

Alaska Department of Fish and Game Restoration Program



Presented by
Michael
Mazzacavallo



Program Components



Fish Passage



Cost-Share



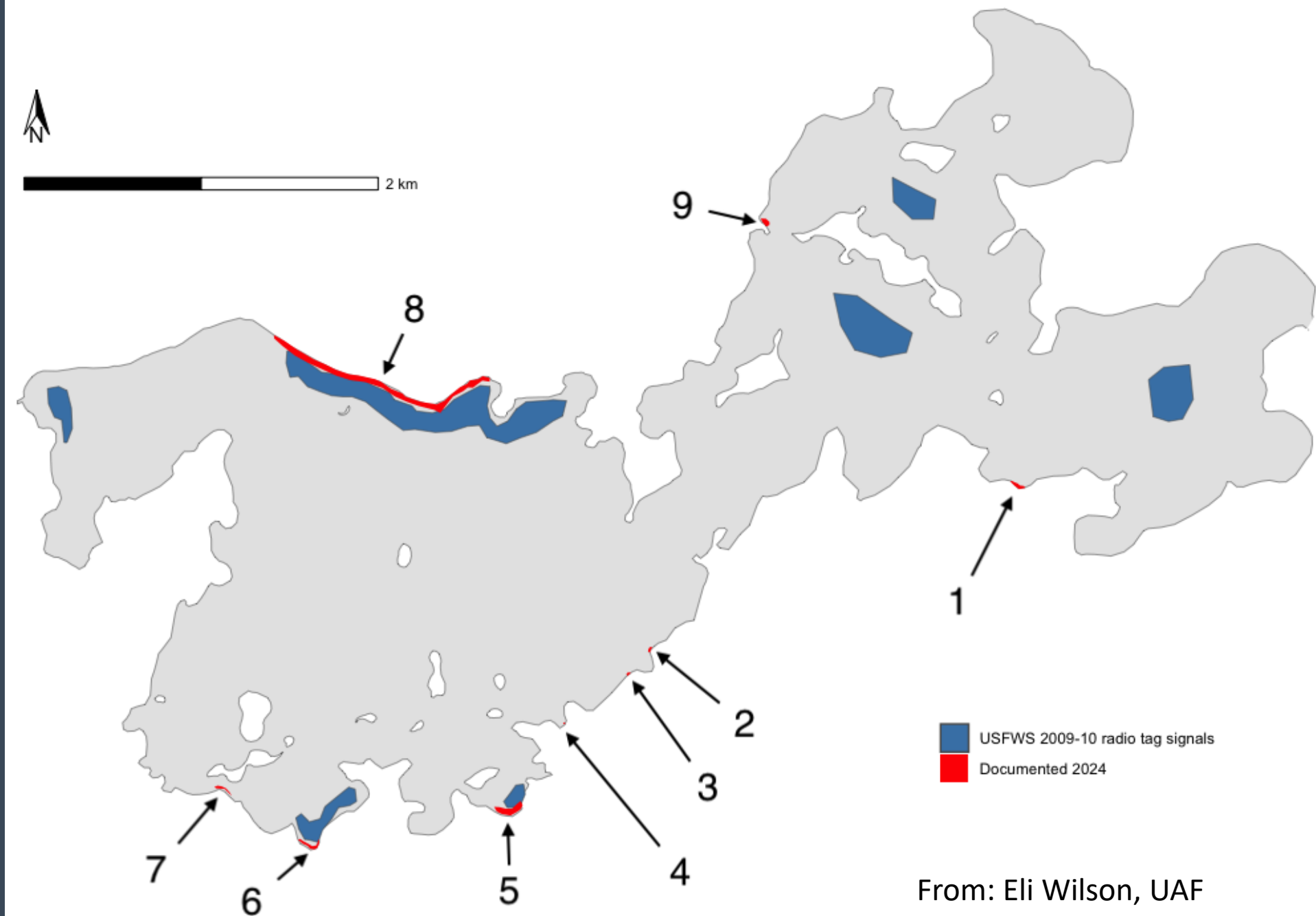
Research/
Education

WHAT DO SALMON NEED?

- Spawning Substrate
- Clean Oxygenated Gravel
- Complex Irregular Shorelines
- Undercut Banks
 - High water velocity
 - Predation
- Overhanging Vegetation
 - Optimal temperatures
- Woody debris
 - Substrate for macroinvertebrate food
- Slow moving water



Big Lake Sockeye Spawning locations



Studies worldwide have demonstrated health floodplains result in higher fish productivity and growth rates.

