

Alaska Sustainable Salmon Fund Statement of Work

I. Project Title: Southwest Prince of Wales Stream Habitat Mapping - Phase 4

II. Project Number: 44819

III. Principal Investigator

Christine Woll, Spatial Ecologist
The Nature Conservancy
416 Harris Street, Suite 301
Juneau, Alaska 99801
907-586-8623
cwoll@tnc.org

Co-Principal Investigator

Anthony Christianson, Environmental Director
Hydaburg Cooperative Association
PO Box 349
Hydaburg, AK 99922
907-258-3660
lil_hagoo@yahoo.com

IV. Project Period: 3/1/16 – 2/28/17

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

VI. Project Description

1. Synopsis

This project will map baseline salmon distribution and habitat conditions in four watersheds on Prince of Wales Island in Southeast Alaska. These productive salmon systems are important subsistence areas for the community of Hydaburg. Activities include: documenting the full extent of anadromous water bodies in each watershed; mapping salmon habitat characteristics and spawning activity; and documenting baseline water quality and flow. Results include habitat protection through an updated *Catalog of Waters Important for the Spawning, Rearing or Migration of Anadromous Fishes* and its associated Atlas (AWC) and baseline habitat information that will be used for improved habitat conservation.

2. Introduction

Subsistence foods constitute a major part of the food supply for rural Alaska, providing about 295 pounds of food per rural resident each year. The community of Hydaburg relies heavily on subsistence food sources, of which salmon is a large part. Community surveys indicate that 100% of Hydaburg families rely on salmon resources for subsistence, 82% of which is specifically sockeye salmon. Salmon in these areas are also utilized by Haida people who no longer live in Hydaburg but continue to participate in cultural and subsistence traditions.

Intensive cannery exploitation of Hydaburg's sockeye runs occurred during the late 1800s and early 1900s, nearly decimating the stocks. Hatchery efforts to supplement runs in the early 20th century were largely ineffective and the runs remained depressed for many decades. Commercial timber harvest in the area has also been thought to contribute to declines in freshwater habitat and salmon productivity.

In order to provide protection for the watersheds important for subsistence, The Nature Conservancy (the Conservancy) and the Hydaburg Cooperative Association (HCA) have partnered on the systematic mapping of salmon habitat in Hydaburg's traditional use areas, with the Hetta and Eek watersheds in 2012 (AKSSF project 45980, *Hetta and Eek Lake Habitat Mapping*); Hydaburg River, Kasook Inlet, Nutkwa Inlet, Keete Inlet, and Natzuhini in 2014; Dunbar Inlet, Coffee Chuck, Klekass Nephew, and Manhattan Lake in 2015; and Soda Creek, Shelikof Creek, and Hunter Bay in the spring of 2016 (AKSSF projects 44554, 44565, 44734 *Southeast Prince of Wales Stream Habitat Mapping – Phases 1, 2, and 3*).

The four watersheds selected for mapping in summer 2016 are Northeast Sukkwan, Dunbar Inlet (unmapped stream), North Kasook Inlet Lake, and Rose Creek (Figure 1). Watershed selection was based on 1) the watershed's importance to subsistence; 2) the watershed's lack of current information in the AWC, including undocumented low-elevation stream sections, missing species, or missing life history stages; and 3) the watershed's likelihood for near-term resource development activities.

To improve understanding of salmon distribution and habitat conditions in these watersheds, standard field survey methods developed by the Alaska Department of Fish and Game (ADF&G), Division of Sport Fish (SF), will be used. Applying this approach will result in an updated and refined AWC dataset for the watersheds. This will ensure fish passage as well as adequate riparian buffers on salmon spawning and rearing habitat are maintained and will provide important information on habitat characteristics such as stream channel type, pools, and presence of large woody debris that can be documented as baseline conditions for future conservation. The majority of the field work and data collection will be completed by local hires, including the individuals who successfully completed surveys of watersheds in similar projects. Additional training will be conducted by Kai Environmental Consulting Services, LLC (Kai Environmental).

Project field work will involve approximately two months of cumulative field research scheduled during the months of June – September 2016. These dates were chosen to maximize the likelihood of detecting the presence of salmon and the accessibility of the survey areas. Surveys will be focused on uncataloged, low slope reaches and areas of concern (e.g., potential future development areas).

AWC survey data will be compiled in the appropriate format and submitted for nomination. Stream habitat survey data will be compiled in an organized geodatabase and new mapped streams will be submitted to the Southeast Alaska (SE AK) GIS

Library for inclusion in the joint U.S. Forest Service (USFS)/ADF&G regional hydrographic dataset.

