



StreamNet Project

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Fiscal Year 2003 Fourth Quarter Progress Report

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Introduction

StreamNet is a cooperative, multi-agency data compilation and data management project authorized by the Northwest Power and Conservation Council's (NPCC) Fish and Wildlife Program (FWP). The project is funded primarily by Bonneville Power Administration (BPA) and is administered by the Pacific States Marine Fisheries Commission (PSMFC). Three fourths of the project consists of sub-projects within the state fish and wildlife agencies, Columbia River Intertribal Fish Commission (CRITFC) and the US Fish and Wildlife Service (FWS) to develop databases within the respective agencies, standardize data between agencies, georeference data, facilitate data transfer regionally, and maintain the regional StreamNet Library. The 'regional' fourth of the project, located at PSMFC, manages and maintains the regional database, operates the Geographic Information System (GIS) and Internet mapper applications, and disseminates data through the on-line data query system.

The StreamNet Project compiles, manages and distributes information related to fish resources in the Columbia River basin, with additional information available for the rest of the Pacific Northwest. The state, tribal and federal fish and wildlife agencies collect and utilize data related to the region's fish and wildlife resources to meet their own mandates. A subset of these data, primarily the annually collected types of information that are routinely used to monitor trends within fisheries and populations and provide management information, are compiled by StreamNet into regionally standardized formats and publicly distributed, primarily through the StreamNet Internet site www.streamnet.org. In this manner, data common to fisheries management but collected and stored in multiple formats by the individual agencies are standardized and made uniformly available basin wide. StreamNet also ties all data to the regional 1:100,000 scale routed hydrography (GIS stream network) so that different kinds of data can be compared on a geographic basis and mapped. The project utilizes the Internet as its primary means of data distribution, but also provides custom data services to FWP participants. The StreamNet web site provides access to information in a queryable database and also provides maps, individual data sets not contained in the queryable database, and library references. All data in the StreamNet database are referenced to source documents that are housed in the StreamNet Library.

This report documents accomplishments made by the project and its cooperators during the fourth quarter of Fiscal Year 2003 (FY-03). Since the cooperating agencies work on different jobs throughout the year, and not all agencies address the same jobs in their respective portions of the Work Statement (available at http://www.streamnet.org/about-sn/project_management.html), the work accomplished in this quarter varies by cooperator. Tasks and jobs that did not have any work addressed during the quarter are not included in this report. The project received a sudden addition of funding from the FWP's Data Management Placeholder early in this quarter, and several jobs were added to the FY-03 Statement of Work. Those new jobs are reported on within this document.

Activities in the fourth quarter of FY-03 included routine development, maintenance, updating and posting of various data sets, as well as routine administrative activities to continue project function, and operation of the StreamNet Library. In addition to these routine activities, the individual participating projects report the following key highlights of activities accomplished this quarter:

CRITFC

A major accomplishment for the Columbia River Inter Tribal Fish Commission (CRITFC) StreamNet Project was completion of the initial databases for each Oregon subbasin in the Columbia River Basin to support the NPCC subbasin planning efforts. These databases included fish, habitat and environmental information organized on a stream reach system which is fully integrated with GIS technology. While most of this information has been available for some time, it has not been organized in a manner useful for local planning and has not been organized on a consistent GIS framework. The database system is consistent with habitat surveys conducted by the Umatilla and Warm Springs tribes, thus providing better integration and access to significant tribal information.

FWS

The U, S, Fish and Wildlife Service (FWS) StreamNet Project is the smallest component of the project and focuses primarily on hatchery related data from the National Fish Hatcheries in the Columbia Basin. Activities in the fourth quarter were routine data development and participation in the Steering Committee.

IDFG

The Idaho Department of Fish and Game (IDFG) StreamNet Project made a significant start at compiling barriers data, with over 400 barriers extracted from the Westslope Cutthroat Trout Assessment, Yellowstone Cutthroat Trout Assessment, and the Geographic Names Information System. The data were actually submitted in the first two weeks of FY-04.

Development of a Trend Editor application allowed management of TrendIDs and progress toward their linkage to internal databases. This was a key step in developing automated data exchange routines for StreamNet. The system is being built in .NET and will be the cornerstone of the database management system.

IDFG StreamNet also spent considerable time helping subbasin assessment staff get started. We oriented them with our databases and how to use them. We supplied them with our software resources, including GIS. In return, StreamNet will have access to the compiled data, including an improved actual distribution layer for chinook, steelhead, and bull trout, plus future data sets they build.

