

## **Statement of Work Southeast Sustainable Salmon Fund**

- I. Project Title:** Instream Flow Protection: Southeast – Phase 2
- II. Project Number:** 45107; **PCSRF Objective:** P&A; **AKSSF Goal:** Southeast: 1A-2

**III. Project Manager and Principle Investigator**

Shawn Johnson, Fishery Biologist II (907) 465-430 <a href="mailto:Shawn.johnson@alaska.gov">Shawn.johnson@alaska.gov</a> Aquatic Resources Coordination Unit Alaska Department of Fish and Game Division of Sport Fish/RTS P.O. Box 240020 Douglas, Alaska 99824-0020	and Joe Klein, Chief (907) 267-2148 <a href="mailto:Joe_Klein@fishgame.state.ak.us">Joe_Klein@fishgame.state.ak.us</a>
--	--

- IV. Project Period:** 3/1/02 – 6/30/06

**V. Project Description**

1. **Introduction** – Sufficient amounts of water are required within lotic (flowing) and lentic (lakes) water bodies supporting salmon fisheries to sustain productivity, habitat characteristics, and waterway access to these fishery resources. Protection of these water flow rates and volumes within rivers and lakes for fish production are generally referred to as reservations of water under AS 46.15.035, .037 and .145 of the Alaska Water Use Act. Other uses of reservations of water include protection of wildlife production/habitat, water quality/sanitary purposes, navigation, and recreation/aesthetics. By definition, the term instream flow is typically used to describe the rate or volume of flow needed within lotic waters. However, when Alaska adopted its “instream flow law” as amendments to the Alaska Water Use Act in 1980, it included protection for both rivers and lakes. Therefore, the term instream flow is used to represent reservations of water in both lentic and lotic waters. Industrial, agricultural, and urban developments, and various other land uses and uses of water, all affect water volume and characteristics such as water depth and surface area covered. In flowing waters, changes in water volume also affect water velocities. Predominant uses of water in Southeast Alaska include municipal water supplies, hydropower generation, water export, fish processing and forestry.

In 1984, the Department developed a database and system to prioritize water bodies for instream flow protection. The prioritization list was refined in 1986. Other state and federal agencies participated in both processes. Funding restrictions, combined with hydrologic and biologic data limitations, narrowed and reduced the opportunities to fully protect all the initial selections. The database and priorities have not been formally updated since 1986. More than 5000 salmon producing water bodies in Southeast Alaska are candidates for

quantification and protection of sufficient water flow or volume to sustain fish productivity. Of these water bodies, approximately 400 are lakes. The initial project in progress will update reservation of water priorities to protect salmon production and habitat in Southeast Alaska. When the first project is completed, existing information will have been retrieved, synthesized and analyzed to identify and characterize salmon producing watersheds, seasonal composition and location of salmon stocks at risk by life phase, define development trends, characterize and inventory availability of existing hydrologic data, and work with other projects and stakeholders to prioritize protection prescriptions. This second project will use the priorities established by the first instream flow project to begin a multi-year effort to quantify and protect instream flows required by salmon in Southeast water bodies.

2. **Project Summary** – This second Instream Flow Reservations project will target water bodies using the results of the initial Instream Flow Prioritization project to identify and implement methods for quantifying and reserving sufficient amounts of water to sustain salmon production in lakes, rivers, streams and estuaries in Southeast Alaska. Resulting instream flow analyses and other related information will be used to prepare and submit Applications for Reservations of Water under state law and, when applicable, also use other processes to protect instream flows under state and federal laws. *Related AKSSF projects: 45040, 45213, 45766, 45822, 45326 (800), 45979, 44552, 44563, 44567, 44915.*

## **VI. Objectives**

1. **Project objectives** –
  - i. Establish instream flow protection work plans based on the instream flow priorities report initially developed as part of the first instream flow project. Compile required biologic, hydrologic and other information required for instream flow analyses and preparation of instream flow applications for targeted water bodies identified in the first project.
  - ii. Retrieve, summarize and analyze existing hydrologic and biologic data for existing gaged sites identified as priorities for reservations. Compile and submit Applications for Reservations of Water for these sites. Information will be derived from existing hydrologic databases.
  - iii. Install instrumentation to quantify streamflow and develop hydrologic records for ungaged water bodies of highest priority having insufficient existing data to quantify amounts of water needed for reserving water. This may include contracting data collection to the USGS Water Resources Division for index gage sites.
  - iv. Retrieve, summarize and analyze existing biologic data for water body priority reservation sites.
  - v. When existing biologic data are insufficient for reserving instream flows at targeted water bodies, collect needed seasonal fish species life phase composition, distribution and timing to support instream flow analyses.
  - vi. Collect, summarize, and analyze any other needed instream flow application information required by state or federal laws for instream flow analyses and preparation of instream flow applications for targeted water bodies identified by

the first project. This may include land use databases, maps, biologic, land and water resource inventories, and other watershed literature sources.

- vii. Summarize results for submittal with interim reports and integration with other georeferenced data in the Annual Habitat Assessment project database.
- viii. Train staff in field methods in preparation for field validation and compilation of application materials.