Floodplain farm fields provide novel rearing habitat for Chinook salmon

Jacob V. E. Katz , Carson Jeffres, J. Louise Conrad, Ted R. Sommer, Joshua Martinez, Steve Brumbaugh, Nicholas Corline, Peter B. Moyle

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Article	Authors	Metrics	Comments	Media Coverage
				

Abstract

Introduction

Methods

Results

Discussion

Conclusions

Supporting information

Acknowledgments

Author Contributions

References

Reader Comments

Figures

Abstract

When inundated by floodwaters, river floodplains provide critical habitat for many and wildlife, but many river valleys have been extensively leveed and floodplain w for flood control and agriculture. In the Central Valley of California, USA, where le floodplain wetland habitats remain, a critical conservation question is how can fa occupying the historical floodplains be better managed to improve benefits for na wildlife. In this study fields on the Sacramento River floodplain were intentionally the autumn rice harvest to determine if they could provide shallow-water rearing Sacramento River fall-run Chinook salmon (*Oncorhynchus tshawytscha*). Approx juvenile fish (ca. 48 mm, 1.1 g) were reared on two hectares for six weeks (Feb- the fall harvest and spring planting. A subsample of the fish were uniquely tagged tracking of individual growth rates (average 0.76 mm/day) which were among the recorded in fresh water in California. Zooplankton sampled from the water column were compared to fish stomach contents. The primary prey was zooplankton in Cladocera, commonly called water fleas. The compatibility, on the same farm fie crop production and native fish habitat during winter demonstrates that land mar combining agriculture with conservation ecology may benefit recovery of native fi such as endangered Chinook salmon.

Ephemeral floodplain habitats provide best growth conditions for juvenile Chinook salmon in a California river

by Carson A. Jeffres

Abstract

We reared juvenile Chinook salmon for two consecutive flood seasons within various habitats of the Cosumnes River and its floodplain (California) to compare growth rates of in river and newly created floodplain habitats. Fish were placed in enclosures in several different habitat types on the floodplain and in the river during times when wild salmon would naturally be rearing in floodplain habitats. We found significant differences in growth rates between salmon rearing in floodplain and river sites. Salmon reared in

ephemeral, seasonally inundated habitats with annual terrestrial vegetation showed higher growth rates than those reared in a perennial pond on the floodplain. Growth of fish in the river was lower than those reared in the floodplain. Growth of fish in the river varied with flow and turbidity in the river. When flows and turbidity were high, there was little growth and high mortality, but when the flows were low and turbidity was low, the fish grew rapidly. Fish in tidal river habitat below the floodplain in the Cosumnes River had very poor growth rates. Overall, ephemeral floodplain habitats supported higher growth rates for juvenile Chinook salmon than more permanent habitats in either the floodplain or river.

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Ecology of fish spawning and nursery zones in the flood plain, using a new sampling approach

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Key words: fish reproduction, ecosystem, taxocoenose structure, early development, young-of-the-year, electrofishing, point abundance sampling

Abstract

Horizontal zonation of fish reproduction, a lotic-to-lentic succession similar to that seen with increasing stream order, was evident from the relative abundance of larval and 0+ juvenile fishes in three floodplain spawning and nursery areas (lotic, semi-lotic, lentic) of the Upper Rhône River, France. Although the lotic and lentic ecosystems provided similar estimates of standing crop (0+ juveniles), differences were apparent in the reproductive and trophic guild structure of the YOY taxocoenoses at the three sites. A new sampling approach (Random Point-Abundance Sampling and modified electrofishing) is described for early-life fish ecology. The electrofishing method employed is mobile, effective for all sizes of larvae and 0+ juveniles of most species, quantitative, and applicable to a number of freshwater situations; and the punctual data resulting from this sampling approach are comparable both spatially and temporally.