MFWP

The Montana Fish, Wildlife and Parks (MFWP) StreamNet Project continued database maintenance in the 4th quarter, with additional 2002 data entered into the system in the fish presence table, the trend table, the genetics table, the barriers and the dams databases and the hatchery facilities table. Fish distribution was updated as genetic samples were received. For habitat restoration projects, the edit maps for checking project locations arrived from Helena headquarters after the fourth quarter. Edits will be made and the data exchanged in the first quarter of FY-04. For the barriers database, the Westslope Cutthroat Trout Assessment edits have not been reviewed by the department fisheries biologists. This will delay the exchange of Montana's barrier data until FY04. The hydrography used in Montana (NHD+stream routes+LLID) was updated this quarter. We need to check with StreamNet regional staff as to exchanging these data. A new version of the DEF was released and reviewed by MFWP. The Loc_ID issue was reviewed via phone calls. Staff provided data and/or maps for 22 GIS related requests; 3 of these were fisheries related. Staff attended the Steering Committee meeting in July. We provided draft and final budgets to PSMFC and set up a budget tracking system. The regional StreamNet office was informed of funds that were not going to be spent so they could be reallocated within the project. Project staff was involved in providing fisheries data to the Comprehensive Fish and Wildlife Program and to the Natural Heritage Program to develop element occurrence records. Staff attended the Organization of Fish and Wildlife Information Managers annual meeting, participating in the "Hacker's Ball" and leading a discussion on species selection for the Comprehensive Fish and Wildlife Plan.

ODFW

The Oregon Department of Fish and Wildlife (ODFW) StreamNet Project met most Statement of Work requirements during this quarter. Data delivered or made available to StreamNet included abundance trend information; reference information; freshwater harvest data; barrier, dam, and carcass placement information; and hatchery returns, including disposition and egg-take information. Hatchery release and age data submissions have been delayed but will be submitted during the next quarter. One important note was the deployment of a new web server, which was purchased with funding from other projects within ODFW that support the Natural Resources Information Management Program (NRIMP) and Oregon StreamNet efforts. This server will aid in continued efforts to develop a comprehensive information system for Oregon's trend and barrier data sets. The comprehensive information system will continue to improve the quality and amount of Oregon information available to and made publicly usable by StreamNet.

Staff continued participation in Oregon Subbasin Planning related meetings, provided software technical support, gathered needed datasets to address EDT attribute ratings, and provided feedback on data related topics as needed. This effort has been funded through a special contract with the Council through the Oregon Coordination Group.

WDFW

The Washington Department of Fish and Wildlife (WDFW) StreamNet Project performed its routine duties, including submission of Age data for natural spawner adult abundance. In addition, they utilized the Data Management Placeholder funding and other ancillary funding to address some longstanding data needs. Using the Data Management funding, they were able to make good progress toward updating spatial metadata and to obtain long-needed GPS points of spawning ground survey locations. Other funding allowed for developing electronic tools to scan the pages containing useful detail (including stream location codes) from an important but out of print publication and hiring a temporary staff member to tackle some habitat restoration project data next quarter. Despite the extra funding, these successes were subsidized by StreamNet funds covering the Regional StreamNet and WDFW StreamNet managerial efforts.

Region

The regional portion of the StreamNet Project located at PSMFC (Region) continued routine data updates as data were received from the cooperating agencies and continued project administration and overall maintenance of the data delivery systems. The greatest percentage increase in StreamNet data holdings during the fourth quarter occurred in the Age table, where an additional 4,569 records from WDFW and CRITFC amounted to over a 1,000% increase. New time series Trends, Escapement count data, and/or Hatchery Returns information were loaded from CRITFC, ODFW, USFWS, WDFW and CDFG. StreamNet acquired a test set of Age data compiled by multiple agencies for several different data categories. These data will be used to test and implement the addition of Age data to support Escapement information available in the StreamNet on-line Fish Data query system.

The StreamNet web site <www.streamnet.org> was improved in the fourth quarter by updating our data table layout references and documentation and implementation of a data use agreement for users of the entire StreamNet database. A variety of web query updates and improvements were implemented, including improved XML output (including references and data types) and an upgrade of the StreamNet References functionality (directly linking to ref documents and an online document request function). Internal tracking tools for use of the web site were updated with interactive reports for FTP file downloads, library reference requests, and data use agreements.

The project participated in a number of cooperative projects in the region in order to provide input and assistance related to data management. These efforts included the Collaborative Systemwide Monitoring and Evaluation Project (CSMEP) coordinated by CBFWA, where we will develop data inventories/catalogs for the project, the Pacific Coast Salmon Restoration Fund (PCSRF), where we will assist in organizing information on expenditure of PCSRF funds by tribal entities in Washington, Oregon and California for a report by NOAAF to Congress, and the NW Aquatic Monitoring Program (NWAMP), where we will assist with recommendations on data management. We also continued participation on the Program Team for development of a Columbia Basin Cooperative Information System (CBCIS).

Following are detailed actions related to the individual Objectives, Tasks and Jobs contained in the FY-03 Statement of Work.

Objective 1 Data acquisition and development

Support the need for region wide fisheries data for research, monitoring, modeling, and management through acquisition and regional standardization of new information and updates to previous information for priority fishery data types. Data types may be addressed by all data providing agencies, or for specific data types by a single cooperating agency on behalf of the entire project. This Objective addresses both anadromous and resident fish species, although priorities may differ. The tasks under this objective are identified as high or low priority under the constraints imposed under base level funding. Work on the low priority types will largely be limited to preliminary development or scoping unless new funding is approved.

