

FY 99 Project Implementation and Data Development Plan



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Prepared for:

Bonneville Power Administration

Prepared by:

Pacific States Marine Fisheries Commission

StreamNet Steering Committee:

Bonneville Power Administration
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Idaho Department of Fish and Game
Montana Department of Fish, Wildlife, and Parks
Oregon Department of Fish and Wildlife
Pacific States Marine Fisheries Commission
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For more information on data development aspects of the FY 99 StreamNet Implementation and Data Development Plan please consult:

1. StreamNet Exchange Format Documentation, Version 99-1
(scheduled for release January 26, 1999)
2. StreamNet Data Holdings (www.streamnet.org, online data query)
3. StreamNet Data Dictionary (www.streamnet.org, online data query)

Introduction

This document identifies information that will assist in the implementation of the StreamNet project for fiscal year 1999. Special emphasis is placed on data development as this is both central to the project and complex to manage. This implementation plan was prepared in partial fulfillment of the Pacific States Marine Fisheries Commission's contract with the Bonneville Power Administration (BPA). It has several purposes:

1. It provides a means for project managers to organize and sequence project activities.
2. It provides participating agency's with a common understanding regarding project requirements and agency responsibilities.
3. It provides individual participants with a means to visualize their role in the context of the entire project.
4. It provides a vehicle for communication with Fish and Wildlife Program planners and decision makers.
5. It provides a means for BPA to track progress toward meeting contract obligations.
6. It provides a means to plan for the future.

This document consists of several tables and documents that summarize information relevant to the StreamNet Statement of Work. A brief description of each section follows:

Data Holdings - This set of tables summarize information currently contained in the StreamNet data system. This summary was current as of July 1998. The data holdings document is revised approximately every six months. A new version will be available in early 1999.

Quick Plan - The quick plan presents a distillation of StreamNet's FY 99 Fish and Wildlife Program statement of work, as well as supplementary work statements for activities funded by the Environmental Protection Agency and the National Marine Fisheries Service. All of the objectives and tasks are listed but much of the text has been removed to provide a concise overview.

StreamNet's Relationship to Regional Policy and Scientific Guidance - This table correlates StreamNet objectives and tasks to policy documents related to the Fish and Wildlife Program, the Endangered Species Act, and related activities.

Long-term Data Development Priorities - This table presents a comprehensive list of data elements that are 1) currently in the StreamNet system, 2) being compiled currently, or 3) have been proposed for addition in the next three years. provides a link between the current year statement of work and future year activities. Anadromous fish data elements that are components of the StreamNet system were originally determined by means of a detailed resource managers' data needs survey. This initial survey has been augmented through frequent contact with resource managers, planners, and decision makers, and through annual reviews of Fish and Wildlife Program-related documents and guidance.

(See “StreamNet’s Relationship to Regional Policy and Scientific Guidance” table.)
Proposed additions to StreamNet have been tracked through annual data plans dating to 1995. The StreamNet team is committed to revisiting data priorities at least annually to ensure that the StreamNet data plan is responsive to emerging critical needs.

Data Development Priorities for Each Participating Agency - This table identifies where participating agencies will focus their energies during the contract period. Priorities in the table are consistent with subcontracts to these agencies. The table reflects the differences between participating agencies in terms of resource base, data availability, and data needs. The table will prove useful to these agencies as they set and implement priorities.

Data Delivery Schedule - This table identifies the time that major data components will be completed. The table reflects the fact that the various agencies collect and compile data on different schedules and will be especially helpful in planning for incorporating data into the regional data system. It must be recognized that most of the data compiled by StreamNet derives from other sources. This schedule represent an educated estimate of when these data will be released by primary sources. A variety of circumstances - weather, budget, policy priorities, technical difficulties, legal proceedings, among others - may cause data delivery to be delayed or, in some cases, terminated. There also may be instances where circumstances within the project dictate a change in schedule, for example, when there is a change in key staff or when regional priorities dictate a reallocation of staff time. The schedule must, therefore, be viewed as a planning tool rather than a hard and fast contract obligation.

Management Team - This identifies members of the StreamNet team having responsibilities for coordinating the various project activities.

Task Responsibilities - This table identifies the individuals responsible for ensuring that the various objectives and tasks are implemented. At the regional level a person is identified who will track progress on each task. At the participating agency level this is not always the case. This reflects the fact that certain participants are more directly involved in some tasks than others.

Staff Time Allocations - This table translates the project budget into person months and allocates staff time according to the relative amount of effort that each individual will spend on a given task. The staff time allocation table has, in past years, proven to be an effective tool for tracking widespread activities. It also provides a means to communicate this to project funders and regional decision makers.

Note: This document is being submitted to BPA in December 1998. The document is also being forwarded to steering committee members in order that they might review it and be prepared for a discussion of the data plan at the January 26-27 steering committee meeting. The document may be revised at that time. The information contained in this document will be reviewed frequently throughout the year and will be revised as warranted. StreamNet project managers will apprise BPA of modifications to tasks in objectives 1 - 5 that might cause a significant change in project direction or deliverables.

Data Holdings, Version 98-5

July 24, 1998

Major Updates From Version 98.4:

1. Addition of 1996-97 hatchery release data
2. Addition of historical salmon hatchery releases in Wa (back to the 1950's)
3. Updated natural escapement data in Oregon
4. Addition of new attribute file for PNW 1:100,000 Reach File (available in Access download version).
5. Updated and streamlined Reference system

Table 1. Anadromous Fish Data Holdings for Version 98.5 of StreamNet Online. Table shows generalized types of available data. An online, detailed data dictionary can be seen by running our online data query and clicking the Data Holdings button. This will generate an up to the minute report of current data holdings.

