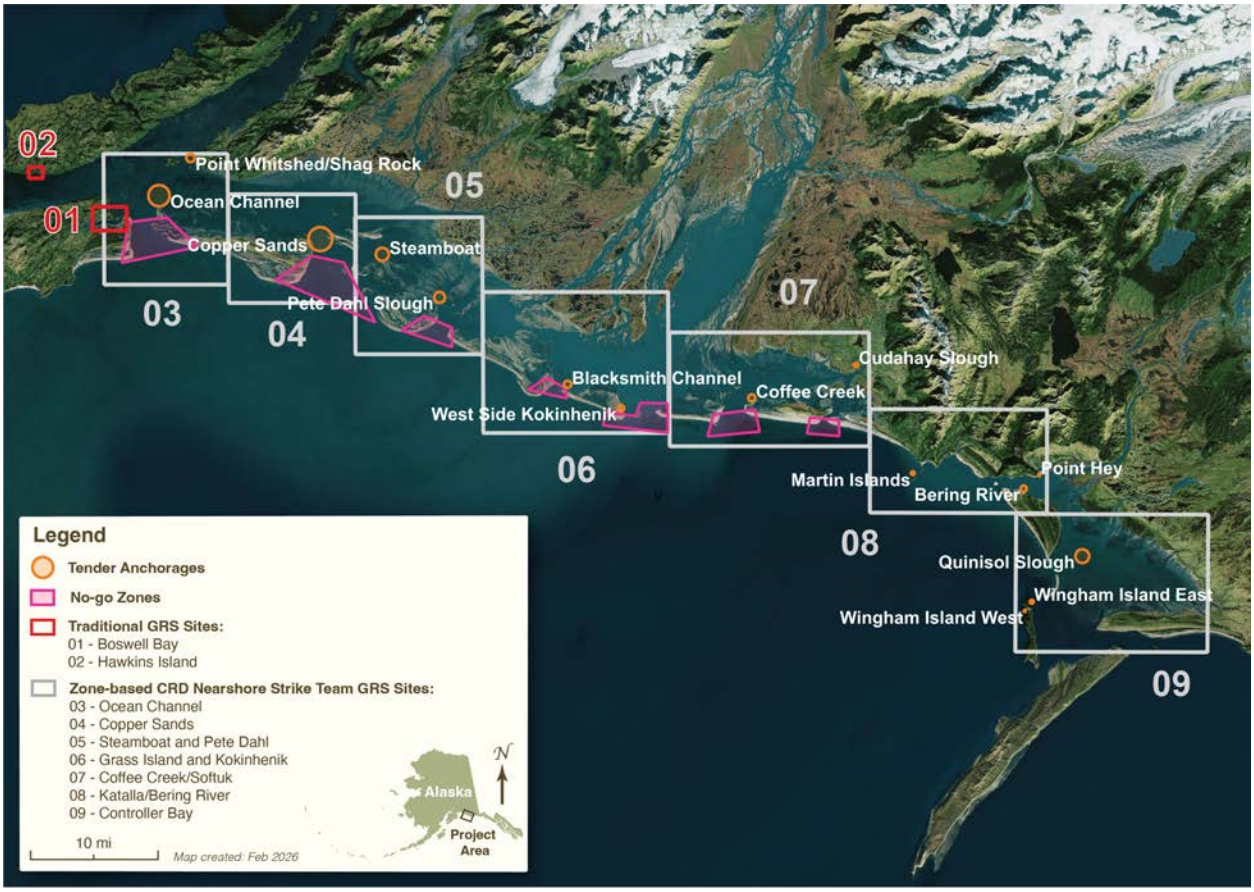


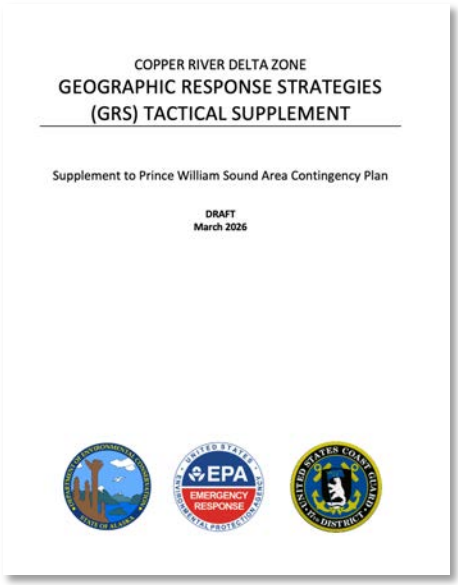
Figure 5. CRD GRS site boundaries

Figure 5 shows the nine GRS sites that were developed for the CRDF. Sites 1 and 2 are "conventional" GRS, with fixed booming strategies for sites near Cordova. The remaining 7

sites follow a different approach based on feedback from the workgroup, public workshops, and site surveys.

CRD GRS Tactical Supplement

The GRS development process highlighted the unique considerations for mounting a response in the CRDF. Navigational channels across the flats are narrow and tide-dependent, and channel markers are reset each season, only remaining in the water during fishing seasons (May to October). During fishing openers, tender vessels (larger vessels that consolidate fish from other boats and taxi it to processors) typically anchor in commonly known and used anchorage areas that are protected from prevailing weather with adequate water depth throughout the tide cycle. A similar approach can be used to deploy GRS nearshore free oil recovery tactics. Commonly used tender anchorages are shown in Figure 5 as orange circles. Figure 6 shows a vessel anchored behind a barrier island, similar to where a tender would sit, in the anchorage labeled Copper Sands in Figure 5.


COPPER RIVER DELTA ZONE
GEOGRAPHIC RESPONSE STRATEGIES
(GRS) TACTICAL SUPPLEMENT