Objective 1 Data acquisition and development

Task 1 Anadromous distribution and life history (habitat use)

Document the occurrence, distribution and life history characteristics of anadromous fish species. Project participants have placed a high priority on updating these data during the fiscal year, utilizing a newly adopted Data Exchange Format (DEF). The new DEF represents a significant new workload, but will lead to more regionally consistent distribution information. This is priority 1 under base funding.

Project Job Planned work elements

Accomplishments, Fourth Quarter 2003

ODFW 1 Update (to a minimal extent), maintain, correct and exchange anadromous fish distribution and documentation information. Also, evaluate the Oregon Museum collections database for potential utility in enhancing our historic distribution information.

Approximately 50 new records were entered into the Incidental Fish Observation database, which contributes to Oregon's fish distribution and distribution documentation datasets.

The Oregon Museum database was further evaluated to better determine the implications of the issues identified in the first quarter of FY-03 (minimal utility for historical salmonid distribution, some Q/A issues and also time commitment issues). We will be able to incorporate many of these records into the documentation database and also use a limited number of the records for developing historical distribution in FY-04.

Q/A efforts in relation to the Documentation database were initiated during the quarter.

WDFW 1 Continue updating data as received and actively solicit data as warranted. Convert tabular and spatial data to the current revised StreamNet DEF and submit to PSMFC.

WDFW staff continued work reviewing Washington state generalized 24K fish distribution and barriers for salmon, steelhead, and bull trout, including visits to each region to conduct reviews.

Objective	1	Data acquisition and development	
Task	2	Resident fish distribution and life history (habitat use)	
		Document the occurrence, distribution and life history characteristics of resident fish species. Existing resident fish distribution will be maintained, but development of new data or data for new species will be limited due to the funding level. This is priority 1 for Montana, but low priority under base funding in the other states.	
<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, Fourth Quarter 2003</u>
MFWP	1	Complete Distribution and Use Types data set from data collected from biologists, documents and reports during 2000-2001 using LLID stream routes. Exchange the data to the StreamNet database in the approved DEF format.	Database maintenance and updates continued in the 4th quarter with additional 2002 data entered into the system
MFWP	2	Visit MFWP biologists in 2003 to collect 2001-2002 fish distribution and supporting survey data and references. Obtain data from federal biologists using our developed interface. Input all this information into the MRIS tables. Develop some QA/QC on data before distribution.	Data entry continued in the 4th quarter.
ODFW	1	Maintain existing resident distribution information.	Oregon StreamNet's GIS Analyst acquired Deschutes NF Fish Distribution data. The data are well documented and may be strongly considered for integration into our Distribution database pending completion of our distribution update protocol. The data include significant areas of resident distribution in the Upper Deschutes watershed.

Objective	1	Data acquisition and development	
Task	3	Adult abundance in the wild	
		Develop and maintain information on adult abundance for native fish species, resident and anadromous, including escapement, redd counts, peak spawner counts, trap counts, dam and weir counts, and resident fish populations (where calculated). Also included in this data category are data gathered during spawning ground surveys regarding straying of hatchery fish onto spawning areas, i.e., marked/unmarked ratio. Priority is given to updating these data through 2001. This is priority 1 under base funding.	
<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, Fourth Quarter 2003</u>
CRITFC	1	Update mainstem Columbia and Snake River dam counts through 2002 and provide updated data to the StreamNet database.	Dam counts were updated this quarter.
CRITFC	2	Update available tribal spawning ground survey data.	Spawning ground survey data were updated this quarter.
MFWP	1	Collect all 2002 survey data during field office visits.	Data gathering and input continued in the fourth quarter.

MFWP	2	Input 2002 data into MFISH, including trend, count and references. We will explore which DEF is appropriate for resident fish population surveys and provide bull trout redd count trends at the stream level.	Data entry was ongoing in the 4th quarter.
ODFW	1	Update existing anadromous, resident, and non-game abundance and index trends through 2001 and opportunistically collect new trend information.	A Trend data submission was uploaded to StreamNet during this quarter. The submission contained both updated trend data and trend data corrections where errors were identified.
WDFW	1	Continue to update and enhance the existing natural spawner database (escapement estimates and/or detailed counts) for available species.	We continued updating the master escapement and age databases with 2002 data. All 2002 data is up to date except chum data. We are waiting for the Columbia River biologists to complete the run reconstruction data. We also identified and started resolving Puget Sound Chinook stream survey run code issues. This work will carry into next quarter.
WDFW	2	After we enhance the dam table with more records, consult the biologists to scope and collect any existing dam and weir counts that might not already be captured in our on-going Adult Abundance collection.	This work wasn't performed this FY due to higher priorities.
WDFW	3	Capture GPS coordinates to delineate the extent of spawning grounds for spawning ground survey reaches in key lower Columbia R. tributaries. This is part of the work done under The additional Data Management Placeholder funds.	With extra, unexpected funds added to the StreamNet contract from the Data Management Placeholder, the WDFW Assistant Data Manager hired two samplers through PSMFC. GPS coordinates for historical stream survey indexesites were collected by the two samplers to convert the old alpha naming convention to River Miles (RM). Work started in mid-August and continued through late September.

