

Fiscal Year 1999

"Supplemental" Statement of Work

StreamNet: The Northwest Aquatic Resource Information Network

(October 1, 1999 - September 30, 1999)



Introduction

Overview of the Supplemental Statement of Work. This supplemental statement of work combines the work elements established through three separate contracts, one with the Environmental Protection Agency (EPA), and two with the National Marine Fisheries Service's (NMFS). This supplemental statement of work complements StreamNet's Fish and Wildlife Program statement of work. Essentially, the supplemental provides for 1) expansion of the StreamNet dataset beyond the Columbia River Basin, and 2) expansion of the data factors currently included in the StreamNet system to include, among others, more habitat and enhancement project data. The overall effect of this supplemental statement of work is to provide a broader, more applicable product for use by public agencies throughout the Pacific Northwest region.

StreamNet Project Summary. StreamNet provides data services and other technical support for activities associated with the Northwest Power Planning Council's (Council) Fish and Wildlife Program, as well as to Endangered Species Act activities (ESA) and other state and regional-level planning, policy, and management activities that complement the Program. In providing services to the Fish and Wildlife Program, StreamNet works in close consultation with the Bonneville Power Administration (BPA), the Council, the Columbia Basin Fish and Wildlife Authority (CBFWA), the Independent Science Advisory Board (ISAB)/Independent Science Review Panel (ISRP), and applicable federal, state, and tribal resource managers. NMFS and EPA are principal cooperators on ESA and other related regional data service activities.

The StreamNet data system consists of a series of databases and reference materials concerning aquatic resources in the four state Pacific Northwest region. Included are data on

fish production (both natural and hatchery), fish and wildlife distribution, habitat characteristics and condition, source material references, stream hydrography, and other environmental factors. A project data plan identifies additions and enhancements planned for the future. StreamNet utilizes the Internet as a principal means to deliver data. Data are also available via a stand-alone distributed database and custom products and services. Original source materials are available through the StreamNet Library housed and maintained at the Columbia River Inter-Tribal Fish Commission in Portland, Oregon.

StreamNet Goals and Objectives. The overall goal of the project is to create, maintain, enhance, and provide public access to a regionally consistent set of fish, wildlife, and related resource data. These data are to be directly applicable to policy, planning, and management activities aimed at the protection and restoration of fish and wildlife resources. Specific objectives include:

1. Fish and Wildlife Program. Serve as a primary mechanism for managing fish and wildlife data related to the Northwest Power Planning Council's Fish and Wildlife Program by maintaining and providing public access to essential existing data, supplying Program projects with data and computer-generated maps, serving as a repository for data collected through these projects, and providing information services to assist the Council, BPA, CBFWA, and the ISAB/ISRP in tracking projects and, ultimately, evaluating their effectiveness through the regional monitoring and evaluation process.

2. Other Fish and Wildlife Initiatives. Provide data and services to activities within the region that are related to the conservation of fish and wildlife resources and that complement the Fish and Wildlife Program, including Endangered Species Act activities, regional environmental analyses, tribal resource management, state-level policy and planning, and federal land and resource management agency activities.

Project Organization. The StreamNet project is a cooperative effort on the part of the region's fish and wildlife management agencies. The project is managed by the Pacific States Marine Fisheries Commission (PSMFC), under contract to BPA, NMFS, and EPA. The Northwest Power Planning Council (Council) provides policy oversight. Other agencies with a contractual commitment to the project include:

- California Department of Fish and Game (CDFG)
- Columbia River Inter-Tribal Fish Commission (CRITFC)
- Idaho Department of Fish and Game (IDFG)
- Montana Fish, Wildlife and Parks (MFWP)
- Oregon Department of Fish and Wildlife (ODFW)
- Shoshone-Bannock Tribes (SBT)
- U.S. Fish and Wildlife Service (USFWS)
- Washington Department of Fish and Wildlife (WDFW)

Additional agencies that participate in certain aspects of the project, contribute financial resources, or that are significant beneficiaries of project products, include:

- Bureau of Land Management (BLM)
- Environmental Protection Agency (EPA)
- National Marine Fisheries Service (NMFS)
- U.S. Forest Service (USFS)

PSMFC's project management team includes a project manager responsible for overall project coordination, a data manager responsible for overseeing development of the StreamNet data system, and a GIS manager. Participating agencies have designated a project coordinator who serves as the principal contact person within the organization and is responsible for ensuring that the agency meets its obligations regarding the project work statement. Much of the actual data development occurs at the agency level. Project coordinators within each of the participating agencies oversee this and ensure that appropriate agency-level data services are provided.

