

Strategic Preparedness and Communication Framework for Marine Oil Spills: Alaska Region Coastal Parks

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Abstract

Enhanced interagency information-sharing protocols during marine oil spill response exercises help ensure that the National Park Service (NPS) coastal parks in Alaska fulfill their legal mandate as a natural resource Trustee under the Oil Pollution Act of 1990 (OPA 90) and the National Contingency Plan 40 C.F.R §§ 300.1 - 300.3. In collaboration with the U.S. Coast Guard (USCG) and the Alaska Department of Environmental Conservation (ADEC), this paper outlines NPS's role in an interagency response framework designed to clarify responsibilities and improve readiness across 11 park units specific to impacts of coastlines and the marine environment. Emphasizing early-stage communication planning, the approach strengthens legal compliance, staff preparedness, and rapid coordination to protect ecologically and culturally sensitive areas. NPS personnel play a critical role during spills threatening park coastlines, including participation in Unified Command, timely sharing of habitat data, support for environmental assessments, and collaboration with Trustee agencies on Natural Resource Damage Assessments (NRDA). While each incident varies in scale and scope, we present a flexible protocol highlighting the key steps and potential roles NPS may undertake. By fostering communication planning and strong partnerships, NPS ensures effective collaboration in protecting Alaska's national park coastlines during marine oil spill emergencies. We present this summary reference document we list all relevant Codes of Federal Regulations (CFR) under the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) that involve or apply to the National Park Service, outline Alaska coastal National Park Service involvement in a marine spill during the first 72 hours, and outline recommended improvements to oil spill preparedness for the Alaska's coastal parks.

Introduction

Marine vessel traffic has been steadily increasing across Alaska's coastal waters, driven in part by the ongoing reduction in sea ice extent and a lengthening operational season for shipping and resource extraction. Between 2015 and 2020, vessel traffic in the northern Bering Sea—including tanker, cargo, and fishing vessels—increased by 58% (Kapsar, 2022) and cruise ships in Alaska have increased by 35.8% from 2019-2023 (CLIA, 2024).

This rise in vessel activity introduces a corresponding increase in the risk of marine oil spills, particularly in ecologically sensitive and logistically challenging environments. Many of Alaska's remote coastal areas, including those managed by the National Park Service (NPS), contain critical marine habitats that are highly vulnerable to contamination.

Recognizing apparent oil spill risk to remote coastlines in Alaska, the NPS partnered with Axiom to publish an oil spill vulnerability assessment for coastal regions adjacent to the Bering and Chukchi Seas, available through the Alaska Ocean Observing System (AOOS). These assessments involve simulating vessel drift under various oceanographic and meteorological conditions, estimating the probability of vessel grounding

and oil release, and evaluating coastal exposure risk. Findings indicate that spill risk peaks during late summer through fall, when vessel activity is still high but weather conditions begin to deteriorate (AOOS, Bering Sea Drift and Spill Project).

With over 3,600 miles of NPS-managed coastline and 11 coastal parks across Alaska, oil spill vulnerability is an urgent concern for the agency. Specific high-risk locations include Cape Krusenstern National Monument and Bering Land Bridge National Preserve—particularly the Wales area, where vital lagoon habitats could be severely impacted. While spill risk remains elevated in Cook Inlet, projected beach and shoreline contamination risk is comparatively lower for Kenai Fjords, Katmai National Park and Preserve, and Aniakchak National Monument and Preserve. Cruise ship traffic is increasing in southeast Alaska (CLIA, 2012, CLIA 2024) and there is potential for significant negative impacts to Sitka National Historic Park, Klondike Goldrush National Historical Park and Glacier Bay National Park and Preserve.

Responding effectively to oil spills in Alaska presents unique challenges: vast geographic distances, limited infrastructure, severe weather, and limited real-time environmental data hinder rapid mobilization. In such contexts, oil recovery success is heavily dependent on early detection, efficient information sharing, and rapid deployment of response assets.