Adult Data, Smolt Density Model

Geographic Area	Species	Mainstem Dam Counts	Wier/Dam Counts	Redd Counts	Peak Spawn. Counts	Est. of Spawn. Pop.	Spawn - Recruit Est.	Smolt Density Data
Alaska	Salmon		X					
	Steelhead		X					
California	Salmon		X	X	X	X		
	Steelhead		X		X			
Idaho Col. Basin	Salmon		X	X			X	X
	Steelhead			X				X
Montana (West Side)	Various Resident							
Oregon Coastal	Salmon		X		X			
	Steelhead					X		
Oregon Col. Basin	Salmon	X	X	X	X	X	X	X
	Steelhead	X	X	X	X			X
Washington Coastal	Salmon				X	X		
	Steelhead					X		
Washington Col. Basin	Salmon	X	X	X	X	X	X	X
	Steelhead	X				X		X
Washington Puget Sound	Salmon		X		X	X		
	Steelhead					X		

Hatchery Data

Harvest Data

Geographic Area	Species	Releases	Returns	FW Sport	FW Comm.	FW Treaty	Marine Sport	Marine Comm.	Marine Treaty
Alaska	Salmon			X			X		
	Steelhead			X			X		
California	Salmon	X					X	X	
	Steelhead	X							
Columbia R	Salmon			X	X	X			
	Steelhead			X	X				
Idaho Col. Basin	Salmon	X	X						
	Steelhead	X	X	X					
Oregon Coastal	Salmon	X	X	X			X		
	Steelhead	X	X	X			X		

Oregon Col. Basin	Salmon	X	X	X					
	Steelhead	X	X	X					
Washington Coastal	Salmon	X	X				X	X	X
	Steelhead	X		X			X		
Washington Col. Basin	Salmon	X	X	X	X	X			
	Steelhead	X	X	X					
Washington Puget Sound	Salmon	X	X						
	Steelhead	X		X					

Table 2. 1:100,000 Scale Fish Distribution Data Contents for Version 98.5 of *StreamNet Online*.

Geographic Area	Anadromous Salmon & Steelhead	Bull Trout	Brown Trout	Rainbow Trout	Redband Trout	West - Slope Cutthroat	White Sturgeon
Idaho	X	X					
Montana (West Side Only)		X	X	X	X	X	X
Oregon	X	X					
Washington	X	X					

Table 3. Non-Anadromous Data Contents for Version 98.5 of *StreamNet Online*.

Data Category	Description / Status
ONLINE DATA SYSTEMS	
Dams Facilities	Complete for hydropower and dams 10ft and over in size for states of ID, MT, OR, and WA.
Hatchery Facilities	Complete for anadromous fish production facilities, partially complete for resident species for states of ID, MT, OR, and WA
Photographs	Over 600 digital photographs and images pertaining to aquatic resources in the Pacific Northwest. All are public domain and may be used as desired.
Protected Areas Data	Complete protected areas listings by stream from Northwest Power Planning Council Rulemaking in 1989.
Protected Areas Detailed Data by reach with Final Value Classes	Complete listings by reach of detailed data and final values classes from Protected Areas and the Pacific Northwest Rivers Study.
Reference Library	8,664 references as of 12/97, includes bibliographic citations from Northwest Power Planning Council.
DATA AVAILABLE ON REQUEST	
Mean Monthly Tributary Flow Data (USGS)	Complete through 1994 for most USGS gauging stations, data currently available from Regional Data Manager.
Mainstem Dam Flow Data	Daily Flow and spill data by project from 1960-1993, data currently available from Regional Data Manager.
Nearshore Ocean Upwelling Indices	Monthly Mean data for 11 west coast stations from 1946-1997, data currently available from Regional Data Manager.
Sea Surface Temp and Pressure	Complete temperature, pressure, and wind speed from 1854 - 1992, entire Pacific Ocean, data currently available from Regional Data Manager.

StreamNet FY 99 Quick Plan (BPA, NMFS, EPA contracts)



Objective 1 - Data Development. *Increase the knowledge base concerning the region's fish and wildlife resources through the acquisition of new information that responds to emerging needs as well as the updating and enhancement of production and survival trends and other existing information.*

Task 1.1 Anadromous Fish.

- a) Freshwater range, life history, barriers
- b) Adult abundance (escapement, redd counts, trap counts, dam counts)
- c) Juvenile data
- d) Harvest (in-river, terminal, other as available)
- e) Production factors (analytical products: survival, spawner recruit)
- f) Hatchery production (releases, returns, disposition, straying)
- g) Age/sex composition for returning adults
- h) Genetics (data availability)
- i) Population delineation (as determined by others)
- j) Historic range (general, reach specific where available)

Task 1.2 Resident Fish.

- a) Freshwater range, life history, barriers (salmonids, sensitive natives, competitors)
- b) Adult abundance (escapement, redd counts, trap counts, dam counts)
- c) Angler use (fishing pressure, creel census)
- d) Hatchery production (releases, out-plants)
- e) Genetics (data availability)
- f) Population delineation (as determined by others)
- g) Historic range (general, reach specific where available)
- h) Status (stable, declining, etc.)

Task 1.3 Aquatic Habitat.

- a) Habitat data from ICBEMP
- b) Other appropriate data layers from the ICBEMP
- c) Water quality (303(d))

- d) Stream survey data linked to the StreamNet data system (for prototype watershed planning projects)
- e) Other appropriate information compiled by others

Task 1.4 Facilities.

- a) Dams and fish passage facilities
- b) Hatcheries (including resident fish)
- c) Diversion/screening (for prototype watershed planning projects)

Task 1.5 Environmental Improvement Projects.

- a) Fish and Wildlife Program projects
- b) MOA, state, and federal land manager projects (initiate)
- c) Other state, tribal, and private projects

Objective 2 - Data Management and Delivery. *Provide high quality data management services, with specific emphasis on the creation of regionally consistent data sets and the timely delivery of data to users in formats that meets their policy, planning, and management needs.*

Task 2.1 Database Management.

Task 2.2 Data Plan.

Task 2.3 Data Exchange Standards.

Task 2.4 GIS Data System.

Task 2.5 StreamNet Internet Site.

Task 2.6 1:100,000-scale Hydrography.

Task 2.7 Data Requests.