A Steering Committee consisting of representatives from BPA, CRITFC, IDFG, MFWP, ODFW, PSMFC, SBT, USFS, and WDFW oversees the project. The Committee provides the principal means for interagency coordination and communication and for ensuring the needs of the various participating organizations are being addressed. It is the Steering Committee's responsibility to approve major decisions regarding project direction and products.

Coordination with other Efforts. PSMFC is involved in several data compilation projects related to Pacific Northwest fisheries. PSMFC seeks to ensure compatibility and avoid duplication between these projects. The StreamNet team intends to maintain active contacts with PSMFC and other data development efforts in California, Alaska, and British Columbia in order to promote the development of StreamNet-type data and data systems coast-wide.

A separate statement of work presents objectives and tasks that will be performed during FY 1999 using BPA-administered Fish and Wildlife Program funds. This supplemental statement of work is consistent with the BPA statement of work, both in terms of format and products. In terms of the data compiled, the supplemental statement of work complements but does not overlap the data compiled through the BPA contract.

Work Plan Summary

Overview of Tasks. The supplemental work statement that follows identifies three primary objectives that the StreamNet project will address in FY 1999. For each objective the work statement identifies several tasks that will be completed during the fiscal year.

The work statement is the product of a concerted effort on the part of participating agencies to target high priority data in light of current and projected needs. The work statement links directly to the StreamNet Data Plan, which identifies data currently in the system, data that should be compiled over the next five years, and, within this, data that should receive priority

for FY 1999. (The StreamNet Data Plan may be viewed by going to the “management” section of the StreamNet home page and, within that, scrolling to “data development.”)

For FY 1999, updating of anadromous fish productivity trends and resident and anadromous fish distribution and life stage use data will continue to be a priority. Available anadromous fish age and population data will be incorporated as will biological data on resident fish. Additional areas that will receive attention are aquatic habitat and tracking of fish and wildlife projects. Considerable effort will be given to the continued development of interagency data exchange formats. The 1:100,000-scale river reach system will be maintained and additional data attached to that system. Substantial effort will be given to providing data services to select ESA projects and initiatives. The StreamNet Library will continue to provide a full range of library services to the fish and wildlife management community. The library will place emphasis on enhancing the collection through cooperative arrangements with others having relevant collections.

The work that each subcontractor performs will vary depending on ecological considerations, data availability, and other factors. Participating agencies each prepare individual work statements that correspond to this work statement but that focus directly on the tasks that the agency will undertake. These work statements are available at PSMFC. The tasks described below often include references to specific data types. It is important to recognize that this is a multi-agency work statement and that not all of the data types referenced here are available within all jurisdictions. Typical of this is task 7.1, Adult Abundance. Adult abundance may be addressed through escapement, redd counts, trap counts, and dam counts, among others. Participating agencies will focus attention on the data types that are readily available and that are recognized as key indicators. For example, in Idaho, redd count data have been collected for several years. Redd count data are not universally available for all watersheds in other states, where other indicators of adult abundance have been relied upon.

Following are three objectives that supplement the original statement of work's five objectives. In order to both emphasize the complementary nature between the original and supplementary work statements and simplify project management, these will be referred to as objectives 6, 7, and 8.

StreamNet FY 1999 Supplemental Work Statement

Objective 6 - EPA Environmental Data Development. *Expand, management, and maintain the StreamNet database to meet several high priority data needs identified by the Environmental Protection Agency.*

Summary. The EPA, state environmental quality agencies, and partners need assistance in the production, consolidation, and GIS linkage of aquatic resource data to the Pacific NW River Reach Files in order to evaluate aquatic resource conditions in the northwest, and to meet obligations to protect these resources under the Clean Water and Endangered Species Acts. Additionally, other data describing disturbances and landscape properties aggregated to 5th or 6th-field watersheds would be useful in prioritizing activities directed towards recovery efforts under these Acts.