Objective 1 Data acquisition and development

Task 4 Hatchery releases

Develop and maintain information on the release of hatchery reared fish. Priority is given to updating anadromous release records using RMIS data for anadromous species through 2001. Release data for resident species under base funding will be developed only where the data are readily available (primarily Montana). Efforts this year will focus on creating cross references between PSC release codes and LLID stream location identifiers. We will explore means of providing unrolled data on specific release locations rather than more general PSC codes. This is priority 1 under base funding. (Note: We need to reach a SC decision on exactly what we intend to do with this important data category this year under the base funding scenario)

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2003
FWS	1	For anadromous hatchery releases, compile FWS hatchery release data, with added CWT information. Transform data to format 040. Submit most current release year hatchery release data to PSMFC via USFWS WWFRO.	Modifications were made to 2003 release information as new information was received.

IDFG	1	Crosswalk PSC codes for Idaho hatchery releases in the Regional Mark Information System (RMIS) to StreamNet's stream georeferencing system of LLIDs and measures.	We were unable to complete the crosswalk of PSC codes for fish release sites as intended. This work will be addressed early in the first quarter of FY-04.
IDFG	2	Complete the crosswalk of IDFG catalog numbers to StreamNet's stream georeferencing system of LLID and measures.	Most of the catalog numbers attached to lakes were completed, but a number that are tied to streams are still missing. This is a large job, and work will continue in FY-04.
MFWP	1	Explore current DEF for hatchery releases and provide Montana data in exchange format, if requested.	Montana hatchery release data have not been requested yet. When the DEF is complete, they will be exchanged promptly.
ODFW	1	Update anadromous hatchery releases through 2001.	Staff linked hatchery release information with spatial reference (location) information. Efforts to obtain coordinates for a list of unidentified ports and bays were unsuccessful as no location information was available from Headquarters staff for these sites.
ODFW	2	Create a cross table to link Pacific Salmon Commission codes to LLID stream based locations to provide more precise locations for releases. This is part of the work to be done with the Data Management Placeholder funds.	Oregon StreamNet's Project Leader worked with Regional StreamNet staff to identify a suitable candidate to cross-reference PSC codes with LLIDs under the Data Management Placeholder funds. Efforts to find a suitable candidate have been unsuccessful so far, but will continue in the first quarter of FY-04.
WDFW	1	For anadromous species, finish researching, compiling, converting existing WDFW anadromous release data as detailed, "unrolled" records. Submit the data directly to StreamNet (instead of via RMIS).	The WDFW StreamNet Data Manager continued cross-coding PSC codes with spatial references (i.e., LLIDs). A lot of the release data is pertinent to 24K resolution streams so we simultaneously are adding those streams to the 100K Hydro layer. This slows down our release data progress but overall it's the most efficient approach.
WDFW	2	WDFW resident stocking data is fractured in several collections by year. Work at researching, compiling, and converting data for any years we have finalized at a given time, until all collections are submitted. (Progress with this data set relies heavily upon initial improvements to our Lakes spatial layer).	Our historic and current release data originate from three different formats. Spurred by a request to aid Subbasin Planning, the WDFW StreamNet Data Manager started re-organizing the single file (of all the records) used to answer data requests. It takes us one step closer to finalizing a single file for all uses.

Objective	1	Data acquisition and development	
Task	5	Hatchery returns	
		Develop and maintain information on the return, disposition and straying of adult fish returning to hatcheries, including information on coded wire tags. This is an anadromous related task only. Priority will be placed on updating total return and egg take data through 2001. Development of disposition data is lower priority and would require additional resources. This is priority 1 under base funding.	
<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, Fourth Quarter 2003</u>
FWS	1	Compile FWS hatchery return data for FWS hatcheries for the most recent return year and submit to the regional database. FWS will also account for all adults returning to federal hatcheries.	Data on the numbers of fish returning to National Fish Hatcheries in the Columbia River Basin in 2002 were sent to the StreamNet regional office in the current DEF.
ODFW	1	Compile data on returns to ODFW hatchery facilities (updated through 2001 returns where possible).	Our Database Manager/Developer downloaded 'unrolled' hatchery return data from the ODFW Hatchery Management Information System. Existing data transformation tools had to be recoded for use with the new 2003.1 DEF format. After the tools were completed, the unrolled data were processed into Trend and HatchRet records and submitted to StreamNet. Overall, 144 new trends were added, with 1,467 associated hatchery return records and 1,120 disposition records. These new data completely superseded Oregon's existing Hatchery Return data in StreamNet, as the new DEF no longer includes 'stock' as a trend field.
WDFW	1	Continue to update and enhance the existing hatchery return database for available species.	WDFW StreamNet staff spent a couple days at the Merwin Dam fish trap, assisting with the hatchery return fish collection and learning more about hatchery return data issues. The WDFW StreamNet Assistant Data Manager consulted with Olympia based hatchery staff on a new design of WDFW's hatcheries database and how StreamNet's hatchery return database can accommodate the needs of both agencies.