Objective 3 - Library / Reference Services. *Provide professional library services targeted to meeting the needs of the region's fish and wildlife decision-makers, planners, and managers. This includes continuing to acquire and catalog StreamNet data source materials and other critical documents and providing open and efficient access to these materials.*

Task 3.1 Collection Development.

Task 3.2 Access to Collection.

Task 3.3 Catalog and Index Materials.

Task 3.4 Library Services.

Task 3.5 Inter-library Coordination.

Objective 4 - Services to Fish and Wildlife Program Activities. *Provide substantive technical data services to Fish and Wildlife Program decision-makers and appropriate Fish and Wildlife Program projects.*

Task 4.1 Project Tracking.

- a) Current year AIWP data base (cooperator)
- b) Internet version of FY 1999 AIWP
- c) Internet version of FY 2000 AIWP

Task 4.2 Monitoring and Evaluation.

- a) Participate in and/or monitor FWP monitoring and evaluation work groups.
- b) StreamNet data plan consistency with M&E needs.
- c) Data reports and other products in support of M&E activities.

Task 4.3. Watershed Projects.

- a) Watershed orientation data
- b) Project tracking
- c) Technical support to projects
- d) Compile regionally-consistent watershed data
- e) Internet delivery of watershed data and information
- f) Long-term data storage and access
- g) Assistance to watershed M&E activities

Task 4.4 Stock Assessment Projects.

- a) Region-wide data exchange standards
- b) Technical assistance
- c) Internet access

Task 4.5 Service to Fish and Wildlife Program Projects and Activities

- a) Analysis Projects (custom data reports and GIS products, data archive and access)
- b) Research Projects (library services, custom data reports and GIS products, data archive and access)
- c) Special Projects (as identified in the final AIWP)
- d) Policy Reports and Plans (custom products for FWP reports and plans)

Task 4.6 Internet Access.

StreamNet will provide Internet access for information about, and data from, select FWP projects and activities.

Task 4.7 Protected Areas.

- a) Maintain the official version of the Council's Protected Areas dataset.
- b) Archive official version as a historic record.
- c) Respond to requests for information concerning Protected Areas.

Objective 5 - Project Management. *Provide effective leadership that ensures the production of high quality products targeted at critical applications and the development of these products in a timely, cost-effective manner.*

Task 5.1 Manage Project Activities.

- a) Work statement
- b) Personnel
- c) Finances
- d) Project reporting

Task 5.2 Participate in Fish and Wildlife Program Development Activities.

Task 5.3 Prepare Public Information Materials.

Task 5.4 Coordinate With Related Activities.

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.*

Note: The geographic scope for data development under objective 1, tasks 1.1 through 1.8 includes the states of Idaho, Oregon, and Washington.

Task 6.1 Salmonid Species Data.

- a) Distribution
- b) Legal status (state and federal)
- c) Population delineation (where available)

Task 6.2 Field Stream Survey Data.

Agency data linked to PNW hydrographic files, ODFW field surveys as first priority.

Task 6.3 Stream Temperature Summary Data.

- a) Existing data linked to PNW hydrography.
- b) List of summary statistics.

Task 6.4 Macroinvertebrate Sampling Data.

Xerces Society macroinvertebrate sampling data linked to PNW hydrography.

Task 6.5 Water Quality Data.

- a) Data exchange format for spatial 303d data
- b) Conversion of existing data to new format, referencing to regional 100k hydrography.

Task 6.6 Remote Access to Spatial Data.

Provide means for creation of aquatic resource data on PC without GIS software.

Task 6.7 Data Compilation Processes

Establish mechanisms for data collection and quality assessment within States to streamline and increase efficiency of collection and error checking of aquatic data.

Task 6.8 IRICC Web Page

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

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.*

Task 7.1 Abundance Data.

Update natural adult abundance data, focusing on anadromous populations outside of the Columbia River Basin.

Task 7.2 Hatchery Data.

Update hatchery release and return data, focusing on anadromous populations outside of the Columbia River Basin.

Task 7.3 Harvest Data.

Update freshwater and marine harvest data, focusing on anadromous populations 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.*

Task 8.1 Standardized Format.

Specify, in a standardized format, the types of information on habitat restoration projects to be included in StreamNet.

- a) Project title.
- b) Sponsor
- c) Project manager name/address/phone number of project manager
- d) Target stocks.
- e) Location/size/physical characteristics of the treated area.
- f) Land use and land ownership patterns.
- g) Beginning and completion dates.
- h) Types and magnitude of restoration activities undertaken.
- i) Restoration costs by year with inflation factor.

Task 8.2 Enhancement Project Data Development.

Gather and incorporate information on habitat restoration projects since 1980 for the benefit of salmon or steelhead stocks.

Task 8.3 Technical Guidance and Assistance.

Provide guidance/advice to NMFS regarding the structure and format of the RFA database.

Task 8.4 Coordination with NMFS.

Consult regarding problems that may arise in connection with data collection, formatting, etc.

Task 8.5 Meeting Coordination.

Assist in coordinating two meetings of experts to develop and estimate models for predicting restoration costs. Meetings will identify appropriate models and evaluate results of model estimation.

StreamNet's Relationship to Regional Policy and Scientific Guidance

This table correlates proposed StreamNet tasks to action items in major guidance documents. References are to sections or pages. Included are both specific references to StreamNet and references to the types of data and data services provided by StreamNet. Other regional documents were also reviewed as part of this evaluation, including the Oregon Plan, the Idaho Bull Trout Plan, the Washington Wild Fish Policy, and the Interior Columbia Basin Ecosystem Management Project (Assessment of Ecosystem Components).

