

Alaska Sustainable Salmon Fund Statement of Work

Revision #1: Extend project period to 6/1/15

I. Project Title: Southeast Prince of Wales Stream Habitat Mapping - Phase 2

II. Project Number: 44565

III. Principal Investigator

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IV. Project Period: 3/1/14 - 6/1/15

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. *Related AKSSF projects: 44554, 44734.*

2. Introduction

This project will allow the community of Hydaburg to improve the overall management of its lands and protect the resources that are important to its residents. Several of the systems to be surveyed face potential resource development in the future and have experienced declining or disappearing fish runs. The community of Hydaburg is concerned about the impact of these activities on the long-term health of

the subsistence fishery and lifestyle, and wishes to document fish presence and habitat quality in order to help protect resources and/or inform restoration actions.

Prior to this project, The Nature Conservancy (TNC) worked with the Hydaburg Cooperative Association (HCA) in order to prioritize watersheds for salmon habitat mapping. Watersheds were prioritized based on: (1) their importance to subsistence; (2) their lack of current information in the AWC (including undocumented low-elevation stream sections, missing species, and/or missing life history stages); and (3) their likelihood for near-term logging activities.

The community of Hydaburg relies heavily on subsistence resources, of which salmon is a large part. This reliance on salmon harvest dates back to the late 17th century. Community surveys indicate that 100% of Hydaburg families rely on salmon resources for subsistence, 82% of which is 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, with yearly harvest records indicating more than 2.5 million sockeye salmon were taken annually from Hydaburg area waters from Hetta Inlet to Cordova Bay, 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.

The Alaska Sustainable Salmon Fund (AKSSF) has conducted similar habitat mapping studies of the Hetta and Eek watersheds, considered the primary sockeye producers for Hydaburg, as well as Hydaburg River, Kasook Inlet, Nutkwa Inlet, Keete Inlet, and Natzuhini (AKSSF projects 45980, *Hetta and Eek Lake Habitat Mapping*, and 44554, *Southeast Prince of Wales Stream Habitat Mapping – Phase 1*). Ensuring all anadromous fish-producing streams important to or used by Hydaburg are catalogued, and gaining a better understanding of the systems that feed these streams, will better enable the community to manage and protect its subsistence fisheries.

The four watersheds selected for mapping in 2014 are Dunbar Inlet, Coffee Chuck, Klekass Nephew, and Manhattan Lake. All of these watersheds are considered traditional use areas for the community of Hydaburg. Dunbar Inlet is a system within HCA's harvest area which produces fish for the commercial troll and salmon fleets, but is also a high use subsistence area. Hydaburg has seen a drastic drop in productivity, and despite the system's history of being a heavy chum producer, almost no chum salmon are currently coming back. It is suspected that the exploding beaver population may be a root cause of this, with dams blocking rivers and decreasing access to salmon habitat. At the same time, proposed transfers of land from the Bureau of Land Management to the Alaska Mental Health Trust or to the University of Alaska raise concerns about potential future development within the system.

Eleven percent of the proposed survey area within this system has been mapped, and coho and pink have been documented in the AWC.

The system containing Coffee Chuck was studied as part of the HCA's traditional ecological knowledge study, and was subsequently categorized as an historic subsistence sockeye stream. It is the closest sockeye stream to the village. In the past, the maximum subsistence haul of sockeye from Coffee Chuck was about 300 fish, but no subsistence harvests have occurred since the 1990s and the presence of sockeye runs in Coffee Chuck is unknown. Until recently it was believed that the sockeye stocks within Coffee Chuck were wiped out, but possible sightings recently have raised hope that Coffee Chuck contains a remnant run of sockeye. There is the potential that timber harvest will occur in the future as a result of the Sealaska lands bill, which makes it important to determine the stocks and habitat health of the system. Thirty three and one third percent of the proposed survey area within this system has been mapped, and coho, pink, and steelhead have been documented in the AWC.

Klekass Nephew is a secondary system used by the community for subsistence silver and chum harvests. Historically, sockeye salmon runs at Klekass amounted to around 8,000 fish, but present escapements are estimated at 2,000-3,000 annually with a subsistence harvest of 150-200 annually. Barriers in the river are keeping cohos from getting to their spawning grounds, and the existing natural fish ladder needs to be improved. In years when rainfall is low, salmon are unable to get to the spawning grounds since access is dependent on a fairly high flow. HCA would like to assess the system and its stocks in order to develop a plan to improve access to the system for salmon. HCA has discussed the issue with the Alaska Department of Fish and Game (ADF&G) and the community. Thirty percent of the proposed survey area within this system has been mapped, and coho and pink have been documented in the AWC.

Manhattan Lake is potentially the most important of the four systems. The HCA is trying to identify alternate systems to add to their sockeye management plan. Identifying and classifying systems that can be used to take pressure off the primary sockeye systems (such as Hetta) in lean years will allow HCA to better manage their subsistence fisheries. It appears that Manhattan Lake may have produced large numbers of sockeye in 2013. Thirty three percent of the proposed survey area within this system has been mapped, and coho, chum, pink, sockeye, and steelhead have been documented.