Objective	1	Data acquisition and development	
Task	6	Dams and Fish Passage Facilities	
		Develop and maintain information on dam facilities. Primary emphasis is now on maintenance of existing information, with occasional updates as necessary. This is priority 1 under base funding.	
<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, Fourth Quarter 2003</u>
IDFG	1	Update LLID measures and geographic coordinates for Idaho dams in the National Inventory of Dams	We were unable to complete this job as intended, and will try to complete it early in the first quarter of FY-04.

MFWP	1	Provided an updated Montana dams spatial coverage and associated data in the StreamNet exchange format if additions, deletions or modifications are made to the Montana coverage.	Edits were completed. Data exchange will occur in FY-04, 1st quarter.
ODFW	1	Maintain and update, as needed, based on errors found in the Oregon dam and fish passage facilities information.	The Assistant Database Manager/Developer added OwnerTypeID codes to most of the Dam table records. She also updated the BarrierType and OwnerType codes to meet DEF 2003.1 standards, and synchronized ODFW's barrier database replicas. Several dam records were identified that had unpopulated LLID values, but were not flagged as dams located on 24K streams. Upon review, the records were determined to not be associated with 100K streams and consequently they should have been flagged as 24K dams. This omission was corrected and coordinate values were used to develop LocationIDs for these records.
WDFW	1	Update the dam database adding records and improving field entries as warranted.	A dam update submission wasn't completed this FY due to higher priorities.

Objective 1 Data acquisition and development

Task 7 Hatchery facilities

Develop and maintain information on anadromous and resident hatchery facilities, including information on location, design, management and authorization. Primary emphasis is now on maintenance of existing information, with occasional updates as necessary. This is priority 1 under base funding.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2003
FWS	1	Update hatchery facility records as needed, Update hatchery water records as needed. Update FWS data sets with 2002 data and submit to PSMFC	An updated Hatchery Facilities file was sent to the regional StreamNet office.
MFWP	1	Update the StreamNet hatchery database with Montana's public and private facilities. Exchange with StreamNet upon completion.	Data were exchanged to the regional StreamNet database.
ODFW	1	Maintain and update, as needed, based on errors found in the Oregon hatchery facilities information.	The Assistant Database Manager/Developer reviewed all of Oregon's hatchery facility records for completeness and accuracy.
WDFW	1	Update the hatchery database adding records and improving field entries as warranted, including record updates for related tables (i.e. HatcheryXProduction data).	WDFW's StreamNet Data Manager met with WDFW's Agency GIS Data Manager (Tim Young) to discuss and organize work to improve WDFW's internal system for updating and sharing facility information. Young liked StreamNet's hatchery facility format and documentation and will probably adopt something very similar for WDFW after StreamNet resolves the location links to the LocMaster table.

Objective	1	Data acquisition and development	
Task	8	Harvest	
		Develop and maintain information on sport and commercial harvest. Higher priority is assigned to anadromous species. This is priority 1 under base funding.	
<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, Fourth Quarter 2003</u>
CRITFC	1	Complete and update ocean and Columbia River catch data through 2002. This work is part of the Data Management Placeholder funding received late in the fiscal year.	A budget modification was provided in September to complete this task, but it was too late to actually complete the work in less than one month. Draft catch tables were developed. Proofing, editing, and submission will occur next quarter.
IDFG	1	We will evaluate IDFG harvest records to determine the feasibility of sending harvest data to StreamNet. If possible within our existing work plan, we will submit harvest data to for inclusion into StreamNet	The IDFG harvest database was obtained. Work to convert the data to the DEF and complete this task will take place during the first quarter of FY-04.
ODFW	1	Compile and exchange Oregon sport harvest data through 2000, in two submissions.	Updated harvest trends were submitted to StreamNet during this quarter. All Oregon freshwater harvest data (where data are available) has been updated with 1994-2000 information, however it is still behind other trend data in meeting the StreamNet 2002 end-year requirement. This will be captured in the next Trend submission in FY-04. Marine harvest data is still not fully updated due to problems with the historic reference material. Oregon StreamNet's Data Analyst is working to resolve this issue by identifying and linking new reference sources to this data.
WDFW	1	Re-submit any existing StreamNet Washington harvest data, updating it per StreamNet's current location coding format to validate and correct the conversion that was completed by non-WDFW personnel.	Exploratory work was done with WDFW staff serving on the Pacific Salmon Treaty Technical Committees. See Objective 5, Task 3, Job 1

Objective	1	Data acquisition and development	
Task	9	Habitat restoration / improvement projects	
		Acquire data sets related to habitat restoration / improvement projects from the multiple agencies, tribes and organizations within the Columbia Basin and compile and maintain them in standardized, consistent formats. This data category is still being organized, but interest in this information is growing as there is no consistent source of this information on a regional basis. This is priority 2 under base funding, and will be addressed only as time and other priorities allow.	
<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, Fourth Quarter 2003</u>
MFWP	1	Continue to collect, centralize and maintain all stream restoration projects data for Montana using the "Future Fisheries Interface" which StreamNet staff maintains and the Fisheries Division inputs data. Exchange data to the Region twice during the year.	The edit maps for checking the new project locations arrived from Helena headquarters after the fourth quarter. Edits will be made and the data exchanged in the first quarter of FY-04.