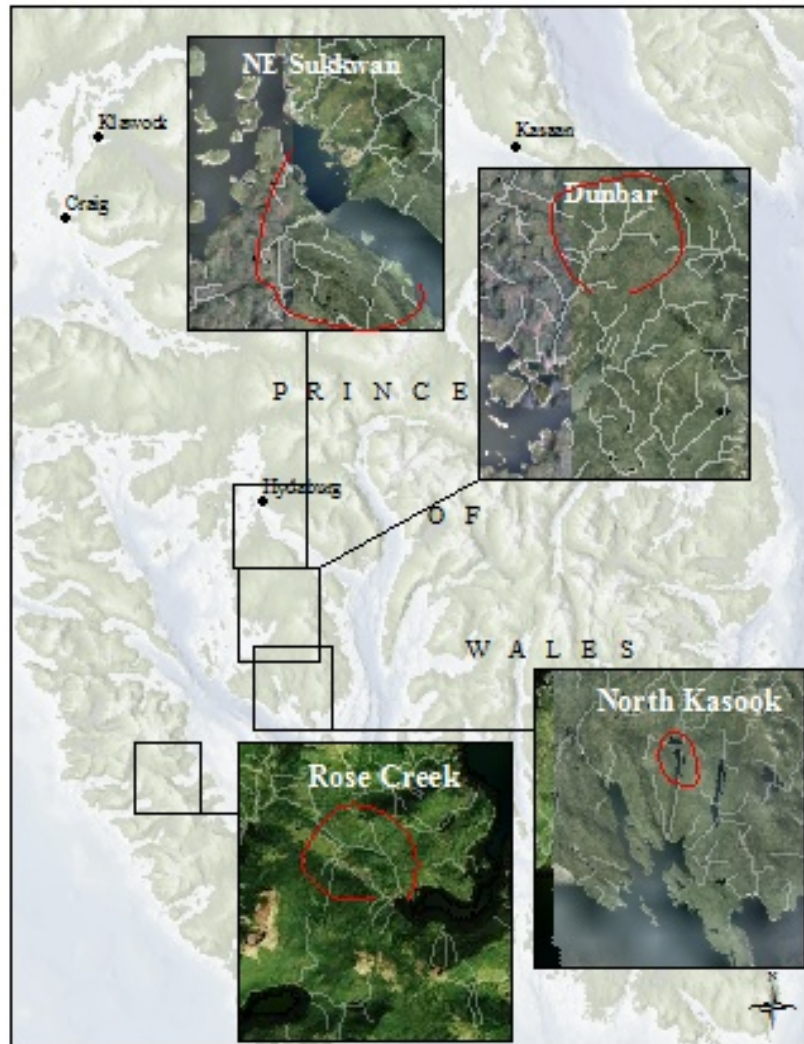


Figure 1. Rose Creek, North Kasook Inlet Lake, NE Sukkwan Island streams, and Dunbar Inlet streams

3. Locations

Site: Northeast Sukkwan

Latitude: 55.172 N

Longitude: 132.823 W

Site: Dunbar Inlet (unmapped stream)

Latitude: 55.119 N

Longitude: 132.829 W

Site: North Kasook Inlet Lake

Latitude: 55.0490 N

Longitude: 132.779 W

Site: Rose Inlet Creek

Latitude: 54.95694 N

Longitude: 132.98513 W

4. Related Projects

45980, 44554, 44565, 44734

VII. Objectives

- Conduct AWC surveys in the Northeast Sukkwan, Dunbar Inlet (unmapped stream), North Kasook Inlet Lake, and Rose Creek watersheds
- Document riparian habitat condition characteristics in water bodies associated with the Northeast Sukkwan, Dunbar Inlet (unmapped stream), North Kasook Inlet Lake, and Rose Creek watersheds
- Submit field survey information packets for AWC nomination

VIII. Methods

Prior to field work, Cathy Needham of Kai Environmental Consulting Services will conduct a refresher training for the field team on survey methods in Hydaburg. The crew will consist of a field leader and two field technicians, all of whom will be HCA staff. After the training, the field crew will mobilize to the watersheds, beginning the stream habitat surveys at the mouth of each outlet creek of the respective systems and working systematically into the upper watershed. Access to the lower portion of each watershed will be by car or skiff. Field crews will camp for a large portion of the field work.