	1994 FWP	Tribal Plan	Snake R. Recovery Plan	Return to the River	MYIP	ISRP Reviews of 98 and 99 AIWP	CBFWA & NPPC 98 and 99 AIWP Recommendations
Overall Need for StreamNet Data	3.3A,B,D	5A-4	0.3,0.3.a	p. 430, 449	5.5.1.1, 5.11.3.1	V-C.1.1, V-C.1.2 (99)	CBFWA 2.5.1.4, 2.7.1 (98) NWPPC 18b (99)
FY99 Tasks:							
1. Data Development	3.3C.1, 3.3A.1						
1.1 Anadromous fish	3.3B.1, 5OF.IS, 7.1C.4	5D-2	0.3.a	p. 432		V-C.1.1 (99)	CBFWA 2.2.3, 2.7.1 (98)
a) Range, life history	2.2D, 3.3B.1	5D-1	0.3.a	p. 429, 449			CBFWA 2.4.3 (98)
b) Adult abundance	3.3B.1	5D-2	0.3.a	p. 429	5.5.2.1		CBFWA 2.7.2 (98)
c) Juvenile abundance	3.3B.1	5D-2	0.3.a	p. 429			CBFWA 2.7.2 (98)
d) Harvest	3.3B.1	5D-2	0.3.a		5.5.2.1		CBFWA 2.7.2 (98)
e) Nat. production	3.3b.1	5D-2	0.3.a	p. 429			CBFWA 2.7.2 (98)
f) Hatchery production	3.3B.1, Artificial Production Review	5D-2	0.3.a				
g) Age/sex comp.	3.3B.1	5D-2	0.3.a		5.5.2.1		CBFWA 2.7.2 (98)
h) Genetics, populations	1b3. Juvenile		4.2.d	p. 444&5, 511, 518	5.5.2.1		

	1994 FWP	Tribal Plan	Snake R. Recovery Plan	Return to the River	MYIP	ISRP Reviews of 98 and 99 AIWP	CBFWA & NPPC 98 and 99 AIWP Recommendations
	abundance						
i) Population	4.3C.1, 7.1C2&3	5D-3		p. 426	5.5.2.1		CBFWA 2.7, 27.2 (98)
1.2 Resident fish		N/A	N/A		6.4.1, 6.4.2 to 7	III.B.13 (98) III-B (99)	CBFWA 2.2.3, 2.7.1 (98)
a) Range, life history		N/A	N/A	p. 449	6.4.2 to 7	III.B.13 (98)	CBFWA 2.4.3 (98)
b) Adult abundance		N/A	N/A		6.4.1	III.B.13 (98)	
c) Angler use	8.5E.1	N/A	N/A			III.B.13, III.B.15 (98)	
d) Hatchery production	Artificial Production Review	N/A	N/A			III.B.13 (98)	
e) Genetics	2.2A, 7.1C.1&2	N/A	N/A	p. 444&5, 511, 518	6.4.2 to 7	III.B.14 (98)	
f) Population							CBFWA 2.7, 2.7.2 (98)
1.3. Aquatic habitat	3.3D.1		1.1.a		5.9.4-1		CBFWA 2.4.3, 2.7.1 (98)
a) ICBEMP habitat				p. 431			
b) other ICBEMP	7.6D		1.1.a	p. 353	5.9.4-1		
c) Water quality				p. 443			
d) Stream survey	7.6D	5B-5-9	1.1.a, 1.1b.3	p. 443	5.9.4-1		CBFWA 2.7.2 (98)
1.4 Facilities							
a) Dam	12.2		1.6.a				

	1994 FWP	Tribal Plan	Snake R. Recovery Plan	Return to the River	MYIP	ISRP Reviews of 98 and 99 AIWP	CBFWA & NPPC 98 and 99 AIWP Recommendations
b) Hatcheries	8.1, Artificial Production Review						
c) Diversions			1.2.a, 1.5.b				
1.5 Projects						III.A.1 (98)	
a) FWP projects	3.3E.1					III.A.1 (98)	
b) MOA projects	3.3E.1			p. 449	7.4.2	III.B.20 (98)	V-C.5.3 (99)
c) Other projects	3.3E.1			p. 449	7.4.2	III.B.20 (98)	V-C.5.3 (99)
2. Data Management	3.3A.1	5D-2	0.3.a				
2.1 Database	3.3A.1, 3.3C.1		0.3.a				
2.2 Data plan	3.3A.1		0.3.a				
2.3 Exchange standards	3.3A.1		0.3.a				
2.4 GIS	3.3D.1		1.1.a		7.4.2		
2.5 Internet			0.3.a			V-C.1.3 (99)	
2.6 Hydrology	3.3E.1				5.5.2		CBFWA 2.2.3 (98)
2.7 Data requests							
3. Library Services	3.3C.1						
3.1 Collection development	3.3C.1	5A-4		p. 430			NWPPC 18b (99)
3.2 Access to collection	3.3C.1	5A-4		p. 430			
3.3	3.3C.1						

	1994 FWP	Tribal Plan	Snake R. Recovery Plan	Return to the River	MYIP	ISRP Reviews of 98 and 99 AIWP	CBFWA & NPPC 98 and 99 AIWP Recommendations
Cataloging							
3.4 Library services	3.3C.1						
3.5 Coordination	3.3C.1						
4. Services to FWP							
4.1 Project tracking	3.3E.1				8.3.2	V-C.5.3 (99)	NWPPC 9.a (98) NWPPC 18b (99)
4.2 M&E	3.2A.1&2 ; 4.3C.1; 3.3A.2	5D-2	2.1.d.5	p. 425, 426	5.5.2.1		CBFWA 2.2.3 (98) NWPPC 18b (99)
4.3 Watershed projects	3.1D.2, 7.0C.2	vol. II	1.4.a	p. 444		III.B.7 (98) V-C.3.1 (99)	NWPPC 2, p. 10-11 (98) NWPPC 5a,b (99)
4.4 Stock assessment projects	10.8.B&C					III.B.13 (98)	NWPPC 2, p. 12 (98)
4.5 Projects and activities	3.2F.1 3.2G.2 3.2B.1, 3.3A.2		0.3.b 0.3.d		8.3.3		NWPPC 4.b (98)
4.6 Internet access	7.0C.2				8.3.1		NWPPC 9.b (98)
4j. Protected Areas	12.2						
5. Project Management	N/A						