Despite these operational hurdles, the National Park Service has a legal and regulatory obligation to contribute to oil spill response efforts. As a natural resource **Trustee** under the **Oil Pollution Act of 1990 (OPA 90)**, the **National Contingency Plan (NCP; 40 C.F.R. 300.1-300.3)** and the **Alaska Regional Contingency Plan**, the NPS is responsible for protecting park resources and coordinating with lead response agencies (e.g. US Coast Guard) during marine contamination events ranging from moderate (spills that require specialized response and may involve a hazmat team) to catastrophic (spills with volumes greater than 1 million barrels (MMbbl)). This stewardship obligation is rooted in the NPS mission to preserve natural and cultural resources for the enjoyment of current and future generations (54 U.S.C. § 100101). It's important to note that the State of Alaska Department of Natural Resources (ADNR) governs waters within its borders and within 3 miles of the shoreline up to the tidal Mean High-Water Line (defined by 11 AAC 53.900(15)), except for Glacier Bay National Park & Preserve under PL 104 - 333. But under true stewardship and in support of coastal regions, ADNR and NPS are closely tied in management policies with contaminated coastal regions under the National Park Service Management Policy (MP) 1.4.7 Decision-making Requirements to Identify and Avoid Impairments and MP 1.4.7.1 Unacceptable Impacts.

While the NPS is not a lead agency in oil spill response, its contributions are crucial. Spill response roles, authorities, and plans are documented in regional and area contingency plans. However, the complexity of Alaska's response landscape—and the scale of potential incidents—necessitates clarity in how park personnel can support broader efforts with confidence and purpose.

Purpose

This paper aims to clarify the National Park Service's role specifically in marine oil spill response in Alaska, providing park personnel with a better understanding of their responsibilities and potential contributions in protecting coastal resources. We outline the general response framework following a marine spill, highlight scenarios in which NPS involvement is essential, and recommend tools and strategies to enhance interagency coordination, communication, and data sharing.

The **National Contingency Plan (NCP)** is the federal government's formal plan for responding to oil spills and hazardous substance releases. The **National Park Service (NPS)** plays a role in this plan as a natural resource trustee and as a land management agency when national parks or other NPS-managed lands are affected.

Here are the relevant **Codes of Federal Regulations (CFR)** under the **National Oil and Hazardous Substances Pollution Contingency Plan (NCP)** that involve or apply to the **National Park Service**:

1. 40 CFR Part 300 – National Oil and Hazardous Substances Pollution Contingency Plan

This is the primary regulation under the Clean Water Act and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund). It establishes procedures for responding to oil spills and hazardous substance releases.

Key Sections Involving the NPS:

§ 300.100 – Purpose and objectives

- Describes federal agency responsibilities in environmental emergencies.
- NPS, as part of the **Department of the Interior (DOI)**, has trustee responsibilities for **natural resource protection and restoration**.

§ 300.170 – Federal agency participation

- Lists federal agencies and their responsibilities.
- NPS, via the DOI, is designated to:
 - Provide **natural resource damage assessment (NRDA)** expertise.
 - Assist with **mapping sensitive environments**.
 - Support **response efforts on NPS lands**.

§ 300.600 – Designation of federal trustees

- Officially names federal agencies (including NPS under DOI) as **trustees for natural resources**.
- Trustees assess damages and work toward restoration after spills.

§ 300.615 – Natural resource trustees

- Describes the trustee role during and after a response.
- Trustees (including NPS) participate in:
 - Coordinating with the On-Scene Coordinator (OSC).
 - Collecting data and samples.
 - Conducting damage assessments under the **Natural Resource Damage Assessment (NRDA)** process.

§ 300.105 – General organizational concepts

- Defines the **National Response System**, including:

- The **National Response Team (NRT)**
- **Regional Response Teams (RRTs)** — where NPS/DOI often participate.

2. 43 CFR Part 11 – Natural Resource Damage Assessments

This is under the authority of the DOI and outlines the process for **NRDA**. While not technically part of the NCP, it's tightly linked and used by agencies like NPS when responding to oil spills or chemical releases affecting parklands.

Summary of NPS Roles under the NCP:

- **Trustee for natural resources** on NPS-managed lands.
- Participate in **spill response planning and exercises** (e.g., contingency plans, Area Committees).
- **Coordinate with On-Scene Coordinators** during actual spill events.
- **Assess and restore injured park ecosystems** via NRDA.
- **Protect cultural and historical resources**, including those under the National Historic Preservation Act.

