

Alaska Sustainable Salmon Fund Statement of Work

I. Project Title: Extending the Anadromous Waters Catalog in the Kenai Lowlands

II. Project Number: 44203

III. Principal Investigator

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IV. Project Period: 4/1/16 - 12/31/17

V. AKSSF Objective: 1A-2 **PCSRF Objective:** P&A

VI. Project Description

1. Synopsis

This project will utilize the newly validated flow weighted slope (FWS) predictive model to identify headwater streams in the Kenai Lowlands area that are highly likely to provide rearing habitat for juvenile salmon, but are not documented in the state of Alaska's *Catalog of Waters Important for the Spawning, Rearing or Migration of Anadromous Fishes* (AWC). Selected streams will be surveyed and those that contain anadromous salmonids will be nominated to the AWC, providing them legal protection under AS 16-05.871.

2. Introduction

The Kenai Lowlands is an ecologically and economically significant subregion of the Kenai Peninsula in Southcentral Alaska; located between Cook Inlet and the Kenai Mountains, the area encompasses five major watersheds draining over 167,000 hectares and supports several species of salmonids including significant runs of king (*Oncorhynchus tshawytscha*), coho (*O. kisutch*), steelhead (*O. mykiss*), and Dolly Varden (*Salvelinus malma*). Salmon from the Kenai Lowlands underpin robust commercial fisheries (valued at \$35 million per year) and sport fisheries (estimated net economic value of \$31 million on the Kenai Peninsula), in addition to being important as a local food source and cultural touchstone.

As in much of the world, the region is experiencing a rapid rise in population growth which is expected to continue, leading to the potential for considerable changes to these streams and their surrounding watersheds. Importantly, 89% of the streams are located on private lands with minimal regulation of development. Further, a low percentage of first-order streams in the region are recognized as directly supporting anadromous fishes and thus do not receive the same level of protection as streams listed in the AWC.

Recent research funded through the AKSSF (projects 44507 and 44709, *Headwater Stream Rearing Habitat – Phases 1 and 2*) and the Environmental Protection Agency, Region 10, resulted in a predictive FWS model indicating that all of the 547 km of headwater streams in the Kenai Lowlands potentially serve as habitat for ≥ 1 species and age class of salmonids. This is in contrast to studies of headwater streams elsewhere that have been deemed fishless but important sources of invertebrate food for fish occupying larger, downstream habitats.

This project will use the validated FWS model as a framework for predicting streams likely to have rearing habitat for juvenile salmon that could be sampled and nominated for inclusion in the AWC. Sampling associated with the development and validation of the FWS model for the Kenai Lowlands resulted in the documentation of 19 new additions to the AWC. However, there are still many kilometers of streams in the Kenai Lowlands watersheds that are undocumented and located on privately owned lands, making these streams highly vulnerable to habitat degradation. Extrapolating the model results to headwater segments that have not been sampled and are excluded from the AWC indicates >50% of the headwaters not catalogued are likely supporting juvenile coho salmon.

Using the model in a GIS environment, the results can be framed with existing infrastructure and land ownership to identify sites that 1) are predicted to have high suitability as juvenile coho salmon habitat; 2) are located on private property; and 3) are relatively easily accessible via the road system. Using this framework, 77 sites have been identified for sampling that are likely to support at least one life stage of coho salmon. Sampling is likely to take place in the Anchor River, Stariski Creek, Ninilchik River, and Deep Creek watersheds and result in the addition of all of the streams sampled for a total of 135 new stream km protected under the AWC.

3. Locations

- Stariski Creek: Latitude: 59.907870 Longitude: -151.495576
- Anchor River: Latitude: 59.751871 Longitude: -151.520240
- Ninilchik River: Latitude: 60.184779 Longitude: -151.304548
- Deep Creek: Latitude: 59.981637 Longitude: -151.253350

4. Related Projects

44507, 44709

VII. Objectives

- Sample at least 70 streams not currently in the AWC for the presence of salmon
- Nominate streams where salmon are present for inclusion in the AWC

VIII. Methods

Using the FWS model developed for the Kenai Lowlands, this project will sample from the 77 sites identified as likely to provide juvenile coho salmon rearing habitat that are within 5 km of a road and are on private property. Streams will be prioritized based on the amount of new stream miles that would be added if salmon are detected. Fish will be sampled using a DC-pulsed backpack electrofishing unit (Smith-Root, Inc., Vancouver, Washington). Each stream will be sampled by 2-pass electrofishing in 50 m increments, blocking upstream and downstream ends of subreaches with a 5 mm mesh nylon net to retain stunned fish that were incidentally missed during netting. Block nets will be checked at the end of each of the two passes. Captured fish will be placed in aerated buckets and identified, and all anadromous species will be photographed and recorded on data sheets. All fish will be released. In the office, data sheets will be scanned and filed electronically with associated images. Nomination forms for the AWC will be filled out and submitted to the Alaska Department of Fish and Game, Division of Sport Fish, for review. The project goal is to sample at least 70 new streams for potential inclusion in the AWC.