StreamNet Long-term Data Development Priorities

	Current SOW	Future Possibilities	Priority for Future
1.1 - Anadro. Fish			
a) range, life history	X	Periodic update	Ongoing, High
b) adult abundance	X	Annual update	Ongoing, High
c) juvenile data	X	Annual update	Ongoing, High
d) harvest	X	Annual update	Ongoing, High
e) natural production	X	Annual update	Ongoing, High
f) hatchery production	X	Annual update	Ongoing, High
g) age/sex composition	X	Annual update	Ongoing, High
h) genetics	X	Periodic update	Ongoing, High
i) populations	X	Infrequent update	Ongoing, Moderate
j) historic range (qualitative)	X	One time	No need
k) historic range (quantitative)		X	High/Moderate
l) potential range		X	Low (same as historic?)
m) genetic characteristics		X	Low (only if asked)
n) predation		X	Low
o) disease sample sites (wild fish)		X	Moderate/High
p) juvenile overwintering survival		X	Discuss
1.2 - Resident Fish			
a) range, life history	X	Periodic update	Ongoing, High
b) adult abundance	X	Annual update	Ongoing, High
c) angler use	X	Annual update	Ongoing, High
d) hatchery production	X	Annual update	Ongoing, High
e) genetics	X	Periodic update	Ongoing, High
f) populations	X	Infrequent update	Ongoing, Moderate
g) historic range (qualitative)	X	One time	No need
h) historic range (quantitative)		X	Low (difficult)
i) health/status		X	High for policy use, Low for management
j) native, non-salmonid distribution		X	High
k) introduced, non-		X	High for problem

	Current SOW	Future Possibilities	Priority for Future
salmonid distribution			species, otherwise low
l) genetic characteristics		X	Low (only if asked)
m) fish management classifications		X	Moderate/High
m) species competition		X	Moderate
n) disease sample sites (wild fish)		X	Moderate/High
1.3 - Habitat			
a) ICBEMP habitat	X	One time	No need
b) other ICBEMP	X	One time	No need
c) water quality	X	Periodic update	Ongoing, High
d) stream surveys	X	Expand	Ongoing, High
e) aquatic habitat quality		X	High for policy use, Lower for management
f) sensitive aquatic animal distribution		X	High
g) ESA critical habitats		X	High
h) flow		X	Moderate
i) barrier information		X	Moderate/High
j) lake hydrologic referencing		X	Moderate
k) lake hydrological character		X	Low
l) trib. reservoir hydrological character		X	Low
m) wetlands referencing		X	Low
n) wetlands characteristics		X	Low
o) upland habitat characteristics		X	Low
p) upland habitat quality		X	Low
q) estuary habitat characteristics		X	High
r) estuary habitat quality		X	Moderate
s) ocean habitat characteristics		X	High
t) ocean habitat quality		X	Moderate

	Current SOW	Future Possibilities	Priority for Future
u) core anadromous habitats		X	High
v) core resident habitats		X	High
1.4 - Facilities			
a) dams	X	Expand	Moderate
b) hatcheries	X	Periodic update	High
c) diversions	EX	X	Moderate (difficult)
d) fish passage facility status/characteristics		X	Moderate/High
e) diversion screening status		X	High
f) water diversion/allocation		X	Low (difficult to accomplish)
1.5 - Projects			
a) FW Program	X	Annual update	Ongoing, High
b) interagency MOA	X	Annual update	Ongoing, High
c) other projects	X	Annual update	Ongoing, High
1.6 - Wildlife			
a) sensitive aquatic animals		X	High
b) sensitive riparian animals		X	Moderate
c) upland T&E animals		X	Moderate
d) waterfowl distribution		X	Moderate
e) big game distribution		X	Moderate
f) big game winter range		X	Moderate
g) mitigation parcel characteristics & maps		X	High
h) aquatic & riparian T&E plants		X	Moderate
1.7 - Mainstem¹			To be determined
a) riparian habitat character		X	
b) spill flow		X	
c) turbine flow		X	

¹ Must not duplicate activities of the Fish Passage Center or other FWP projects.

	Current SOW	Future Possibilities	Priority for Future
d) screening, FGE		X	
e) juvenile trans		X	
f) dissolved gases		X	
g) reservoir characteristics		X	
6 - EPA			
a) salmon species	X	Periodic update	Ongoing, High
b) stream surveys	X	Expand	Ongoing, High
c) temperature	X	Periodic update	Ongoing, Moderate
d) macroinvertebrate	X	Periodic update	Easy once established
e) water quality	X	Periodic update	Ongoing, High
7 - NMFS data			
a) abundance	X	Annual update	Ongoing, High
b) hatchery	X	Annual update	Ongoing, High
c) harvest	X	Annual update	Ongoing, High
8 - NMFS projects			
a) projects	X	Annual update	Ongoing, High

FY 99 Data Development Priorities for Each Participating Agency

priority: 1 = critical, must complete this year; 2 = high priority, depends on data availability; 3 = long-term objective

action: annual update = add current year trends, acquire = existing data available from others, new data type = initial effort, start with data exchange standards, refine = existing non-trend data needing updating

participant effort: (refers to effort in actually compiling data, not in porting to the regional system) 1 = data available, complete this year; 2 = data uncertain, will work on; 3 = low level of effort anticipated; 4 = completed; 5 = not applicable