Supplement to Prince William Sound Area Contingency Plan

DRAFT
March 2026

Figure 6. Vessel at Copper Sands tender anchorage (credit Jeremy Robida)

In addition to the tender anchorages, Figure 5 also shows purple polygons labeled as “no-go” zones. The no-go zones extend from the bar areas in between barrier islands out into the surf zone along barrier beaches. Navigation may be challenging or unsafe in these areas due to the confluence of river outflow, waves, and ocean currents. On-water free oil recovery should focus on the areas inside the no-go zones (nearshore tactics) or the ocean areas beyond the no-go zones (open water tactics). Figure 7 is an aerial view of a no-go zone in front of a barrier island. The surf zone is unsafe for nearshore spill response tactics.

Figure 7. Aerial view of "no-go" zone (credit Jeremy Robida)

Tender-Based Nearshore Free Oil Recovery Tactic

The Spill Tactics for Alaska Responders (STAR) Manual provides detailed direction on the resourcing and deployment of a typical nearshore free-oil recovery strike team, as shown in Figure 8. The CRD GRS tactics modify this configuration, substituting the mini barges shown alongside each skimming tender vessel with a deck-loaded storage tank (such as an IBC tank, 55-gallon drum, or bladder of smaller volume, etc.) to avoid towing a laden barge through the depth-limited and narrow channels of the CRD.