This proposal addresses meeting several high priority needs for accurate, standard and readily available data on salmonids (salmon/steelhead priority) and their habitat in EPA Region 10 by incorporating this need into established interagency StreamNet data efforts. By expanding the data contents of StreamNet to include the items identified in this proposal, the system will provide a more comprehensive and long term information source for west coast resource managers, in a powerful user-friendly Web-based application.

Note: The geographic scope for data development under objective 6, tasks 6.1 through 6.8 includes the states of Idaho, Oregon, and Washington.

Task 6.1 SALMONID DISTRIBUTION

Continue the collection, linkage and improvement of salmonid species distribution and population data. This will include identification of legal status (state and federal) and where available, population delineation data.

Task 6.2 STREAM SURVEYS

Compile inter-agency field stream survey information and link this to the PNW hydrographic files. Develop a GIS link from the Oregon Dept. Fish & Wildlife complete suite of information to the StreamNet dataset.

Task 6.3 STREAM TEMPERATURE SUMMARY DATA

Gather stream temperature summary data from agencies & groups collecting these data and link to the PNW hydrography. List of summary statistics to be developed in consultation with all parties with a stake in the likely analytical products, particularly the states & EPA.

Task 6.4 MACROINVERTEBRATE SAMPLING DATA

Link Xerces Society database of macroinvertebrate sampling data to the PNW hydrography via ArcInfo dynamic segmentation techniques. Coordinate with EPA, Xerces Soc. & others, if necessary, to produce an agreed-upon suite of indices that would be available for spatial display & analysis.

Task 6.5 WATER QUALITY DATA

Write data exchange format for spatial 303d data to standardize methods and forms used by various states in region. Conversion of existing data to new format, referencing to regional 100k hydrography. Use of event data model to allow for integration of data into participant StreamNet organization's spatial and tabular data systems.

Task 6.6 ACCESS TO GIS DATA

Prepare a custom program written in Visual Basic and ESRI MapObjects to allow for creation of aquatic resource data on any PC without special GIS software. Program would utilize data exchange formats and standardized 100K hydrography to ensure that data would be easily integrated into StreamNet participants' GIS and tabular data systems. Would allow for any agency or participating data providers to create data on a variety of themes (303d, projects, habitat, fish distribution and populations).

Task 6.7 DATA COMPILATION PROCESSES

Develop and implement a program to establish mechanisms for data collection and quality assessment within States. Institute procedures to streamline and increase efficiency of collection and error checking of a variety of aquatic data within member states (OR, WA, & ID). Would fund state- level GIS techs in working with local biologists to evaluate accuracy of existing data (example: anadromous distribution and usetype) and to collect new data (example: resident fish distribution, barrier location and type) more quickly and using methods to ensure end product is easily usable by StreamNet participants. Result would be faster data development, more extensive reference information, and improved data accuracy.

Task 6.8 IRICC WEB PAGE

Enhance, manage and maintain WWW page for the Interagency Resource Information Coordinating Council.

Other Potential Tasks. The following data items would require scoping, coordination, and time beyond what is being proposed here. These tasks may be addressed if time and resources allow but are not requirements of this statement of work:

Task 6.9 **WATER WITHDRAWAL**

Produce digital datasets linked to the PNW hydrography of water withdrawal locations, including withdrawal amounts & timing.

Task 6.10 **ROADS DATA**

Collect digital roads datasets from the major resource agencies and US Census. At a minimum, produce merged datasets without attributes for watersheds or subbasins from which road density statistics could be produced for these areas. Additionally, investigate feasibility of including road-related attributes in the merged datasets via production of crosswalk tables to handle the different attribute coding schema used by the source agencies.

Task 6.11 **SOILS DATA**

Produce merged soil property datasets by working with NRCS & USFS soil specialists that would allow production of derived mass wasting, runoff & erosion GIS datasets. USFS, BLM & others have produced some of these layers for SW Oregon NWFP Province. If scientifically valid, continue these approaches in other areas where the availability of digital soils & 10 meter elevation data allow.