Objective 1 Data acquisition and development

Task 10 Barriers and diversion/screening

Develop and maintain data sets for barriers to fish migration and diversion structures with information on screening status. This category is still being organized. Existing data on adult barriers will be maintained and updated as practical. Other sources of data will be explored. Work on juvenile barriers, culverts and diversion screening may require additional resources. The primary emphasis is on anadromous species except in non-anadromous areas. This is priority 2 under base funding, and will be addressed only as time and other priorities allow.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, Fourth Quarter 2003</u>
IDFG	1	Participate in the Westslope Cutthroat Trout Conservation Assessment. In response to a decision by the 9th District court to require a new status review for westslope cutthroat trout, the states of Idaho, Montana, Washington, and Oregon, along with the Fish and Wildlife Service and the Forest Service, have agreed to work together to prepare the new status review. IDFG/StreamNet will send staff to several workshops to facilitate the capture of data that will include barriers. The data will be prepared for inclusion into StreamNet. Delivery is dependent on the Forest Service completing the database.	We extracted all the barriers data from the Westslope Cutthroat Trout Assessment database. These data, and data on waterfalls from the Geographic Names Information System, were used to develop a preliminary data set of barriers. Duplicates were deleted. All data were attached to the 100K StreamNet hydrography and coded for fish species, blockage extent, etc. The data were converted to DEF and submitted to the regional StreamNet database just after the end of the quarter.
IDFG	2	As a result of our participation in work component 1 of this task, we will obtain the data from a similar effort for Yellowstone Cutthroat Trout. The data will be prepared for inclusion into StreamNet. Delivery is dependent on the Forest Service completing the database.	We extracted all the barriers data from the Yellowstone Cutthroat Trout Assessment database. These data, and data on waterfalls from the Geographic Names Information System, were used to develop a preliminary data set of barriers. Duplicates were deleted. All data were attached to the 100K StreamNet hydrography and coded for fish species, blockage extent, etc. The data were converted to DEF and submitted to the regional StreamNet database just after the end of the quarter.
MFWP	1	Continue to collect barrier location, species affected and other fields on stream barriers in Montana. Information will be collected on all species regardless of life history. Exchange Barriers data with the StreamNet database.	As earlier anticipated, the Westslope Cutthroat Trout Assessment edits have not been reviewed by the department fisheries biologists. This will delay the exchange of Montana's barrier data until FY-04.
ODFW	1	Compile and exchange Oregon fish screening and diversion data assuming a new DEF is adopted. If no DEF is approved, data will be posted on the NRIMP site and linked to StreamNet as an 'as is' submission.	Efforts this quarter centered on providing technical support to Oregon's Fish Screening and Passage Program as they continue to learn, populate, and use the database we developed for them.
ODFW	2	Update and maintain Oregon's barrier data and minimal fish barrier data development based on new barrier information.	A barrier and dam data submission was made to StreamNet in August 2003. The data submission included 2,101 Barrier records, 1,282 Dam records, 1,022 DamxDamPurpose records, 988 DamxDamType records, and 1,290 FishBarrier records.

ODFW 3 Capture GPS coordinates for water diversions and fish screens in the Primary Oregon Columbia River tributary subbasins. This work is part of the Data Management Placeholder funding that was provided late in the year.

Oregon StreamNet's Database Manager/Developer researched GPS hardware and software for this effort. To address data capture needs, we elected to use a Pocket PC with a GPS receiver attachment. Also, because the off-the-shelf software did not meet our needs, we acquired a software developer kit for GPS devices and created our own interfaces, saving funds.

Locations coordinates were obtained for 12 screened or unscreened diversions in Mill Creek (The Dalles). Staff used Tax Maps and met with the local Water master in order to clarify landowner information. Staff also met with ODFW Fish Screen and Passage Program staff to initiate data collection efforts in the upper Willamette. It has become clear that identifying and contacting landowners will take up a significant chunk of available time on this project, which will particularly limit the number of new unscreened diversion locations that will be obtained.

WDFW 1 As funding and time permits, review existing Washington state barriers and/or screening data and identify additions and corrections needed and plan for future exchanges.

WDFW's distribution data review parties (described in Objective 1, Task1) also targeted confirmation of barrier sites.

Objective 1 Data acquisition and development

Task 11 Juvenile data, abundance and outmigration

Develop and maintain information on smolt production (as determined from smolt traps), juvenile abundance (as determined through snorkel, electrofishing, and other surveys), and smolt density model estimates. Primary emphasis will be on maintaining the existing smolt density model data and development of a DEF for these data. The rest of the work for this data category is still under development and will require additional resources to accomplish. This is priority 2 under base funding, and will be addressed only as time and other priorities allow.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2003
CRITFC	1	Seek to obtain tribal data on smolt abundance. Inform Steering Committee of data availability.	These data will be sought under the subbasin planning effort. We expect to begin receiving data in the second quarter of FY04.
MFWP	1	Pursue incorporation of resident fish survey data into the DEF, if a DEF for resident species is adopted.	No DEF has been adopted yet.
WDFW	1	As funding and time permits, keep informed about other WDFW agency staff efforts to organize the juvenile data and scope existing juvenile data to plan future conversion and submission efforts.	WDFW's Region 5 StreamNet compiler continued improving the Cedar Creek adult and smolt trap databases by generating statistically accurate figures, improving the data flow and updating the database records.