To improve understanding of salmon distribution and habitat conditions in these watersheds, standard field survey methods developed by 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 recent 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, 2014. 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. AWC survey data will be compiled in the appropriate format and submitted for nomination. Stream habitat survey data will be compiled in the appropriate format and submitted to the Southeast Alaska (SE AK) GIS Library for inclusion in the joint U.S. Forest Service-ADF&G regional hydrographic dataset.

3. Location

Site: Dunbar Inlet

Latitude: 55.098333 N

Longitude: 132.833611 W

Site: Coffee Chuck

Latitude: 55.032500 N

Longitude: 132.702222 W

Site: Klekass Nephew

Latitude: 55.138333 N

Longitude: 132.872222 W

Site: Manhattan Lake

Latitude: 55.096944 N

Longitude: 133.143611W

VII. Objectives

1. Project Objectives

- Conduct AWC surveys in Dunbar, Coffee Chuck, Klekass Nephew, and Manhattan Lake watersheds
- Document riparian habitat condition characteristics in water bodies associated with Dunbar, Coffee Chuck, Klekass Nephew, and Manhattan Lake
- Submit field survey information packets for AWC nominations
- Submit riparian habitat information to SE AK GIS Library

2. Methods

The methods for the stream surveys may be broken down into the following four components:

- Mapping the stream course
- Mapping habitat features encountered along the stream
- Collecting information describing stream reaches and side channels
- Collecting other data including fish observations, discharge, and temperature regimes

Prior to field work, Cathy Needham of Kai Environmental will train the field team on survey methods in Hydaburg. After the training, the field crew will mobilize to the watersheds within the community, beginning stream habitat surveys at the mouth of each outlet creek of their respective systems and working systematically into the upper watershed. Except for Manhattan Lake, access to the lower portion of each watershed will be by skiff. The crew will charter a float plane into Manhattan Lake

where they will set up a camp from which to conduct surveys. The field crew will camp for a large portion of the field work.

The field team will map the course of each stream within each watershed, which will provide 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 also be taken at these locations. For each stream that reaches the lake system and each outlet creek, stream discharge will be measured. Hobo temperature data loggers will be installed at the mouth of each watershed and large tributary. Data loggers will remain instream from the beginning of stream habitat surveys until the crew retrieves them in the fall during foot surveys. Temperature and discharge regimes collected will be used as baseline information for the watershed and included in subsequent reports as additional data.

Additional data will be collected on features of interest encountered while mapping the stream course, such as culverts, fish passage barriers, riparian disturbance, erosion, restoration, etc. 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 using U.S. Forest Service protocols which form the basis of the ADF&G Stream Habitat Assessment protocols. 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 also 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 used for collecting information to be used in the nominations for 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. The crews will walk the upper tributaries and tally the number of adult fish seen within the creek and/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 are found in order to document where adult fish spawning areas are within the watershed.

Additional information may also be used in the nomination packets for the AWC. At the end of the 2014 field season, all data collected will be synthesized into AWC nomination packages in accordance to the cited guidelines. Nomination packets for this study will be submitted by December 31, 2014, which is outside of the regular cycle of nominations but still considered acceptable. Success will be evaluated based on regulatory adoption in the AWC of submitted nomination packages for individual water bodies.

Upon completion of stream habitat surveys, data for all stream reaches containing anadromous fish and fish habitat data will be used to update the joint U.S. Forest Service/ADF&G SF hydrography layer available to the public through the SE AK GIS Library (<http://seakgis.alaska.edu/>). Success will be evaluated based on the amount of stream habitat incorporated into the joint USFS/ADF&G-SF hydrography layer.

VIII. Benefits

Dunbar Inlet, Coffee Chuck, Klekass Nephew, and Manhattan Lake support important subsistence salmon fisheries for the Haida people and community of Hydaburg. This project will provide legal conservation measures and protection for these watersheds and will develop an effective baseline inventory of important salmon habitat.

IX. Products, Milestones, and Timelines (updated with *Revision #1*)

- March 1 – May 31, 2014: Obtain required permits and work on training and field logistics
- June 1, 2014 – June 1, 2015: Conduct training, stream habitat surveys, and minnow trapping
- August 1, 2014 – June 1, 2015: Perform foot surveys to count adult salmon
- October 1, 2014 – June 1, 2015: Compile data and prepare AWC nominations
- December 31, 2014 – June 1, 2015: Submit AWC nominations
- February 1 – June 1, 2015: Submit stream habitat survey information to the SE AK GIS Library

X. Budget

Summary	Total
100 Personnel	\$29,750
200 Travel	\$0
300 Contractual	\$24,095
400 Supplies	\$10,945

500 Equipment	\$0
Subtotal	\$64,790
600 Indirect	\$3,699
Total	\$68,489

This project funds the following entities:

- TNC: \$19,842
- HCA: \$48,647

TNC Budget

TNC	Total
100 Personnel	\$0
200 Travel	\$0
300 Contractual	\$16,815
400 Supplies	\$0
500 Equipment	\$0
Subtotal	\$16,815
600 Indirect @ 18%	\$3,027
Total	\$19,842

TNC Budget Narrative:

Line 300: Contractual (\$16,815)

TNC will contract with Kai Environmental for field survey work; costs include survey method training in Hydaburg, project administration and planning, data quality control, AWC nominations, personnel (Cathy Needham and two field technicians), training supplies, project related travel (Juneau-Hydaburg), and subcontracted services (e.g. training space/food): \$16,815.