Objective 7 - NMFS Anadromous Fish Trend Data Development. *Expand the StreamNet database to all anadromous salmonid populations in the states of California, Oregon, and Washington.*

Summary. This proposal seeks to extend the term and conditions of a previous agreement between the National Marine Fisheries Service (NMFS) and the Pacific States Marine Fisheries Commission (PSMFC). The original agreement provided funds to allow PSMFC staff and contractors to update and incorporate select datasets into the StreamNet data system. This proposal aims to:

- 1) Update data compiled under the original contract with more current data, including through 1998 or the latest year for which data are available.
- 2) Incorporate, as deemed appropriate, additional data files, trends, or data types as that information becomes available.

Specific work items include:

- 1) Acquire and incorporate the latest information for abundance trends in the StreamNet database, focusing on populations outside of the Columbia River Basin.
- 2) Acquire and incorporate the latest information for hatchery trends in the StreamNet database, focusing on populations outside of the Columbia River Basin.
- 3) Acquire and incorporate the latest information for harvest trends in the StreamNet database , focusing on populations outside of the Columbia River Basin.

Task 7.1 ABUNDANCE DATA

Update existing StreamNet natural adult abundance data holdings to include the latest data available, focusing on anadromous populations in Washington, Oregon, and California that are outside of the Columbia River Basin.

Task 7.2 HATCHERY DATA

Update existing StreamNet hatchery release and return data holdings to include the latest data available, focusing on anadromous populations in Washington, Oregon, and California that are outside of the Columbia River Basin.

Task 7.3 HARVEST DATA

Update existing StreamNet freshwater and marine harvest data holdings to include the latest data available, focusing on anadromous populations in Washington, Oregon, and California that are outside of the Columbia River Basin.

Objective 8 - NMFS Habitat Restoration Projects. *Expand the StreamNet database to include habitat restoration projects in the states of California, Idaho, Oregon, and Washington.*

Summary. The intent of this project is to develop databases that can be used for economic analysis and research to estimate the costs and associated economic impacts of restoring salmon habitat. The project introduces an economic component into ongoing activities undertaken by PSMFC in cooperation with numerous state and federal agencies and Indian tribes. Specifically, this project will support the forecasting of costs associated with in-stream habitat restoration, and add to existing efforts to document habitat restoration projects. In addition, this project will help develop information for assessing the impacts of ESA habitat mitigation measures on small businesses and communities. This project will complement, and be consistent with, the restoration database being compiled for BPA- funded Fish and Wildlife Program projects within the Columbia Basin. It will not include Fish and Wildlife Program-funded projects as these data are currently being compiled. The geographic area covered includes the current and historic range of anadromous salmonids within the states of California, Idaho, Oregon, and Washington.

This statement of work will result in data that may be used by public agencies in evaluating compliance with statutory responsibilities. In accordance with habitat protection responsibilities under the Endangered Species Act (ESA), public agencies have sponsored or implemented a variety of habitat restoration projects for the protection of salmon and steelhead stocks. To help evaluate restoration efforts in this regard, a region-wide database is needed that characterizes the distribution of habitat restoration expenditures in terms of types of activities (e.g., fencing, revegetation, fish screens), the particular salmon and steelhead stocks expected to benefit from these activities, the specific locations (e.g., river reaches) where restoration occurs, and the land use types (e.g., logging, farming, ranching) and land ownership patterns (private vs. public) that predominate in these locations.

StreamNet is particularly suited as a medium for creation of this habitat restoration database, for the following reasons:

- 1) StreamNet is structured to incorporate information on the same salmon and steelhead stocks that are the focus of public habitat restoration projects;
- 2) The data structure currently used in StreamNet to characterize BPA restoration projects is expected to be similarly suited to characterizing the projects that will be incorporated into StreamNet under this statement of work; and
- 3) StreamNet includes biological and fishery data on salmon and steelhead that can be linked with state and federal restoration project data in ways that will enhance the usefulness of the restoration data.