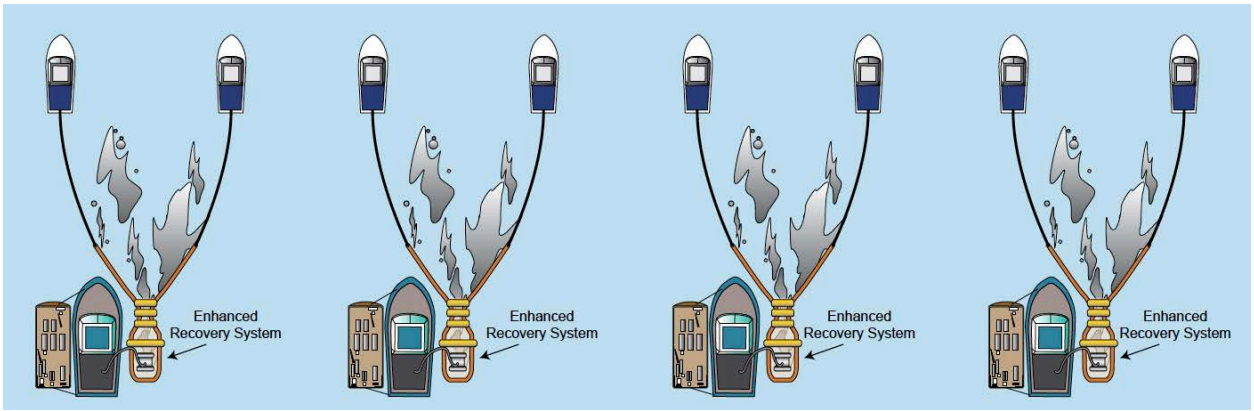


Figure 8. Typical Nearshore Free Oil Recovery Strike Team (STAR Manual)

Next Steps for CRD GRS

Upon completion of the GRS development, the plans will be moved out from the GRS development workgroup for review and approval by the PWS ACP and GRS Subcommittee. The final GRS will be incorporated with the rest of the statewide catalogue and housed on the ADEC website.

Throughout the GRS development process, participants noted how these strategies should ideally be tested and refined. This is particularly important for the tender-based nearshore free oil recovery tactics that form the basis of sites 3 through 9.

4. Observations and Recommendations

The CRD GRS workgroup process was the first large-scale workgroup convened to develop new GRS in over a decade. Participants were generally very enthusiastic about the value of collaborative planning across resource trustees, regulators, the response community, the fishing community, and local stakeholders. The project is a good example of how area planning can engage local stakeholders in issues that concern them and in areas they are subject matter experts. Several key themes emerged that are worth capturing for future PWSRCAC work, and for the benefit of the Steering Committee and workgroup discussions that went beyond the GRS themselves.

Collaborative Oil Spill Response Planning

The CRD GRS followed a participatory workgroup process that was similar to past projects in Alaska and reinforced the importance of bringing people together to do this type of planning work. The process of "socializing" GRS to gain broader public and community awareness of the pre-planning for oil spills was viewed as a positive value on many levels.

Throughout the project, there was a high level of interest from local organizations and individuals in Cordova, reinforcing the importance of linking planning work to the people and communities on the ground, and on the water, where these plans apply.

Statewide GRS Development and Approval Process

Building the CRDF GRS overlapped with ADEC's ongoing GRS digitization process, which is being developed in real time. This brought up a variety of questions the Steering Committee, and ADEC in particular, needed to address. It also highlighted that a structured and transparent process is needed for GRS development, approval, and the incorporation of updates, to keep this large body of work accessible and relevant. For example, an effort to define how a suggested GRS update gets approved, following a training exercise, is currently underway. Also, since no new GRS have been created for some time, the approval process of new GRS by a respective Area Committee is new to many, if not all, of those involved on the committees. The CRDF GRS development process created some urgency to resolve these issues while also providing an opportunity to work through challenges and solutions.

Testing and Exercising GRS

During the GRS development process, and particularly the in-community workshops and survey work, there was strong support for field deployments to test some of the concepts in the CRD zone, to fine tune response strategies, and to evaluate new or novel technologies that are appropriate for the CRDF. It was noted several times that the CRDF is a much different operating environment than the rest of PWS, and that some of the large equipment sets that make sense for incidents in other parts of the Sound may not work in the CRD zone. Locals with experience in fishing and spill response recommended testing small buster systems (e.g., River Buster) to support the tender-based nearshore response teams. The logistics associated with deck-loading a temporary storage device could also be tested. Future exercises could seek to refine the timing required to deploy both a tender and a set of nearshore free oil recovery strike teams at various tide cycles.

Incorporating Unique Regional Considerations into Standardized GRS

One of the early challenges to developing a set of GRS for the CRDF stemmed from the feasibility of anchoring or fixing shoreside booming arrays in this area. Cordova fishers suggested that given the significant tidal shifts and the large volume of water moving, it would be difficult or even unsafe to affix boom to the shoreline for most of the region. Fishers similarly suggested the larger aluminum, mini and micro barges, used for temporary fluid storage, that many are familiar with through the SERVS contracted vessel program, would be challenging, too.