The field team will use the ADF&G Stream Habitat Assessment protocols on all field surveys. The course of each stream within each watershed will be mapped, providing the spatial data necessary for delineating watered channels and their connectivity with tributaries, side channels, and lakes/ponds. GPS waypoints will be collected every 15-30 m (depending on the complexity of the stream) as the crew follows the stream course. Digital photographs will be taken at these locations.

Additional data will be collected on features of interest encountered while mapping the stream course. Such features include natural and manmade disturbances including (but not limited to) culverts, fish passage barriers, riparian disturbances, erosion, and restoration. Waypoints will identify the spatial location, and field measurements and pictures will document the feature site.

Individual stream reaches will be characterized by classifying geomorphic channel type and stream class. Upper and lower waypoints for each stream reach will be collected along with data used for geomorphic channel typing. These measurements will include the following:

- a) Average stream gradient collected at the bottom, mid-point, and top of reach
- b) Bank full width (m) collected at the mid-point of reach
- c) Channel incision depth (m) recorded at the mid-point of reach
- d) Stream bank composition (dominate substrate forming the stream banks)
- e) Dominate substrate class (i.e., organics, sand/silt, gravel, cobble, boulder, bedrock) forming stream channel
- f) Channel pattern (i.e., singular, multiple-braids)
- g) Channel type classification, where each individual reach is identified by its unique channel type
- h) Stream class, where each individual reach is classified on its aquatic habitat potential, as identified in the working protocol for improving stream class designations

Fish observation points will be collected along each stream reach, including additional points above and below features thought to be the extent of fish habitat along each stream within each watershed system. Minnow trapping will be the primary data collection method to be used in nominations to the AWC. At selected sites (determined on the ground during stream habitat surveys), baited minnow traps will be used to quantify smolt and fry life stages of all fish within each stream. Data for these fish observation points will be in accordance with the cited protocols for the stream habitat surveys.

Late in the season, adult foot count surveys will be completed for each system. Crews will walk the upper tributaries and tally the number of adult fish seen within the creek, or dead carcasses along the banks. GPS points will be taken at the end of each upper creek survey when no evidence of adult fish remains in order to document where adult fish spawning areas are within the watershed.

At the end of the 2016 field season, all data collected will be synthesized into AWC nomination packages. Nomination packets for this study will be submitted by December 31, 2016, which is outside of the regular cycle of nominations but still considered acceptable.

Upon completion of stream habitat surveys, data for all stream reaches containing anadromous fish and fish habitat data will be assembled into an organized geodatabase. New stream mapping layers will be used to update the joint USFS/ADF&G SF hydrography layer available to the public through the SE AK GIS Library (<http://seakgis.alaska.edu/>).

Success in meeting the objectives will be evaluated based on completion of stream surveys in each of the proposed survey areas; on regulatory adoption in the AWC of submitted nomination packages for individual water bodies; and the amount of stream habitat incorporated into the joint USFS/ADF&G-SF hydrography layer.

IX. Benefits

Northeast Sukkwan, Dunbar Inlet, North Kasook Inlet Lake, and Rose Creek watersheds support important subsistence salmon fisheries for the Haida people and the community of Hydaburg. This project will provide legal protection for approximately 10.7 kilometers of habitat in these watersheds through listing in Alaska's *Catalog of Waters Important for the Spawning, Rearing or Migration of Anadromous Fishes* and provide baseline habitat information.

X. Products, Milestones, and Timelines

- March 1, 2016 – May 31, 2016: Obtain required permits and work on field logistics
- June 1, 2016 – July 31, 2016: Conduct planning meeting and refresher training, stream habitat surveys, and minnow trapping
- August 1, 2016 – September 30, 2016: Perform foot surveys to count adult salmon
- October 1 – November 30, 2016: Compile data and prepare AWC nominations
- December 31, 2016: Submit AWC nominations

- February 1, 2017: Submit stream habitat survey information to the SE AK GIS Library

XI. Budget

| Summary Budget | Total |
|-----------------------|-----------------|
| 100 Personnel | \$25,000 |
| 200 Travel | \$0 |
| 300 Contractual | \$2,459 |
| 400 Supplies | \$3,402 |
| 500 Equipment | \$0 |
| Subtotal | \$30,861 |
| 600 Indirect | \$5,822 |
| Total | \$36,683 |

This project funds the following entities:

- The Conservancy: \$2,995
- HCA: \$33,688

The Conservancy Budget

| The Conservancy | Total |
|------------------------|----------------|
| 100 Personnel | \$0 |
| 200 Travel | \$0 |
| 300 Contractual | \$2,459 |
| 400 Supplies | \$0 |
| 500 Equipment | \$0 |
| Subtotal | \$2,459 |
| 600 Indirect @ 21.80% | \$536 |
| Total | \$2,995 |

The Conservancy Budget Narrative:

Line 300: Contractual (\$2,459)

The Conservancy will contract with Kai Environmental Consulting Services, LLC; costs include a pre-season planning meeting, technical assistance, a project leader (Cathy Needham), project related travel (Juneau-Hydaburg), and subcontracted services (e.g., training, space/food): \$2,459

Line 600: Indirect (\$536)

The Conservancy’s federally negotiated indirect rate through June 30, 2016, is 21.80% on total direct costs including subawards regardless of dollar amount, and excluding external transfers, land sales, and some equipment costs.

HCA Budget

| HCA | Total |
|------------|--------------|
|------------|--------------|

| | |
|-----------------------|----------|
| 100 Personnel | \$25,000 |
| 200 Travel | \$0 |
| 300 Contractual | \$0 |
| 400 Supplies | \$3,402 |
| 500 Equipment | \$0 |
| Subtotal | \$28,402 |
| 600 Indirect @ 18.61% | \$5,286 |
| Total | \$33,688 |

HCA Budget Narrative:

Line 100: Personnel (\$25,000)

- The field crew leader will participate in field survey work: 1 month @ \$4,000/month = \$4,000.
- Two field crew technicians will participate in field survey work: 2 months @ \$3,500/month x 2 = \$14,000.
- One administrative assistant will provide data entry/data compilation: 2 months @ \$3,500/month = \$7,000.

Line 400: Supplies (\$3,402)

- Boat fuel: 200 gallons @ \$6/gallon = \$1,200
- Field groceries: 60 days @ \$11.11/day x 3 people = \$2,000
- Adobe Acrobat Pro (to be used exclusively for creating, editing, and compiling PDFs for AWC submission packages): \$202

Line 600: Indirect (\$5,286)

HCA's federally negotiated indirect rate through December 31, 2015, is 18.61% on total direct costs, less capital expenditures and pass through funds.

XII. Match Budget

| Match Summary (35%) | Total |
|----------------------------|--------------|
| 100 Personnel | \$8,863 |
| 200 Travel | \$0 |
| 300 Contractual | \$1,940 |
| 400 Supplies | \$0 |
| 500 Equipment | \$0 |
| Subtotal | \$10,803 |
| 600 Indirect | \$2,037 |
| Total | \$12,840 |

Match will be provided by the following entities:

- The Conservancy: \$1,047
- HCA: \$11,793

The Conservancy Match Budget

| The Conservancy | Total |
|-----------------------|---------|
| 100 Personnel | \$860 |
| 200 Travel | \$0 |
| 300 Contractual | \$0 |
| 400 Supplies | \$0 |
| 500 Equipment | \$0 |
| Subtotal | \$860 |
| 600 Indirect @ 21.80% | \$187 |
| Total | \$1,047 |

The Conservancy Match Budget Narrative:

Line 100: Personnel (\$860)

Christine Woll, Spatial Ecologist, will be responsible for quality control on deliverables to be incorporated into the AWC and the Southeast Alaska GIS Library: .145 months @ \$5,916/month = \$860.

Line 600: Indirect

The Conservancy's federally negotiated indirect rate through June 30, 2016, is 21.80% on total direct costs including subawards regardless of dollar amount, and excluding external transfers, land sales, and some equipment costs.

HCA Match Budget

| HCA | Total |
|-----------------------|----------|
| 100 Personnel | \$8,003 |
| 200 Travel | \$0 |
| 300 Contractual | \$1,940 |
| 400 Supplies | \$0 |
| 500 Equipment | \$0 |
| Subtotal | \$9,943 |
| 600 Indirect @ 18.61% | \$1,850 |
| Total | \$11,793 |

HCA Match Budget Narrative:

Line 100: Personnel (\$8,000)

- The field crew leader will participate in field survey work: ~2 months @ \$4,000/month = \$8,003.

Line 300: Contractual (\$1,943)

- The field crew leader and crew technicians will travel from Hydaburg to remote work sites (skiff rental with operator): 10 days x \$194/day = \$1,940.

Line 600: Indirect (\$1,850)

HCA's federally negotiated indirect rate through December 31, 2015, is 18.61% on total direct costs, less capital expenditures and pass through funds.