**2. Justification –**

- i. Future salmon productivity depends in part on protecting water volumes, rates of flow and water quality attributes in fish bearing water bodies in Southeast Alaska.
- ii. State and federal legal mechanisms to achieve protection of the needed water in rivers and lakes require high quality information in order to support scientifically justified outcomes.
- iii. Actions to reserve instream flow must adhere to state or federal laws and follow a prioritization scheme in order to apply agency resources efficiently and effectively.
- iv. Water bodies requiring the most immediate protection on an annual basis will be appropriately targeted.
  - v. Existing hydrologic and biologic data will be augmented with site-specific field investigations when required for completing instream flow analyses and applications.
- vi. Annual tracking of needs assessment results, priority water body lists, and actions to legally protect candidate water bodies are the components of required reporting most pertinent to effectiveness evaluation.
- vii. Information collected to validate water body characterization will be compatible with data protocols and metadata structure and will complement information systems established for other SSSF projects.

**3. Project Impacts/Outcomes/Evaluation of Project Objectives –**

- i. Staff will prepare and submit to the Alaska Department of Natural Resources applications for Reservations of Water based on priorities established under the Instream Flow Prioritization project phase for water bodies subject to protection of instream flows under state law. Other state and federal instream flow mechanisms may also be pursued depending on the best choice for instream flow protection.
- ii. The various instream flow databases and applications will be accessible to department managers for investigations, analyses, and as reference for regulatory actions. The databases should provide a comprehensive listing of identified water bodies in Southeast Alaska supporting anadromous fish communities.
- iii. Program reports will include listings and status of all prior and new applications for Reservations of Water submitted during reporting periods along with all pertinent methodology, and summaries of analyses and data tabulations regarding basin and water body information used for evaluation and reservation parameters.

- iv. Staff will be certified to conduct field flow measurements following quality control/assurance protocols that comply with standards established by the U.S. Geological Survey.
  - v. Staff will be trained in various habitat survey protocols relevant to this project, including the USDA Forest Service Region 10 Fish and Aquatic Stream Habitat Survey protocols.
4. **Methodology/Modeling** –
- The rating, ranking and prioritization of water bodies produced by the initial project will provide the basis for targeting water bodies for instream flow protection, including the preparation and submittal of applications for Reservations of Water under state law. Applications will be prepared to comply with state law (AS 46.15.145) and regulations (11 AAC 93.141-146) and following instructions for reservation of water applications previously established by the Statewide Aquatic Resources Coordination Unit (Estes 1998). When feasible, reservations will be prepared using and analyzing existing data. Depending on priorities and resource availability, field data will be collected and analyzed for ungaged water bodies and water bodies with insufficient site-specific information available to prepare applications. When needed, information regarding fish populations, habitat characteristics and basin hydrology will be collected following sampling protocols which allow definitive characterization of seasonal fish species and life stage distribution and habitat use, channel type inventory, and basic basin hydrologic parameters required to develop basin-area estimation of seasonal water body flow regimes. Instrumentation to monitor intermediate term (five years), continuous flow or stage will be installed and maintained in water bodies requiring validation of seasonal flow regime estimates. Instrumentation and site ratings, where applied, will follow operational protocols reviewed and approved by the USGS Water Resources Division. Resources will be managed to maximize instream flow protection for salmon in gaged and ungaged water bodies.

Opportunities to review work progress will be afforded to Department managers, other Sustainable Salmon project partners, and Stakeholder and Science Panel members. Similarly, this project will be coordinated with other projects.

#### **VII. Results/Deliverable products**

The main product of this phase of the Instream Flow project will be completed applications for Reservations of Water submitted to the Alaska Department of Natural Resources. Progress reports will list reservation water bodies along with summary information regarding water body and regional resource information describing the extent of habitats and fisheries provided legal protection, methodology applied and recommendations for further action required to quantify and verify site-specific instream flow needs.

#### **VIII. Benefits to Salmon/Salmon Fisheries/Salmon Fishers**

Salmon production is dependent on sufficient quantities of water of high quality. The project will benefit salmon resources and users by protecting sufficient water volumes

in water bodies or portions of water bodies that sustain valuable salmon most in need of protection or recovery. Staff will be prepared to implement field verification of instream flow needs.

**IX. Milestones/Project Timelines**

Funding for this project will be available March 1, 2002 and is anticipated to extend through June 30, 2006. However, this project will not be initiated until the latter stages of the initial prioritization project. Implementation will follow final reporting of priorities. Inter-project coordination is envisioned during the entire project as staff provide support and training to other projects as required. Senior staff will participate in overall administrative functions to assist staff hired to execute this project. Staff training and project refinement and overall project implementation will begin after staff are hired. Data collection and synthesis, matrix evaluation, and rating and ranking of water bodies are anticipated to continue through winter of 2002. Staff training will occur through the full term of the project.

**X. Stakeholders**

The project was reviewed by the Stakeholder Advisory Panel and received approval as a component to the Salmon Habitat and Waterways Project.

**XI. Partners**

Custodial agencies maintaining information systems containing resource data needed for the project will be asked to assist in facilitating access to databases, or otherwise provide pertinent data required to validate site specific information, and to assist with field logistics and data collection.

**XII. Budget**

1124---- 1124----	FY03	FY04	FY05	FY06	Total
Line 100	\$51.7	\$117.7	\$120.3	\$148.4	\$438.1
Line 200	\$2.1	\$3.4	\$3.4	\$3.4	\$12.4
Line 300	\$21.4	\$23.3	\$23.4	\$23.6	\$91.7
Line 400	\$11.7	\$11.3	\$8.2	\$9.2	\$40.3
Line 500	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Total Lines 200-500	\$35.2	\$38.0	\$35.1	\$36.2	\$144.4
Total All Lines	\$86.9	\$155.7	\$155.4	\$184.5	\$582.5
3% Admin.	\$89.5	\$160.4	\$160.1	\$190.1	\$600.0