Objective 1 Data acquisition and development

Task 12 Age

Develop and maintain information on age/sex composition of returning adults, primarily for anadromous species. This is a medium priority, with the primary focus on developing data for a few test locations as a means of testing data organization/format and utility. Remaining DEF issues will be resolved. This is priority 2 under base funding, and will be addressed only as time and other priorities allow.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2003
CRITFC	1	Use CRITFC age data on sockeye populations and Bonneville Dam sampling to evaluate and develop an age DEF.	Age data on chinook populations at Bonneville Dam and sockeye samples from Bonneville Dam, the Wenatchee River and Wells Dam were submitted in September using the draft fish age DEF. Ideas/reactions from other Steering Committee members will be sought next quarter. The age DEF should also be discussed with the Pacific Northwest Aquatic Monitoring Partnership fish monitoring subcommittee for their reactions. This will be done in the next quarter also.
FWS	1	Update age and sex data for the most recent return year.	The Age Composition information of fish returning to National Fish Hatcheries in the Columbia River Basin in 2002 was submitted to the regional StreamNet office in the DEF.
ODFW	1	Compile age frequency data for an as-yet undetermined basin or hatchery in the Oregon portion of the Columbia Basin as a test case for this data type.	Age data were collected by Oregon StreamNet's Data Analyst as part of supporting Willamette subbasin planning efforts. These data are being converted into StreamNet's current age DEF, along with efforts to update existing age data. These data will be submitted during the first quarter of FY-04. She also reviewed ODFW Annual Progress Reports for age, hatchery fraction, and mark/recapture data.
WDFW	1	Stay in step with the other StreamNet cooperating agencies' efforts to research, compile, convert and submit age data for natural spawner data in one prototype subbasin (probably Lower Columbia R). This effort is to assess any problems with the existing format and standardization with other agencies' data , and plan for further data submittals.	We compiled age data with links to the current natural spawner abundance data and submitted them to the regional StreamNet office on September 16.

Objective 1 Data acquisition and development

Task 13 Production factors and run reconstruction

Develop and maintain information on survival, production factors, spawner / recruit estimates, and run reconstruction. This is currently a low priority, but the existing spawner / recruit estimate data will be maintained. This is priority 2 under base funding, and will be addressed only as time and other priorities allow.

Project Job Planned work elements

Accomplishments, Fourth Quarter 2003

CRITFC 1 Coordinate with ESA recovery planning and NWPPC subbasin planning efforts to capture available anadromous fish and bull trout productivity data for eventual DEF testing and inclusion in StreamNet.

Most of the Oregon subbasin planning databases are completed. These will be discussed with regional StreamNet staff in November or December to provide access through the StreamNet system. Staff have agreed to conduct a collaborative evaluation with the NOAA Fisheries TRT of methods to identify limiting factors, using the Grande Ronde River as a test case. Most of this technical work will probably be conducted in the first or second quarter of FY-04.

Objective 1 Data acquisition and development

Task 14 Habitat

Acquire data sets related to fish habitat (including water quality, stream/watershed habitat quality, temperature, invertebrates, and miscellaneous habitat data) from the multiple agencies, tribes and organizations within the Columbia Basin and compile and maintain them in standardized, consistent formats or archive them in original format, as appropriate. This is currently a low priority under the existing contract, and data development will be pursued only on other funding. Data developed on other funding will be organized and included in the StreamNet database. This is priority 2 under base funding, and will be addressed only as time and other priorities allow.

Project Job Planned work elements

Accomplishments, Fourth Quarter 2003

CRITFC 1 Coordinate with ESA recovery planning and NWPPC subbasin planning processes to capture watershed assessment data for DEF testing and eventual inclusion into StreamNet.

Watershed assessment work under subbasin planning and the ESA forums is lagging behind the schedule anticipated last quarter. Most of the work will be performed in the first and second quarters of FY-04. In the meantime CRITFC staff will begin work on a DEF for data produced using the EDT and QHA tools next quarter.

Objective 1 Data acquisition and development

Task 15 Genetics

Develop and maintain information on genetic information and data sources for areas where genetics data exist. Efforts this year will concentrate on organizing existing information, and then working on a Data Exchange Format. This is priority 1 in Montana but priority 2 under base funding for the other states and will be addressed only as time and other priorities allow.

Project Job Planned work elements

Accomplishments, Fourth Quarter 2003

CRITFC 1 Work through the coast-wide genetics work group to update the genetics data catalog.

An FY-02 recommendation was to discontinue trying to treat genetic data as a core standardized dataset. Individual agencies may contribute this information as independent data sets. This task should be deleted from future work statements.

MFWP	1	Obtain results from genetic analysis from the University of Montana Genetics Lab for sampled populations of Montana's species of special concern.	Genetic letters were entered as they were received.
MFWP	2	Update fish distribution table when new genetic samples affect fields/records. Finalize a GeneticSample table field to facilitate querying purity	Fish distribution was updated as genetic samples were received.

