Exxon Valdez Oil Spill
General Restoration Project Final Report

Kenai Peninsula Streambank Rehabilitation and Protection Project

Exxon Valdez Oil Spill Trustee Council Project 26230602
Final Report

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Abstract

From 2023 to 2025, ADF&G received interest from 66 landowners across the Kenai, Kasilof, and Moose Rivers, leading to 24 funded or supported streambank protection projects. Through this work, the grant enabled the removal of 832 feet of structures harmful to juvenile salmon, the rehabilitation of 1,707 feet of degraded streambank, and the

conservation of 3,205 feet of healthy habitat. Conservation goals were met using cabled spruce trees, rootwads, and elevated light-penetrating walkways, which together protected over 6,000 square feet of streambank while addressing landowner concerns about erosion linked to vegetation loss and boat wakes. Thirteen projects restored habitat using brush layering, trenched willows, native plants, and vegetated mats, with an average of 77 feet of revegetation per site—significant given typical 100-foot property widths. Between 3 two-day workshops and a habitat symposium, 148 participants learned about streambank rehabilitation and protection. Monitoring efforts covered 10 previously completed sites, documenting conditions and advising landowners when needed. All monitored and proposed sites were entered into a database. The project also printed and distributed an updated revision of the Streambank Revegetation and Protection Guide for Alaska.

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Objectives

The goal of this project was to conserve, sustain, restore, and rehabilitate fish habitat along water bodies of the Kenai Peninsula using education and outreach, restoration workshops, and financial incentives for rehabilitation projects on both private and public lands. "Conserve and sustain" is defined as protecting what is already on site, while "rehabilitate or restore" is defined as returning the area to a natural or near natural state. The goal was comprised of the following objectives:

- Objective One: Conserve and sustain at least 2,000 feet of healthy nearshore Pacific salmonid habitat and riparian vegetation.
- Objective Two: Rehabilitate or restore at least 2,000 feet of human impacted nearshore fish habitat and riparian vegetation and remove at least 300 feet of structures that are detrimental to juvenile salmon and other resident fish.
- Objective Three: Provide hands-on education in the form of specific instruction in bioengineering techniques and on-the-ground demonstrations to at least 150 stakeholders, including landowners, agency personnel, contractors, landscapers, and other professionals.
- Objective Four: Visit 20% of previously constructed projects each year to update photo monitoring points, collect current site conditions, and assess long-term success or failure.
- Objective Five: Maintain and update database of streambank rehabilitation and restoration projects on the Kenai Peninsula.
- Objective Six: Professionally print and distribute copies of the updated Streambank Revegetation and Protection, A Guide for Alaska.

Discussion

From 2023 through 2025, staff received interest from 66 private landowners and Alaska Department of Fish and Game (ADF&G), along the Kenai River, Kasilof River, and Moose River. From those proposals, ADF&G helped fund or gave technical advice on 24 streambank vegetation and protection projects (Table 1). As a result, this grant helped fund the removal of 832 feet of structures detrimental to salmon, the rehabilitation of 1,707 feet of streambank, and the conservation of 3,205 feet of streambank.

Objective 1: Conserve and sustain at least 2,000 feet of healthy nearshore Pacific salmonid habitat and riparian vegetation. Over the course of the grant period, 3,205 feet of streambank were conserved and sustained meeting objective one. This objective was completed through the installation of 1,375 feet of cabled spruce trees, 37 feet of rootwads, 250 feet of fencing, and 1,542 feet of elevated light penetrating walkways (ELPs) that protected a total of 7,033 square feet of streambank from erosion. Of the 24 projects

contracted with landowners, 16 projects involved the conservation of riparian vegetation and fish habitat (cabled spruce trees, rootwads, ELPs, or a combination of the 3 techniques). One of the biggest concerns private landowners have regarding their streambanks is the loss of riverbank due to erosion. Most of that loss is a direct cause or greatly exacerbated by anthropomorphic activities, including removal of vegetation along the river, trampling of the vegetation along the banks, or increased erosional effect of boat wakes due to the non-vegetated soils. The conservation measures such as cabled spruce trees and rootwads, allow landowners to protect their riverbank, while increasing woody debris availability to rearing salmon, and ELPs provide the necessary access to minimize impacts to the banks.

Objective Two: Rehabilitate or restore at least 2,000 feet of human impacted nearshore fish habitat and riparian vegetation and remove at least 300 feet of structures that are detrimental to juvenile salmon and other resident fish. 13 out of the 24 projects involved the revegetation of the streambanks using rehabilitation techniques and resulted in a total of 1,707 feet of streambank rehabilitated. This included rehabilitating 732 feet of streambank using brush layering and trenched willows and 4,916 square feet of impacted riparian habitat was replanted using native potted trees or shrubs, and vegetated mat. The average length of revegetation per project was 77 feet. This is a noteworthy average because most properties have only around 100 feet of river front property that runs along the river.