These conversations led to the rationale that response equipment generally needs to be smaller, as supplies would need to be deck loaded and transported to the area in that fashion, versus towed. It also led to the idea that fishing vessel tender anchorages, where there is generally enough water to operate regardless of tide cycle, could serve as response hubs for small scale free oil recovery. The CRD GRS Tactics Supplement was developed to explain these tactics and other unique regional information relevant to both incident planning functions and actual response. Several workgroup participants noted that a similar Tactics Supplement might be a useful addition to other GRS zones in Alaska. This zone-based approach may also be transferrable to similar glacial river systems.

Charts, Maps, and Navigation

Nautical charges and topographic maps across Alaska rely on placenames that originate from various sources. These placenames do not always match up with local usage, a problem which is not unique to this area or project. An example of this in the CRDF area was “Strawberry Channel,” which is a name that locals use for a different place than what shows on the NOAA nautical chart. There were also variations on spelling of “Kokenhenik” across sources, though most fishers would simply say “Koke.” The Tactics Supplement discusses this problem, and points to locally made maps, which most fishers in the CRDF are using, as being the best source of locally used names.

Another issue that was identified through this planning effort is the seasonality of channel markers in the CRDF. A mix of USCG and private aids to navigation mark the primary channels for navigating across the CRDF. However, these are all removed once the fishing season concludes, so channels are not marked from October to May. Even with the channel markers in place, navigation requires local knowledge and experience. If a spill were to occur during the off-season, it would be even more challenging to transit this area.

Upriver Spill Sources

The scope of this work was limited by PWSRCAC's mandate to focus on tanker traffic moving through the region, not inland or pipeline issues, and a hypothetical incident scenario that results in oil migrating into the CRDF area. However, there are credible upstream spill risks, including but not limited to TAPS stream crossings. The CRDF GRS were developed primarily to address oil that enters the system from marine waters, but it's likely tactics and concepts could be adapted to spills from other sources that reach the Delta and Flats.

This GRS project did not contemplate tactics, such as fixed booming upstream, to contain oil before it reaches the delta and flats. Inland GRS development should be considered a priority for the Inland Area Committee and a potential focus of future work.

5. References

Brehmer, E. (2021, May 13). Mishap highlights growing foreign-flagged oil tanker traffic in Alaska. Alaska Daily News. https://www.adn.com/business-economy/energy/2021/05/13/mishap-highlights-growing-foreign-flagged-oil-tanker-traffic-in-alaska/

Fletcher, S., B. Tostevin, and T. Robertson (2022, March). Geographic Response Planning for the Copper River Delta and Flats. Report to PWSRCAC.

National Fisherman (2025, November 9). US fishing vessel drifts for days after dual engine failures. https://www.nationalfisherman.com/us-fishing-vessel-drifts-for-days-after-dual-engine-failures

Appendix A: Open House Flyer

OIL SPILL RESPONSE COMMUNITY OPEN HOUSE

Tuesday, September 9, 3:00 - 5:00 PM

Wednesday, September 10, 10:00 AM - Noon

Cordova Center, Education Room

What's Happening?
Join this Prince William Sound Regional Citizens' Advisory Council (PWSRCAC) led effort to help improve oil spill response planning in the Copper River Delta & Flats area. We will be discussing the development of geographically specific oil spill response strategies (GRS) for this ecologically sensitive and logistically challenging area. We are seeking input and feedback from fishermen and other locals who are familiar with this area.

Can't Attend?
If you or your organization cannot make the open house but would like to provide feedback, please contact Jeremy Robida at jeremy.robida@pwsrcac.org

Who Is PWSRCAC?
The PWSRCAC was established following the Exxon Valdez oil spill as a federally mandated, independent nonprofit corporation dedicated to promoting the environmentally safe operation of the Valdez Marine Terminal and associated tankers. PWSRCAC's 19-member Board represents communities affected by the 1989 spill, as well as fishing, aquaculture, Alaska Native, recreation, tourism, and environmental groups. In Cordova, the City and CDFU hold the local seats.