	Priority	Action	PSMFC	CRITFC	IDFW	MFWP	ODFW	SBT	USFWS	WDFW
1.1 - Anadromous Fish										
a) range, life history	1	Refine	1	5	1	5	1	5	5	1
b) adult abundance	1	Annual update	5	2	1	5	1	3	5	4
c) juvenile data	2	New data type	5	2	2	5	2	3	5	2
d) harvest	1	Annual update	5	2	1	5	1	5	5	1
e) natural production	2	New data type	5	2	2	5	3	3	5	3
f) hatchery production	1	Annual update	5	2	1	5	1	3	1	1
g) age/sex composition	2	New data type	5	2	3	5	1	5	5	2
h) genetics	2	New data type	2	2	3	5	2	2	5	2
i) populations	2	Acquire	5	5	4	5	2	5	5	3
j) historic range	2	Acquire	1	5	4	5	1	5	5	3
1.2 - Resident Fish										
a) range, life history	1	Refine	1	3	1	4	1	5	5	2
b) adult abundance	2	New data type	5	3	1	4	3	5	5	3
c) angler use	2	New data type	5	3	3	1	3	5	5	3
d) hatchery production	1	New data type	2	3	2	2	2	5	2	2
e) genetics	2	New data type	2	3	3	1	3	5	5	3
f) populations	3	Acquire	5	3	3	1	3	5	5	3
g) historic range	2	Acquire	5	3	2	2	3	5	5	3
1.3 - Habitat										
a) ICBEMP habitat	1	Acquire	2	5	5	5	5	5	5	5

	Priority	Action	PSMFC	CRITFC	IDFW	MFWP	ODFW	SBT	USFWS	WDFW
b) other ICBEMP	2	Acquire	1	5	5	5	5	5	5	5
c) water quality	2	Acquire	1	5	2	2	2	5	5	2
d) stream surveys	2	Acquire	2	3	3	1	3	5	5	3
1.4 - Facilities										
a) dams	2	Refine	4	5	3	3	3	5	5	3
b) hatcheries	1	Refine	1	5	1	1	1	5	5	1
c) diversions	3	Acquire	3	3	3	3	3	5	5	3
1.5 - Enhancement Projects										
a) FW Program		Refine	2	5	5	5	5	5	5	5
b) interagency MOA	3	New data type	2	5	5	5	5	5	5	5
c) other projects	3	New data type	2	2	2	2	2	5	5	3
6 - EPA										
a) salmon species	1	Refine	1	5	1	5	1	5	5	1
b) stream surveys	1	Acquire	2	5	3	5	1	5	5	3
c) temperature	1	Acquire	2	5	2	5	2	5	5	2
d) macroinvertebrate	1	Acquire	2	5	3	5	5	5	5	5
e) water quality	1	Acquire	2	5	2	5	2	5	5	2
7 - NMFS data										
a) abundance	1	Annual update	1	5	1	5	1	5	5	1
b) hatchery	1	Annual update	1	5	1	5	1	5	5	1
c) harvest	1	Annual update	1	5	1	5	1	5	5	1
8 - NMFS projects										
a) projects	2	New data type	2	5	2	5	2	5	5	2

FY 99 Data Delivery Schedule

1 = exchange format

2 = partial data (e.g., select species or geographic areas)

3 = complete data

	Oct 31	Nov 30	Dec 31	Jan 31	Feb 28	Mar 31	Apr 30	May 31	Jun 30	July 31	Aug 31	Sep 30
1.1 - Anadromous Fish												
Regionwide												
f) hatchery production				1					2			3
j) historic range							1					3
Idaho												
a) range, life history	1	2		3								
b) adult abundance									2			3
c) juvenile data												2
d) harvest									2			3
e) natural production												2
g) age/sex composition										1		
h) genetics						1						2
i) populations						1						2
Oregon												
a) range, life history	1	2		3								
b) adult abundance									2			3
c) juvenile data												2
d) harvest									2			3
e) natural production												2
g) age/sex composition										1		
h) genetics						1						2
i) populations												
Washington												
a) range, life history	1	2		3								
b) adult abundance									2			3
c) juvenile data												2
d) harvest									2			3
e) natural production												2
g) age/sex composition										1		
h) genetics						1						2
i) populations												
1.2 - Resident Fish												
Regionwide												
g) historic range							1					3
Idaho												
a) range, life history	1					2			3			
b) adult abundance											1	
c) angler use											1	
d) hatchery production					1							2
e) genetics						1						
f) populations						1					3	
Montana												

	Oct 31	Nov 30	Dec 31	Jan 31	Feb 28	Mar 31	Apr 30	May 31	Jun 30	July 31	Aug 31	Sep 30
a) range, life history	1					2			3			
b) adult abundance												3
c) angler use												3
d) hatchery production					1						3	
e) genetics						1						
f) populations						1						2
Oregon												
a) range, life history	1					2						
b) adult abundance											1	
c) angler use											1	
d) hatchery production					1							3
e) genetics						1						
f) populations						1						
Washington												
a) range, life history	1					2			3			
b) adult abundance											1	
c) angler use											1	
d) hatchery production												3
e) genetics					1							
f) populations						1						
1.3 - Habitat												
Regionwide												
a) ICBEMP habitat						3						
b) other ICBEMP												3
c) water quality				1	2		3					
d) stream surveys				1		2		3				
1.4 - Facilities												
Regionwide												
a) dams										2		
c) diversions												1
Idaho												
b) hatcheries				1		3						
Montana												
b) hatcheries				1		3						
Oregon												
b) hatcheries				1		3						
Washington												
b) hatcheries				1		3						
1.5 - Enhancement Projects												
Regionwide												
a) FW Program				1								
b) interagency MOA				1								2
c) other projects				1								2
6 - EPA												
Regionwide												

	Oct 31	Nov 30	Dec 31	Jan 31	Feb 28	Mar 31	Apr 30	May 31	Jun 30	July 31	Aug 31	Sep 30
a) salmon species	1		2		3							
b) stream surveys				1		2		3				
c) temperature					1							2
d) macroinvertebrate					1		3					
e) water quality												1
Idaho												
a) salmon species	1		2		3							
c) temperature					1							2
e) water quality												1
Oregon												
a) salmon species	1		2		3							
b) stream surveys				1		2		3				
c) temperature					1							2
e) water quality												1
Washington												
a) salmon species				1		2		3				
c) temperature					1							2
e) water quality												1
7 - NMFS data												
Idaho												
a) abundance								2				3
b) hatchery								2				3
c) harvest								2				3
Oregon												
a) abundance								2				3
b) hatchery								2				3
c) harvest								2				3
Washington												
a) abundance								2				3
b) hatchery								2				3
c) harvest								2				3
8 - NMFS projects												
Idaho												
a) projects				1				2				3
Oregon												
a) projects				1				2				3
Washington												
a) projects				1				2				3