A total of 832 feet of detrimental material to juvenile salmon was removed from both the streambank and the riparian areas. Material removed from projects includes cinder blocks, sandbags, rocks, tires, old dilapidated wooden stairs and fishing platforms, and pallets. Of the 24 projects completed, 9 projects involved removing detrimental structures. Many of these items were installed by landowners to address erosion concerns along their riverfront or to help access the river. Speaking about the following topics gave staff the leverage needed to convince landowners to remove these detrimental structures to rearing juvenile salmon.

- Discussing salmon life history
- Discussing “fish friendly” alternatives to historic hard stabilization techniques
- Being able to show landowners other properties using rehabilitation techniques
- Having funding to assist landowners

Objective Three: Provide hands-on education in the form of specific instruction in bioengineering techniques and on-the-ground demonstrations to at least 150 stakeholders, including landowners, agency personnel, contractors, landscapers, and other

professionals. ADF&G and U.S. Fish and Wildlife Service (USFWS) conducted 3, two-day Streambank Rehabilitation Workshops. A total of 53 people attended these workshops where they received classroom and hands-on instructions on the importance of native vegetation to fish habitat. In addition to these workshops, ADF&G presented at the 2023 Kenai Peninsula Fish Habitat Science Symposium held April 20-21, 2023. The presentation gave an overview of the Kenai Peninsula Habitat Rehabilitation and Protection Cost-Share Program along with briefly covering the most common rehabilitation techniques used. Over 95 people attended this two-day Science Symposium. Between Streambank Workshops and the 2023 Kenai Peninsula Fish Habitat Science Symposium around 148 people received information on fish habitat and bioengineering techniques to improve fish habitat.

Objective Four: Visit 20% of previously constructed projects each year to update photo monitoring points, collect current site conditions, and assess long-term success or failure. 10 previously funded projects were visited, while four of these 10 projects had full monitoring points taken while the other six had only photo monitoring collected. The project completion dates for these 10 monitoring sites range from 2018 through 2023. For the sites that had full monitoring completed, the following information was collected: streambank characteristics, restoration structure condition, channel substrate, bank erosion and failures, riparian buffer width, riparian planting health, riparian vegetation cover, and photos points. Overall, the projects are meeting the objectives, and the landowners are taking care of them. In a few instances the landowner was contacted and given some information on how they could improve the project.

Objective Five: Maintain and update database of streambank rehabilitation and restoration projects on the Kenai Peninsula. All the sites that were monitored were entered in an Access Database. All proposed projects were also entered into the database. This database helps keep track of past projects along with proposed projects that were not funded.

Objective Six: Professionally print and distribute copies of the updated Streambank Revegetation and Protection, A Guide for Alaska. This objective was completed in September of 2025, and hard copies of the guide were given to the Kenai Peninsula Borough Donald E. Gilman River Center to pass out to landowners who have questions about rehabilitating their streambanks. Copies were also sent out to ADF&G Habitat Office statewide, USFWS Partners statewide, and various Soil and Water Conservation Districts. A digital copy can also be found online at the Alaska Department of Fish and Game's Website.

Appendix A: Project Tables

Table 1. Project accomplishments by years.

Year	Number of Projects	Conserve & Sustain (ft.)	Conserve & Sustain (sq. ft.)	Rehabilitate & Enhance (ft.)	Rehabilitate & Enhance (sq. ft.)	Detrimental Structures Removed (ft.)
2023	5	825	1,581	843	2,237	143
2024	10	1,370	2,998	518	1,920	122
2025	9	1,010	2,454	346	760	567
Totals	24	3,205	7,033	1,707	4,917	832

Table 2. List of sites and their specific bioengineer techniques.

Project Year	Landowner	Water Body	ELP Walkways	Fencing	Rootwads	Cabled Spruce Trees	Coir Log	Brush Layers	Trench Willows	Live Staking # Stakes	Rooted # Plants	Plantings in feet	Vegetative Materials Length	Detrimental Structures Removed
2023	202323	Kenai River	165	0	0	59	37	37	0	0	0	0	37	35
2023	202336	Kenai River	0	0	0	0	60	0	60	0	30	60	60	0
2023	202338	Kenai River	56	0	0	89	89	89	0	0	0	0	89	15
2023	202339	Kenai River	0	0	0	150	30	0	0	0	25	15	0	0
2023	202341	Kenai River	113	0	0	193	190	190	0	0	58	16	190	93
			334	**0**	**0**	**491**	**406**	**316**	**60**	**0**	**113**	**91**	**376**	**143**
2024	202424	Kenai River	0	0	0	45	0	0	0	0	0	0	0	0
2024	202425	Kenai River	106	0	0	0	0	0	0	0	0	0	0	0
2024	202426	Kenai River	10	0	0	189	45	22	23	0	0	0	0	0
2024	202427	Kenai River	0	250	0	115	108	108	0	0	200	77	108	0
2024	202429	Kenai River	30	0	0	121	0	0	0	0	20	0	0	0
2024	202444	Kenai River	0	0	0	0	0	0	0	0	216	140	0	0
2024	202447	Kenai River	0	0	0	0	20	0	20	0	0	0	20	0
2024	202448	Kenai River	47.5	0	0	72	0	0	0	0	5	0	0	63
2024	202451	Kenai River	312	0	0	0	0	0	0	0	0	0	0	59
2024	202452	Kenai River	72	0	0	0	0	0	0	0	0	0	0	0
			577.5	**250**	**0**	**542**	**173**	**130**	**43**	**0**	**441**	**217**	**128**	**122**
2025	202218	Kenai River	72	0	0	0	110	110	0	0	0	0	110	50
2025	202519	Kenai River	79	0	0	110	16	16	0	0	0	0	16	32
2025	202521	Kenai River	32	0	0	82	0	0	0	0	0	0	0	0
2025	202522	Kenai River	110	0	0	0	0	0	0	0	0	0	0	0
2025	202523	Kenai River	70	0	0	0	0	0	0	0	0	0	0	0
2025	202526	Kenai River	0	0	37	0	0	37	0	0	0	0	37	0
2025	202528	Kenai River	0	0	0	50	20	0	20	0	0	0	0	0
2025	202530	Kenai River	136	0	0	100	0	0	0	0	0	0	0	0
2025	202531	Kenai River	132	0	0	0	0	0	0	0	0	0	0	65
			631	**0**	**37**	**342**	**146**	**163**	**20**	**0**	**0**	**0**	**163**	**147**
		Totals	**1542.5**	**250**	**37**	**1375**	**725**	**609**	**123**	**0**	**554**	**308**	**667**	**412**