Line 600: Indirect (\$3,027)

TNC's federally negotiated indirect rate through June 30, 2014, is 14.99% and excludes, among other costs, external transfers and the value of land sold or donated to government agencies and other conservation organizations. TNC's expected federally negotiated indirect rate through June 30, 2015, (during the bulk of this project) is 18%; indirect will be collected at the rate current at the time expenses are incurred.

HCA Budget

HCA	Total
100 Personnel	\$29,750
200 Travel	\$0
300 Contractual	\$7,280
400 Supplies	\$10,945
500 Equipment	\$0
Subtotal	\$47,975
600 Indirect @ 1.4%	\$672

Total	\$48,647
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Line 100: Personnel (\$29,750)

- Three Field Crew Technicians (TBD) will participate in field survey work: 2.5 months @ \$3,500/month x 3 = \$26,250.
- One Administrative Assistant will assist with data entry/data compilation: 1 month @ \$3,500/month = \$3,500.

Line 300: Contractual (\$7,280)

- The Field Crew Leader (included in the match budget) and Field Crew Technicians will travel from Hydaburg to remote work sites by float plane charter as required: 10.8 hours @ \$650/hour = \$7,020.
- Satellite phone seasonal plan: \$260

Line 400: Supplies (\$10,945)

- Field groceries: 60 days @ \$12.50/day x 4 people = \$3,000
- GPS Spot and service: \$220
- Water temp dataloggers: 3 dataloggers @ \$125/datalogger = \$375
- Satellite phone: \$1,500
- Crew gear (waders, packs): \$2,800
- Boat fuel: \$1,000
- Camp gear (sleeping bags, pad, stove, cooking): \$1,000
- Range finder: \$550
- Other field supplies: \$500

Line 600: Indirect (\$672)

HCA's expected federally negotiated indirect rate through December 31, 2014 is 1.4% on all programs.

XI. Match Budget

Summary (33%)	Total
100 Personnel	\$14,300
200 Travel	\$830
300 Contractual	\$6,648
400 Supplies	\$0
500 Equipment	\$0
Subtotal	\$21,778
600 Indirect	\$824
Total	\$22,602

The following entities will provide match in the following amounts:

- TNC: \$3,693
- HCA: \$18,909

TNC Match Budget

TNC	Total
100 Personnel	\$2,300
200 Travel	\$830
300 Contractual	\$0
400 Supplies	\$0
500 Equipment	\$0
Subtotal	\$3,130
600 Indirect @ 18%	\$563
Total	\$3,693

TNC Match Budget Narrative:

Line 100: Personnel (\$2,300)

- Norman Cohen, Southeast Alaska Program Director, will be responsible for overall project management, contracting, and project reporting: 0.18 months @ \$8,411/month = \$1,500.
- Colin Shanley, Spatial Ecologist, will be responsible for quality control on deliverables to be incorporated into the AWC and the SE AK GIS Library: 0.14 months @ \$5,916/month = \$800.

Line 200: Travel (\$830)

Colin Shanley will travel from Juneau to Hydaburg and from Hydaburg to Juneau to visit remote work sites for project oversight and quality control:

- Airfare: 1 ticket @ \$492/ticket = \$492
- Lodging: 2 nights @ \$115/night = \$230
- Per diem: 3 days @ \$36/day = \$108

Line 600: Indirect (\$563)

TNC's federally negotiated indirect rate through June 30, 2014, is 14.99% and excludes, among other costs, external transfers and the value of land sold or donated to government agencies and other conservation organizations. TNC's expected federally negotiated indirect rate through June 30, 2015, (during the bulk of this project) is 18%; indirect will be collected at the rate current at the time expenses are incurred.

HCA Match Budget

HCA	Total
100 Personnel	\$12,000
200 Travel	\$0
300 Contractual	\$6,648
400 Supplies	\$0
500 Equipment	\$0
Subtotal	\$18,648
600 Indirect @ 1.4%	\$261
Total	\$18,909

HCA Match Budget Narrative:

Line 100: Personnel (\$12,000)

A Field Crew Leader will participate in field survey work and serve as liaison between TNC, HCA, and Kai Environmental: 3 months @ \$4,000/month = \$12,000.

Line 300: Contractual (\$6,648)

The Field Crew Leader and Field Crew Technicians will travel from Hydaburg to remote work sites (skiff rental with operator): 8 weeks @ \$831/week = \$6,648.

Line 600: Indirect (\$261)

HCA's expected federally negotiated indirect rate through December 31, 2014 is 1.4% on all programs.