StreamNet FY 99 Management Team

Steering Committee

Bart Butterfield, IDFG
Cedric Cooney, ODFW
Janet Decker-Hess, MFWP
Dick O'Connor, WDFW
Stephen Pastor, USFWS
Drew Parkin, PSMFC
Phil Roger, CRITFC
Alan Ruger, BPA
Doug Taki, SBT

Regional Project Coordinators

Michael Banach, regional data development coordinator
Douglas Burch, regional data manager
Matthew Freid, regional GIS manager
Karen McGill, web site coordinator
Drew Parkin, project manager
Vacant, StreamNet librarian

Participating Agency Data Management Coordinators

Cedric Cooney, ODFW
Hilary Forrest, CRITFC
Jeff Hutton, MFWP
Bill Kinney, Larry Brown, WDFW
Bob McAllister, CDFG
Bruce Murdock, IDFG

Participating Agency GIS Coordinators

Bart Butterfield, IDFG
Jon Bowers, ODFW
Martin Hudson, WDFW
Jeff Hutton, MFWP

Contracting Officer Technical Representatives

Alan Ruger, BPA
Bill Bogue, EPA
Steve Freeze, NMFS

StreamNet FY 99 Statement of Work: Task Responsibilities

NA = not applicable

Blank = secondary role or not defined

Objective	Task/Subtask	Overall	CRITFC	IDFG	MFWP	ODFW	SBT	USFWS	WDFW
1. Data Develop									
	1.1 Anadromous Fish								
	a) range, life history	Freid		Butterfield	NA	Bowers			Burns
	b) adult abundance	Banach	Forrest	Elms	NA	Cooney			Sikora
	c) juvenile data	Banach	Forrest	Brown	NA	Cooney			Sikora
	d) harvest	Banach	Forrest	Elms	NA	Cooney			Sikora
	e) natural production	Banach	Forrest	Brown	NA	Cooney			Sikora
	f) hatchery production	Banach	Forrest	Elms	NA	Cooney		Pastor	Sikora
	g) age/sex composition	Banach	Forrest	Elms	NA	Cooney			Sikora
	h) genetics	Banach			NA		Taki		
	i) populations	Banach			NA				O'Connor?
	j) historic range	Freid			NA				
	1.2 Resident Fish								
	a) range, life history	Banach		Butterfield	Hutten	Bowers			Burns
	b) adult abundance	Banach			Decker-H				
	c) angler use	Banach			Decker-H				
	d) hatchery productions	Banach		Elms	Decker-H				
	e) genetics	Banach			Decker-H				
	f) populations	Banach			Decker-H				
	g) historic range	Freid							
	h) status	Banach			Decker-H				
	1.3 Aquatic Habitat								
	a) ICBEMP habitat	Freid	NA	NA	NA	NA	NA	NA	NA
	b) other ICBEMP	Freid	NA	NA	NA	NA	NA	NA	NA

Objective	Task/Subtask	Overall	CRITFC	IDFG	MFWP	ODFW	SBT	USFWS	WDFW
	c) water quality	Freid							
	d) stream survey	Freid	Forrest						
	1.4 Facilities								
	a) dams	Parkin					NA	NA	
	b) hatcheries	Banach		Elms	Decker-H	Cooney	NA	Pastor	Sikora
	c) diversions	Parkin					NA	NA	
	1.5 Projects								
	a) FWP	Parkin							
	b) MOA	Parkin							
	c) other	Pakin							
2. Data Manage									
	2.1 Database	Burch	Forrest	Murdock	Decker-H	Cooney			Brown
	2.2 Data Plan	Parkin	Roger	Butterfield	Decker-H	Cooney	Taki	Pastor	O'Connor
	2.3 Exchange Standards	Burch	Roger	Butterfield	Decker-H	Cooney	Taki	Pastor	O'Connor
	2.4 Internet	McGill	NA	NA	NA	NA	NA	NA	NA
	2.5 Hydrography	Freid		Butterfield	Hutten	Bowers			Hudson
	2.6 Data Requests	Burch	Forrest	Butterfield	Decker-H	Cooney	Taki	Pastor	O'Connor
3. Library Services									
	3.1 Collection	TBA	TBA						
	3.2 Access	TBA	TBA	NA	NA	NA	NA	NA	NA
	3.3 Catalog/index	TBA	TBA	Elms	Curd Rau	Bourne	NA	NA	Sikora
	3.4 Services	TBA	TBA		Curd Rau	Bourne			
	3.5 Inter-library	TBA	TBA	NA	NA	NA	NA	NA	NA
4. FWP Services									
	4.1 Project Tracking	Parkin	Forrest						
	4.2 Monitoring	Parkin	Roger						
	4.3 Watersheds	Freid	Forrest						
	4.4 Stock Assessments	Banach		Butterfield	NA	NA	NA	NA	O'Connor
	4.5 Misc.	Parkin	NA	NA	NA	NA	NA	NA	NA