Under the Regulatory Flexibility Act (RFA), federal agencies are responsible for determining the effect of regulatory actions on small businesses and small communities. To help meet this requirement as it applies to ESA regulations, NMFS is planning to develop a database that includes economic information on small businesses and demographic information on small communities in California, Oregon, Washington and Idaho potentially impacted by ESA listings

of salmon and steelhead stocks. To enhance the utility of this RFA database, this project would link the database to biological and fishery data on salmon and steelhead that are available in StreamNet and to the habitat restoration data that will be incorporated into StreamNet as part of this statement of work.

Task 8.1 STANDARDIZED FORMAT

The first task is to specify, in a standardized format, the types of information on habitat restoration projects to be included in StreamNet. PSMFC will work cooperatively with NMFS to specify this information. Required data elements include project title, sponsoring agency or agencies, name/address/phone number of project manager, salmon and steelhead stocks expected to benefit from the restoration, location/size/physical characteristics of the treated area, predominant land use and land ownership patterns in the treated area, beginning and completion dates of the restoration, types and magnitude of restoration activities undertaken, and restoration costs by year. The data system will also include an inflation factor and several alternative discount factors to allow annual project costs to be corrected for inflation and discounted over time. The data system will be structured to allow the habitat restoration information to be linked to data on salmon and steelhead abundances, hatchery releases and returns, and marine and freshwater harvests that are already available in StreamNet. The specification and format being used in StreamNet for BPA habitat restoration projects will provide a starting point for how the projects will be characterized in the data system, with final specification to be decided in consultation with NMFS.

Task 8.2 DATA DEVELOPMENT

The second task is for PSMFC to gather and incorporate into StreamNet, to the extent feasible, information on all habitat restoration projects initiated since 1980 for the benefit of salmon or steelhead stocks in California, Oregon, Washington and Idaho. These data will be incorporated into StreamNet according to the standardized format specified in Task 1. NMFS will assist PSMFC in identifying key contact persons and in accessing sources of habitat restoration data. These data sources include existing reports documenting habitat restoration projects associated with NOAA's Northwest Emergency Assistance Program, Natural Resource Conservation Service, U.S. Forest Service, Army Corp of Engineers, Environmental Protection Agency, and other projects.

Task 8.3 TECHNICAL GUIDANCE AND ADVICE

The third task is for PSMFC to provide technical guidance and advice to NMFS regarding the structure and format of the RFA database, for the purpose of ensuring linkage of that database with StreamNet. Creation of the RFA database will be the responsibility of NMFS.

Task 8.4 **COORDINATION**

NMFS and PSMFC will meet periodically in Portland to consult regarding problems that may arise in connection with data collection, data formatting or any other aspects of tasks 1-3, and to discuss progress completion of the habitat restoration data collection.

Task 8.5 **MEETING COORDINATION**

The fifth task is for PSMFC to assist in coordinating up to two meetings of appropriate experts to develop and estimate models for predicting restoration costs according to type of activity (e.g., fencing, revegetation, fish screens), size/extent of the area treated (e.g., miles of fencing), characteristics of the restored habitat (e.g., accessibility) and local economic conditions (e.g., prevailing wage rates). There is no funding provision in this agreement to cover actual workshop expenses.

The purpose of the first workshop will be to identify appropriate models, including models that are likely to make best use of the restoration project data collected in Task 2. The purpose of the second workshop will be to evaluate results of model estimation.

Products for Objective 8.

1) Final Report

PSMFC shall submit ten copies of a final report to NMFS on the scheduled completion date. The final report shall include the following information:

- a. detailed documentation of the data structure and data elements used to incorporate the NMFS habitat restoration project information into StreamNet;
- b. discussion of major difficulties encountered in obtaining access to restoration project data or in characterizing these data according to the standardized format, and how these difficulties were resolved;
- c. description of major sources and major repositories of habitat restoration project information identified over the course of the work;
- d. summary statistics that describe the total number of restoration projects incorporated into StreamNet and characterize the allocation of aggregate restoration project expenditures across salmon/steelhead stocks, types of restoration activities and treatment locations; and
- e. instructions on how to access and utilize the restoration project data within StreamNet and how to link these data with other biological and fishery data (e.g., salmon/steelhead abundance, hatchery releases and returns, marine and freshwater harvests) that are also included in StreamNet.

2) Copy of Data

PSMFC will provide NMFS with a disk copy of the habitat restoration project data in a Microsoft Access format, along with necessary documentation.