IX. Benefits

Salmon are immensely important to people and ecosystems in the Kenai Lowlands region. Streams are the initial rearing habitat for most salmonid species, and headwater streams for this area (representing nearly half of the total river networks) provide important rearing habitat for juvenile salmonids. An estimated 135 km of streams will be sampled for salmonids and added to the AWC, affording them protections under AS 16-05.871 as well as additional protections enacted by the Kenai Peninsula Borough through KPB Ordinance 2013-18, which limits adverse activities within 50 feet of an anadromous stream.

X. Products, Milestones, and Timelines

- April 2016: Complete project operational planning; advertise for project interns; obtain necessary permits
- May 2016: Interview and select project interns; select sites; assess field equipment and supplies; make purchases
- June-July 2016: Orient and train interns; conduct sampling
- September 2016: Prepare and submit AWC nomination forms

- March 2017: Obtain necessary permits
- April-May 2017: Interview and select project interns; select sites; assess field equipment and supplies; make purchases
- June-July 201: Orient and train interns; conduct sampling
- September 2017: Prepare and submit AWC nomination forms; provide final report to AKSSF

XI. Project Budget

UAA/KBRR Budget	Total
100 Personnel	\$77,187
200 Travel	\$0
300 Contractual	\$1,000
400 Supplies	\$7,900
500 Equipment	\$0
Subtotal	\$86,087
Expenses not subject to indirect	\$3,200
600 Indirect @ 25%	\$20,722
Total	\$106,809

UAA/KBRR Budget Narrative:

Line 100: Personnel (\$77,187)

- Coowe Walker, KBRR Watershed Ecologist, will coordinate and manage all aspects of the project: 3 months @ \$9,459/month in FY16 + 3 months @ \$9,695/month in FY17 = \$57,465.
- Steve Baird, Research Analyst with KBRR, will be responsible for site selection and will assist with field sampling and volunteer oversight: 1 month @ \$8,649/month in FY16 + 1 month @ \$8,865/month in FY17 = \$17,514.
- Daniel Rinella, Aquatic Ecologist with the Alaska Natural Heritage Program and UAA Department of Biology, will oversee and assist with volunteer recruitment: 0.12 months @ \$9,036/month in FY16 + 0.12 months @ \$9,283/month in FY17 = \$2,208.

Line 300: Contractual (\$1,000)

- Field vehicle lease: 8 months @ \$125/month = \$1,000

Line 400: Supplies (\$7,900)

- Intern food stipends: 16 weeks @ \$100/week x 2 people = \$3,200
- Protective clothing and safety supplies for sampling (waders, gloves, bear protection): \$1,900
- Gas: 450 gallons @ \$3.55/gallon = \$1,600
- Sampling supplies (rite in the rain paper, batteries, bubblers): \$200
- GIS licensing: 2 years @ \$500/year = \$1,000

Line 600: Indirect (\$20,722)

UAA's federally negotiated indirect rate through June 30, 2016, is 51.2% excluding tuition, scholarships, subaward amounts over \$25,000, participant support costs, and equipment; however, indirect will be recovered at a reduced rate of 25% for this project. The value of the under-recovered indirect is included as match.

XII. Match Budget

UAA Match Budget	Total
100 Personnel	\$15,668
200 Travel	\$0
300 Contractual	\$0
400 Supplies	\$0
500 Equipment	\$0
Subtotal	\$15,668
600 Indirect	\$21,716
Total	\$37,384

Line 100 Personnel: (\$15,668)

Match will be provided by two KBRR volunteer interns assisting with field work for 1.1 months each year of the project: 383 hours/intern @ \$20.47/hour x 2 interns = \$15,668.

Line 600: Indirect (\$21,716)

The under-recovered indirect from UAA's direct budget is claimed as match: \$82,887 (eligible direct costs) * .512 (negotiated indirect rate) = \$42,438 – 20,722 (indirect claimed in direct budget) = \$21,716.