Appendix B: Project Map

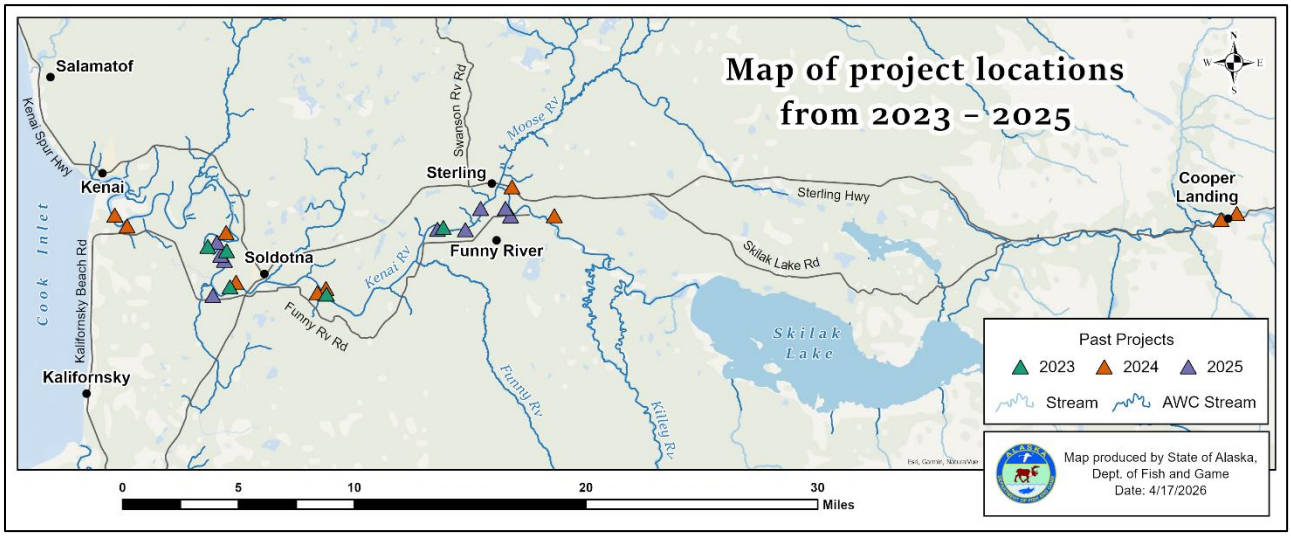

Figure 1. May of project locations from 2023 - 2025.

Appendix C: Site Photos

Figure 2. Pre-construction looking downstream at site 202333, October 2022.

Figure 3. Post-construction looking downstream at site 202333, May 2024.

Figure 4. Pre-construction looking downstream at site 202427, October 2023.

Figure 5. Post-construction looking downstream at site 202427, May 2025.

Figure 6. Site 201803, monitoring location, May 2018.

Figure 7. Site 201803, monitoring location, August 2024.

Figure 8. Pre-construction looking at the bank of site 202519, October 2024.

Figure 9. Post-construction looking at the bank of site 202519, September 2025.

Figure 10. Site 202117, monitoring location, October 2020.

Figure 11. Site 202117, monitoring location, August 2024.

Figure 12. Pre-construction looking downstream at site 202526, October 2024.

Figure 13. Post-construction looking downstream at site 202526, July 2025.

Figure 14. Pre-construction looking at the top of bank riparian at site 202444, October 2023.

Figure 15. Post-construction looking at the top of bank riparian at site 202444, August 2024.

Figure 16. Pre-construction looking at the bank at site 202341, May 2022.

Figure 17.Post-construction looking at the bank at site 202341, May 2023.

Figure 18. Site 201928, monitoring location, October 2018.

Figure 19. Site 201928, monitoring location, August 2024.