First 48–72 Hours of an Oil Spill in Alaska's Marine Nearshore

Overview

An oil spill in Alaska's marine nearshore —such as in Prince William Sound, the Bering Sea coast, or near coastal park units—may immediately threaten sensitive ecosystems, subsistence communities, and tourism. The first 2–3 days are critical for minimizing ecological damage and protecting public health. The timeline below shows the general flow of events during a response to a large incident (e.g., vessel grounding, pipeline rupture, or offshore platform failure), but the actual course of action may differ during an incident.  **Text indicating NPS involvement in GREEN.**

Hour 0–12: Initial Incident and Reporting

- **Spill Occurrence:** Typically, from vessel grounding, pipeline rupture, or offshore platform failure.
- **Immediate Impacts:**
 - Visible slick on water surface.
 - Strong odor; risk of Volatile Organic Compounds (VOC) exposure.
 - Initial wildlife oiling or mortality (e.g., seabirds, sea otters).
- **Reporting:**
 - Spill observed by vessel crew, facility staff, or local communities, or automated detection of spill from vessels or facilities.

-  **Reported to Alaska DEC, and National Response Center (USCG).** NPS personnel should call the NRC phone number (800-424-8802) in the event of any kind of oil or hazardous substance release.
 -  **NPS notified if a park unit or nearby coastline is at risk** (notification may be received from U.S. Department of the Interior, Office of Environmental Policy and Compliance, ADEC, or USCG)
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Hour 12–24: Emergency Response Activation

- **Unified Command Established:**
 - U.S. Coast Guard (Federal On-Scene Coordinator)
 - Alaska Department of Environmental Conservation (State On-Scene Coordinator)
 - Responsible Party (e.g., shipping company)
 -  Natural Resource Trustees (e.g., **NPS**, NOAA, USFWS)
 - During a federal response in a park, NPS coordinates with the USCG's Federal On-Scene Coordinator Representative
 - **(contacts: alaskarrt.org/LinkPage?site=arrt&page=members)**, who are responsible for contracting out an OSRO as well as liaison with stakeholders.
 - **Joint Information Center (JIC)** set up for public communications.
 - **Initial Public Warnings Issued:**
 - Local communities alerted via VHF radio, public alerts, or community liaisons.
 - Advisories for fisheries closures and beach access.
 - **Initial Aerial and Satellite Surveillance:**
 - Determines spill size, spread, and direction. For large spills, aerial surveillance will be ongoing throughout the response.  **If feasible, an NPS observer (familiar with the area) can serve as a benefit to aerial surveillance.**
 - **Data Sharing: Sensitive Habitats / Critical Marine Habitat at Risk:**
 - Consolidate and share environmental/natural and cultural resource data
 -  **Intertidal zones, kelp forests, and eelgrass beds begin to show oiling (NPS critical data sharing).**
 -  **Subsistence harvesting areas may be contaminated (NPS critical data sharing).**
 - **Initial Deployment of Spill Removal Equipment:**
 - Focus on protecting high-priority areas (estuaries, salmon streams, nesting sites).
 - **Wildlife Response:**
 - Observations of oiled seabirds and marine mammals reported to UC.
 - Wildlife response teams mobilized.  **Depending on trained personnel and location, NPS personnel may assist.**
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Hour 24–48: Escalation and Triage

- **Weather Conditions Become Critical:**
 - High winds, ice, or tides can hamper containment and spread oil rapidly.
 - **Community Coordination:**
 - Tribal and village leaders engaged for input and logistics.
 - Air and water advisories shared through local channels.
 - **Ongoing Containment and Control Efforts:**
 - More vessels and equipment arrive.
 - Sorbent materials and dispersants (if permitted) are deployed.
 - **Environmental Sampling Initiated:**
 -  **Water, sediment, and tissue samples collected for damage assessment.**
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Hour 48+: Continued Response