From: Jacob Katz, Cal Trout.
Photo: Jacob Katz



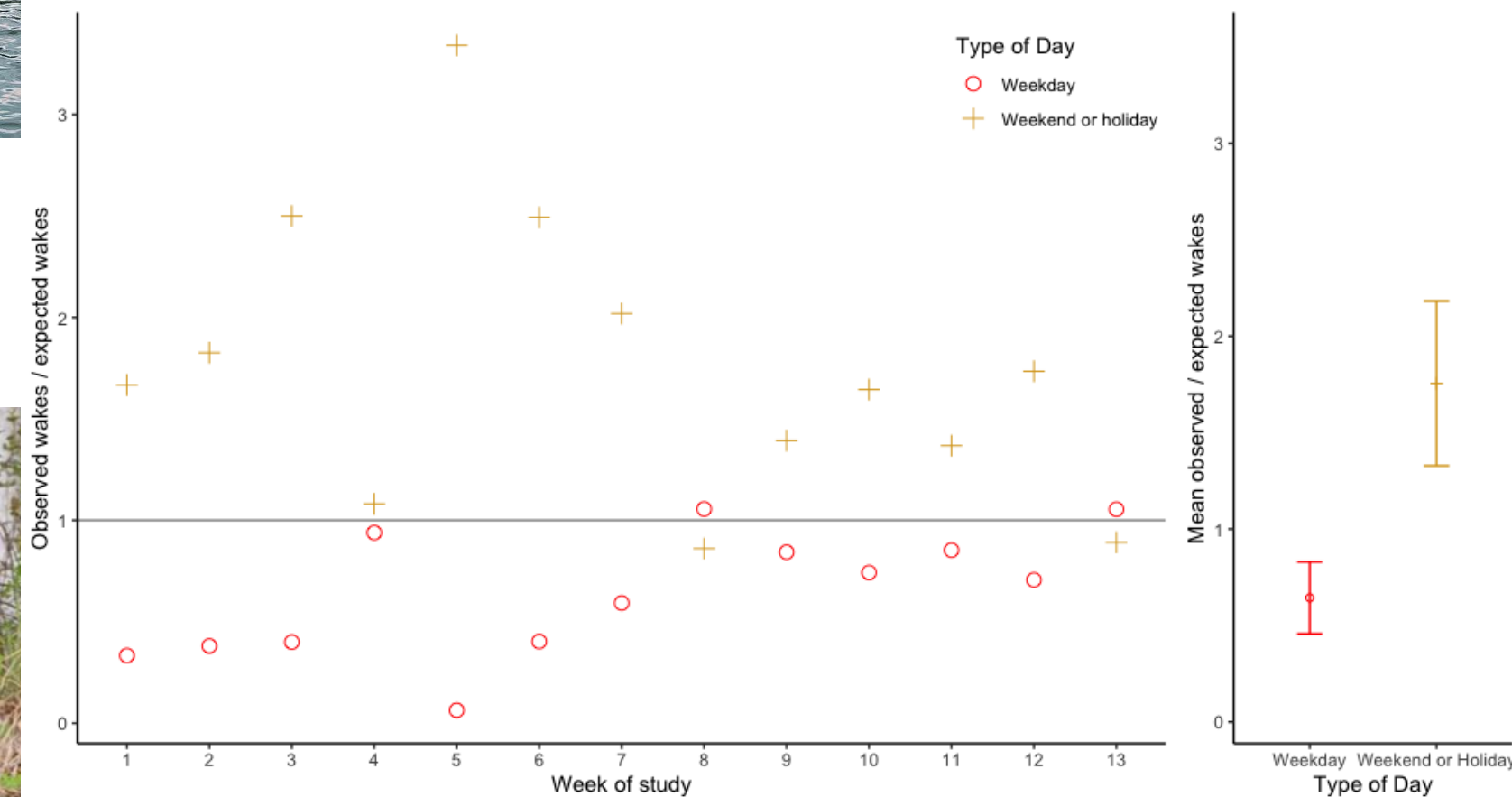
From Jeffres et al. 2008.
Photo: J. Oppermen