Objective	Task/Subtask	Overall	CRITFC	IDFG	MFWP	ODFW	SBT	USFWS	WDFW
	4.6 Internet Access	McGill	NA	NA	NA	NA	NA	NA	NA
	4.7 Protected Areas	Parkin	NA				NA	NA	
5. Project Manage									
	5.1 Project Management	Parkin	Roger	Butterfield	Decker-H	Cooney	Taki	Pastor	O'Connor
	5.2 FWP Coordination	Parkin	Roger				Taki		
	5.3 Public Information	McGill							
	5.4 Misc. Coordination	Parkin		Butterfield	Decker-H	Cooney	Taki	Pastor	O'Connor
6. EPA Data									
	6.1 Salmonid Species	Freid	NA	Butterfield	NA	Bowers	NA	NA	Burns
	6.2 Stream Surveys	Freid	NA	NA	NA	Jones	NA	NA	NA
	6.3 Temperature	Banach							
	6.4 Macroinvertebrate	Banach							
	6.5 Water Quality	Freid		Butterfield		Bowers			Hudson
	6.6 Spatial Data	Freid	NA	NA	NA	NA	NA	NA	NA
	6.7 Data Compilation	Burch	NA	NA	NA	NA	NA	NA	NA
	6.8 IRICC Web Page	McGill	NA	NA	NA	NA	NA	NA	NA
7. NMFS Data									
	7.1 Abundance	Banach	NA	Elms	NA	Cooney	NA	NA	Sikora
	7.2 Hatchery	Banach		Elms		Cooney			Sikora
	7.3 Harvest	Banach		Elms		Cooney			Sikora
8. NMFS Projects									
	8.1 Standard Format	Banach	NA		NA		NA	NA	
	8.2 Data Development	Banach							
	8.3 Tech. Assistance	Parkin	NA	NA	NA	NA	NA	NA	
	8.4 Coordination	Allen	NA	NA	NA	NA	NA	NA	
	8.5 Meeting coord.	Allen	NA	NA	NA	NA	NA	NA	

StreamNet FY 99 Staff Time Allocation

(in months, rounded to .1)

BPA Contract = Objectives 1 through 5; EPA Contract = Objective 6; NMFS Contracts = Objectives 6 & 7

Personnel	Objective #												
	1.1	1.2	1.3	1.4	1.5	2	3	4	5	6	7	8	total
CRITFC										NA	NA	NA	
Phil Roger, project coordinator							1	1					2
Hilary Forrest, data manager	2		3	1		1		4	1				12
TBA, librarian							11						12
Lenora Oftedahl, asst librarian							12		1				12
David Liberty, library tech							9						9
Jonas Green, library tech							3						3
totals	2		3	1		1	35	5	3				50
Tribal Subcontracts													
Nez Perce	2	0.5	0.5										3
Umatilla	2	0.5	0.5										3
Warm Springs	2	0.5	0.5										3
Yakama	2	0.5	0.5										3
totals	8	2	2										12
IDFG													
Brown, Evan										3	1	2	6
Butterfield, Bart	0.1	0.2	0.1	0.1		2		0.5	2	1			6
Butterfield, Vanessa	0.5	1											1.5
Elms-Cockrum, Terry	2	2				2							6
Hartpence, Lawrence		3		3		6							12
Mauser, Greg									1.5				1.5
Murdock, Bruce	1	3	3			3	2						12
Scarlet, Desiree			2			6							8
Stephens, George									1.5				1.5
TBA										1	1	0.5	2.5
totals	3.6	9.2	5.1	3.1		19	2	.5	5	5	2	2.5	57
ODFW													
Ray Beamesderfer, CRM biol.						1							1
Gloria Bourne, clerical support	0.5					2.5							3
Jon Bowers, GIS specialist	3	0.5	1.5		1.5	2.5			1.5	1			11.5
Susan Brodeur, data compiler	2			1									3
Doug Case, data compiler	0.5					0.5							1
Cedric Cooney, coordinator	2.5	0.5	1	0.5	1	2			3	1	0		11.5
Brent Forsberg, biologist	2			0.5		1.75			0.5				4.75
Milt Hill, GIS specialist						2							2
Kevleen Melcher, data comp.	0.4					0.6							1
Briana Sounhein, data compiler	2	0.5		0.5		1			0.5	0.5	1		6
Eric Tinus, CRM data compiler	3.5					2.2			0.3				6
Vacant NRS-1	1									1	1	1	4
Vacant NRS-3						1				1	3	3	8
Totals	17.4	1.5	2.5	2.5	2.5	17.1	0	0	5.8	4.5	5	4	62.8

Personnel	Objective #												
	1.1	1.2	1.3	1.4	1.5	2	3	4	5	6	7	8	total
ODFW Subcontract													
Burke, data compiler										2			2
Flitcroft, data compiler										6			6
Kavanaugh, data compiler										2			2
Reis, data compiler										2			2
totals										12			12
PSMFC													
Michael Banach, fish biologist										2.5	3.5	6	12
Douglas Burch, data manager	1				1	5		1		1	2	1	12
Matt Freid, GIS manager	1	1	1			4		4		1			12
Karen McGill, Web specialist						2				3	2	1.5	8.5
Drew Parkin, project manager		1	1		1	1	1	3	3			1	12
Contract programmer(s)						8				5	3	1	17
TBA, data tech 1										2	4	3	9
TBA, data tech 2	1	2	1	2									6
totals	3	4	3	2	2	20	1	8	3	14.5	14.5	13.5	88.5
SBT													
Doug Taki, coordinator	1									2			3
totals	1									2			3
USFWS													
Stephen pastor, coordinator	1									1			2
totals	1									1			2
WDFW													
clerical support										1.6			1.6
Larry Brown, compiler/prgmr	5					7							12
Cindy Burns, GIS compiler				0.5						4			4.5
Mark Henry, data compiler	2			1							7	2	12
Martin Hudson, GIS prgmr		0.5		0.5		8				1			10
Bill Kinney, supervisor/prgmr												0.5	0.5
Sarah Nielsen, data compiler	4	2		1		1					1	3	12
Dick O'Connor, project lead										2			2
Leslie Sikora, data manager	3.4	2				3					1.2		9.6
Bob Woodard, data compiler	5.2	0.5		0.5		2					0.8		9
totals	19.6	5		3.5		21				3.6	5	10	73.2
Summary													
BPA Contract	56.6	33.9	16.8	14.8	6.5	91	41.2	14.5	23.3				298.5
EPA Contract										41			41
NMFS Data Contract											31.5		31.5
NMFS Project Contract												25.5	25.5
totals	56.6	33.9	16.8	14.8	6.5	91	41.2	14.5	23.3	41	31.5	25.5	395.5