- **Media and Public Attention:**
 - Press conferences, national coverage.
 -  **NPS and other agencies provide daily updates.**
 - **Environmental Assessment Teams in Field:**
 -  **Document shoreline oiling, wildlife impacts.**
 -  **Map sensitive resources for protection prioritization.**
 - **Response Priorities:**
 - Maintain booms around resources at risk.
 - Continue oil removal.
 - Continue wildlife response activities (e.g., wildlife reconnaissance, hazing, capture, stabilization, and rehabilitation).
 - Address human health and safety in coastal communities.
 - Establish cleanup endpoints.
 - **NPS and Partners (i.e.; NOAA, USCG) begin Natural Resource Damage Assessment (NRDA):**
 -  **Set baseline for long-term recovery and legal restitution on NPS Lands.**
 - **Coordination of NRDA efforts with Unified Command (UC).**
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Key Challenges in Alaska Context

- Remote locations and limited infrastructure.
- Severity of storms and limited daylight (winter months).
- Cold temperatures slow biodegradation of oil.
- Ice conditions may prevent full deployment of containment booms.
- Communication difficulties in small, isolated communities.
- Culturally sensitive sites and subsistence practices must be considered.

Moving Forward

Effective oil spill response in Alaska requires not only coordination among agencies but also the *integration of data systems and preparedness strategies* tailored to the unique challenges of remote coastal parks. Currently, agency data archives are fragmented across multiple platforms and databases. Consolidating marine natural resource data—and, where appropriate, cultural resource data—into a unified, accessible system would significantly improve response time and support more informed prioritization of mitigation measures, especially when resources are limited.

Establishing clear, NPS-specific *communication plans that outline staff roles and responsibilities* is critical. In Alaska's coastal parks, these plans ensure each employee understands their part in supporting spill response efforts. Clear expectations reduce confusion, build trust, and empower staff to contribute constructively during high-stress events, ultimately enhancing both safety and mission effectiveness.

Routine *practice communication drills* that incorporate realistic spill scenarios are vital for building readiness and confidence. These exercises provide safe opportunities for staff to engage with communication protocols and data-sharing tools, evaluate response systems, and identify areas for improvement without the pressure of real-world consequences. Scenario-based training not only improves individual and team performance but also fosters a culture of learning and preparedness across park units.

Together, these strategies position the National Park Service to act as a more effective and responsive partner in protecting Alaska's coastline from marine oil spills—fulfilling its legal obligations as a Trustee and its broader mission to preserve natural and cultural resources for future generations.

Planned Actions and Publications

1. Enhance Data Consolidation and Information Sharing

Improve the systems and processes for consolidating and sharing critical environmental, logistical, and operational data to facilitate more efficient access by the U.S. Coast Guard (USCG), Oil Spill Response Organizations (OSROs), and other relevant stakeholders. This effort includes the integration of geospatial data, incident histories, and resource availability into a centralized and accessible platform, ensuring that all parties have the most accurate and up-to-date information to support decision-making and response coordination.

2. Develop Comprehensive Communication Plans

Create and implement tailored communication strategies for the regional office as well as for each individual coastal park within the Alaska region. These plans will outline internal and external communication protocols, key contacts, messaging templates, and coordination frameworks to ensure clear, timely, and consistent information flow during both routine operations and emergency response scenarios.

3. Establish a Targeted Training and Exercise Program

Design and implement a structured training program focusing on tabletop exercises and practice drills aimed at improving communication workflows and clearly defining roles and responsibilities within the National Park Service (NPS). This program will emphasize the NPS's function as a support agency and federal Trustee in incident response scenarios. Training activities will simulate real-world situations to build institutional readiness, enhance interagency coordination, and promote a culture of continuous improvement in emergency preparedness.

Summary

Here we outline the National Park Service (NPS) Alaska Region's role as a natural resource Trustee under federal oil spill response regulations, emphasizing early communication and coordination during coastal emergencies. We highlight interagency collaboration with the U.S. Coast Guard, Alaska Department of Environmental Conservation, and others to protect 11 coastal park units from oil spill threats. We provide a general overview for NPS involvement in the first 72 hours of a spill, including habitat data sharing, NRDA support, and participation in Unified Command. To enhance readiness and coastal park resource stewardship, next steps include efforts towards improved data integration, communication planning, and targeted training exercises across Alaska's coastal parks.

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