Wake Boat Study

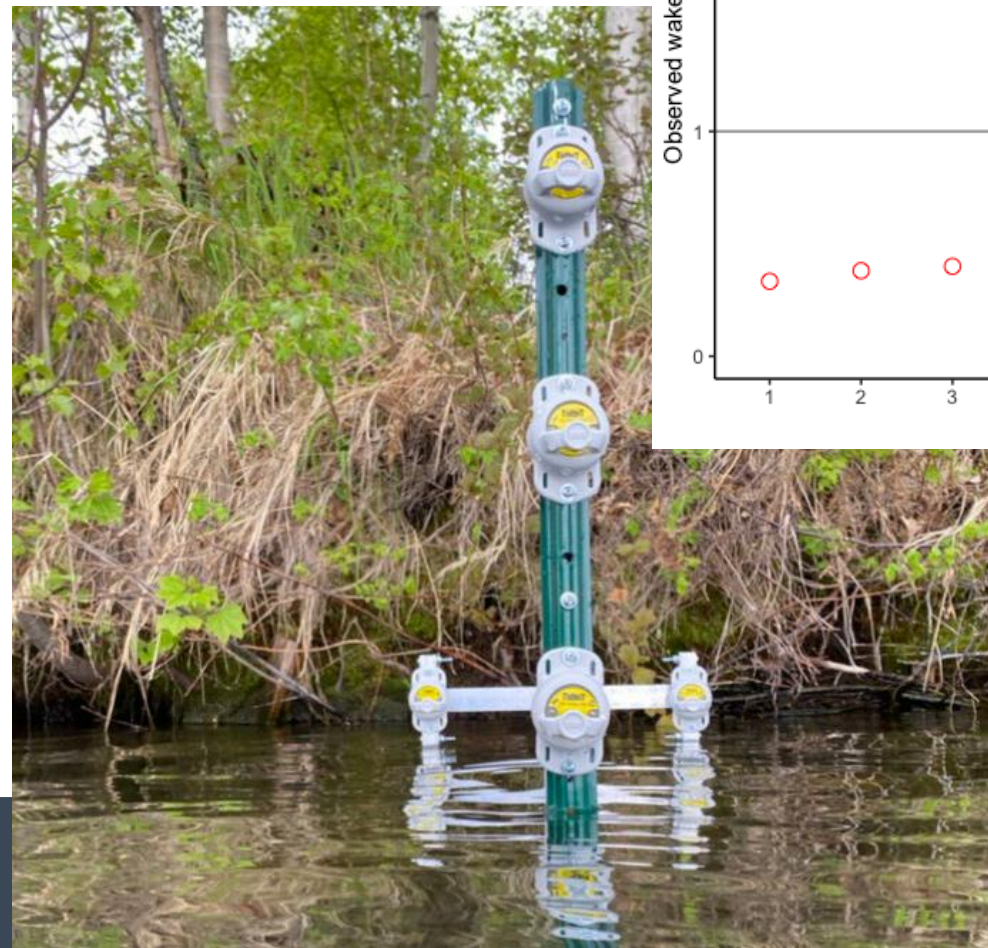
- Big Lake Study (Eli Wilson, UAF Master Student)
 - Mean average bank erosion observed across the lake 1.5 inches per year
 - Max bank erosion 3.6 inches per year
 - Average detections at the sites with wake areas was 4,151 and Max 8,632 detections



Observed versus expected wakes on weekdays compared to weekends and holidays



From: Eli Wilson, UAF



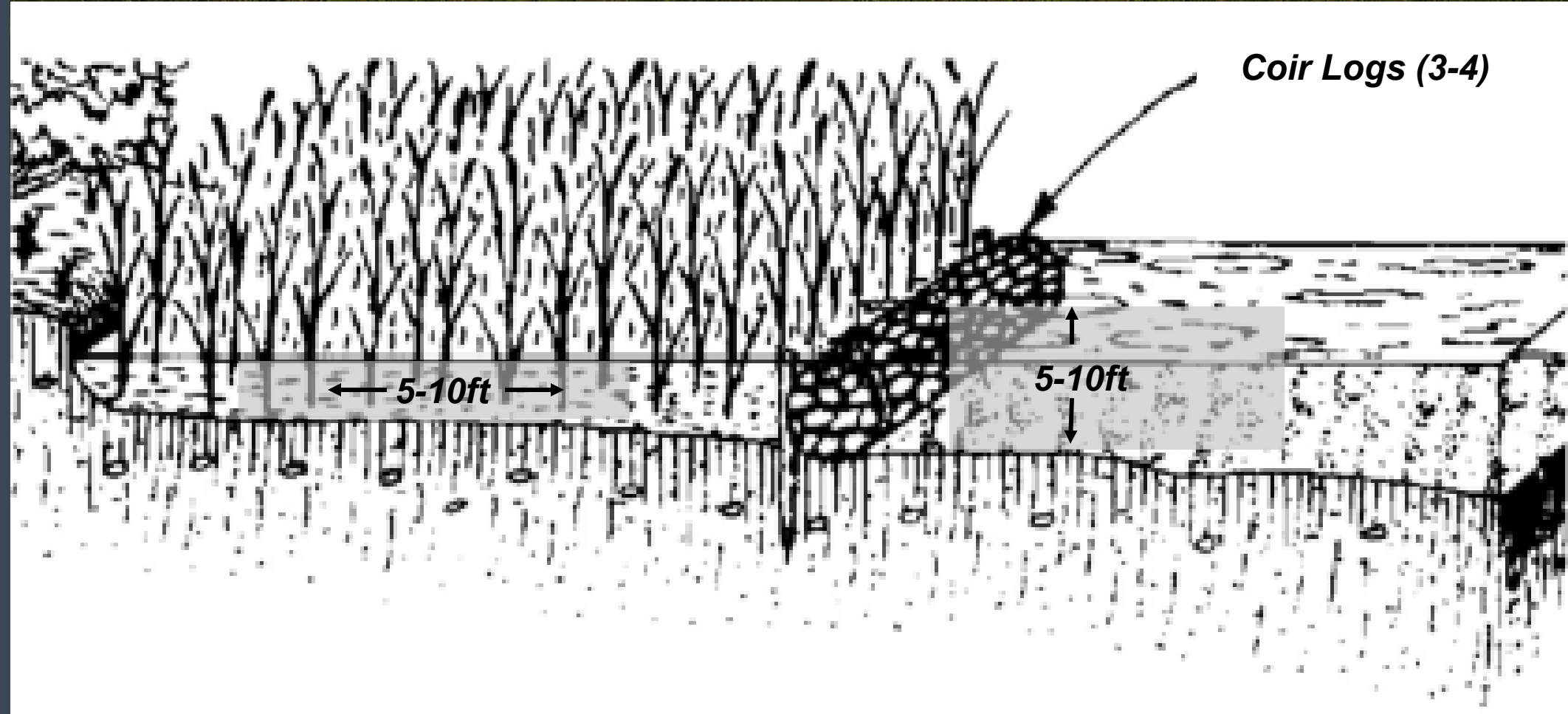
Experimental Wave Break Sills

- 4 sills in total (2 of each type) between Big Lake and Nancy Lake
 - Coir Log
 - High Branch-Box

Experimental Sill on Big Lake



Coir Logs (3-4)





What is the Cost-Share?

- Proactive financial incentive and educational program
- Provides funding and technical project design assistance for public and private lands
- Cooperatively managed by Alaska Department of Fish and Game (ADF&G) and U.S. Fish and Wildlife Service (USFWS)



May 2015



July 2018



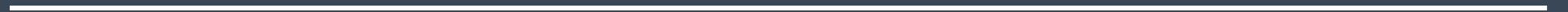
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What Can Landowners Do?



- Maintain naturally vegetated banks
- Allow natural woody debris to build up in the channels
- Maintain a wide riparian corridor of native vegetation
- Keep structures as far away from banks as possible
- Stay on pre-determined paths
- Replant a variety of native vegetation along the bank





Streambank Habitat



Mat-Su Valley Rehabilitation & Protection Cost-Share Project

Did you know that there is a program that will help you conduct a rehabilitation project on your shoreline? The Mat-Su Streambank Habitat Rehabilitation & Protection Cost-Share Project, administered cooperatively by the Alaska Department of Fish and Game (ADF&G) and the United States Fish and Wildlife Service (USFWS), provides private landowners with technical expertise and funding for habitat rehabilitation and protection projects along salmon streams throughout the Matanuska-Susitna Borough.

Examples of past successful projects include but are not limited to bank stabilization techniques such as installing rootwads, bio-engineered bank solutions, and cabled spruce trees; protecting existing bank vegetation by constructing elevated light penetrating gratewalks, and stairways; and removing structures that is harmful to salmon habitat, such as rock (riprap) jetties, bulkheads, sheet piling, old and dilapidated walkways, tires and creosoted lumber.

We encourage you to submit the Project Proposal Form as soon as possible for funding consideration.

Please have the Project Proposal Form, cost estimates, and photos submitted by October 31st, 2025 for project implementation in 2026. If you would like to meet with staff to discuss your project or property concerns, please contact ADF&G or USFWS as soon as possible, prior to the **October 31, 2025** deadline.

This is a competitive program and not all proposals are funded. If your project is selected for funding, up to 66% of the project will be covered and a Private Landowner Agreement will be developed and signed by you and the USFWS. You will also be required to complete the appropriate permit applications and submit them to the permitting agencies (Examples: ADF&G, ADNR, Borough and Floodplain). No purchase of project materials or construction may occur under this Program until both parties have signed the Private Landowner Agreement AND all applicable permits have been issued.



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