Objective 1 Data acquisition and development

Task 16 Other data sets

On an opportunistic basis, conduct scoping or exploratory level work on the availability of other types of fish related data, as requested by FWP participants. Actual acquisition, standardization, georeferencing and distribution of these data would be dependent on funding for new work. This is priority 2 under base funding, and will be addressed only as time and other priorities allow.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, Fourth Quarter 2003</u>
MFWP	1	Will explore as opportunities arise	We continued working with the whirling disease biologists on developing a web report structure.
ODFW	1	Develop data sets outside Oregon StreamNet's base efforts if requested by subbasin planners, as time and funding allow.	Oregon StreamNet's Data Analyst created two tables that cross-reference fourth field hydrologic units and county, and created an ArcView project to graphically display the information in the tables.
ODFW	2	Compile and exchange Oregon's carcass placement results for 2001 as an 'as-is' data set.	Oregon's carcass placement reports were collected for 1998 - 2000, and 2002 (2001 was collected and made available during FY-02). The carcass placement reports were posted on the NRIMP web site, which links to the StreamNet site.
Region	1	Advise and assist data developers with other data sets not currently in the StreamNet system. Low priority, and within current resources only.	StreamNet's "Independent Data Sets" web page contains data sets that are not incorporated into the main StreamNet database, but are nevertheless valuable data sets. Examples include water temperature data, and data for the 2002 westslope cutthroat trout status report. Over the past year, regional staff and the Steering Committee have discussed improvements to this page, and BPA has expressed a desire for all BPA-funded fish projects with fish data to submit their data and reports for inclusion on this web page. The last two items missing to make this approach complete are the metadata we would want data providers to submit, and the programming needed to make the new page work. The Regional Fisheries Biologist this quarter completed a first draft of the metadata we may need -- this list will be reviewed at the fall 2003 Steering Committee meeting. Also completed was a first draft of a metadata entry tool that data providers could use. The tool guides metadata entry, and then sends the data sets and metadata to StreamNet via ftp. This tool will be updated after final metadata needs are determined. After the final metadata needs are determined, the Regional Web Programmer will be able to do the programming needed to make the new system function.

Region 3 Evaluate data resources discovered during FY-02 that were originally obtained by the precursor projects to StreamNet (CIS and NED). These resources include data and reports on floppy disks, and hard copy reports. Determine the types of data that are available in each format and that are already included in the StreamNet database. Determine the feasibility and value of reclaiming lost data and the workload required. Prepare a report making recommendations to the Steering Committee for the possible inclusion of those data not already included in the StreamNet database.

The contents of the computer files on these floppy disks were examined, and it was determined that no data or other materials in the files were of general interest. The files were mainly backups and intermediate steps in the creation of the current StreamNet database. Following is a listing of the materials found:

- 1 - Several versions of the CIS "distributed system." The latest one is from September 1995. There are also extensive zipped files that appear to be the data sources for the distributed system disks. Also, there are 1997 .pdf and .doc files describing the distributed system, but not the disks themselves. The latest version of the distributed system was installed on a computer and examined. It was found that no data existed in the distributed system that don't currently reside in StreamNet.
- 2 - IHOT audit summary reports done for NWPPC in 1998. These are already available on the StreamNet web site at http://www.streamnet.org/ihot_audit/hatchery.html
- 3 - PSMFC Habitat Hotline and F.I.S.H. Habitat Education Program files from 1996 and earlier.
- 4 - "Strategy Analysis" files, mainly FORTRAN and Pascal program files.
- 5 - Many files were archived using an '.arc' extension. A utility was located to open these files, and it was included in the permanent archive.
- 6 - Files documenting the changes to the protected areas database. There may also be some from the original creation of the protected areas database.
- 7 - System Planning Model files from 1990-1993.
- 8 - 1999 nutrient data collected by Eric Hanson and 2000 water temperature data collected by Emily Smith (PSMFC data technicians). Both of these data sets are already included in a database, and are available on-line through StreamNet.
- 9 - 1993 Idaho NED installation disks.
- 10 - 1994 Oregon Rivers Information System (NED) installation disks.
- 11 - Old StreamNet steering committee meeting agendas, white papers, 100-k stream layer development strategy white papers, working papers on moving data and library searches to the Internet, work plans, and other such items.
- 12 - 1996 AIWP data files.
- 13 - Basin and Reach E00 GIS files.
- 14 - 1998 MapCat data entry tool (written in Access 97).
- 15 - May 1998 subbasin maps (gif).
- 16 - Disks that appear to be from work done by Duane Anderson while employed by NWPPC.
- 17 - PacFIN data that we believe are now in StreamNet.
- 18 - Hatchery release data compiled for NMFS by Natural Resources Consultants, Inc., 4055 21st Avenue West, Seattle, Washington 98199. Contract No. 50ABNF400128.

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, monitoring, and management needs

Objective 2 Data management and delivery

Task 1 Maintain and enhance the tabular database systems at the project and regional levels

Maintain functional tabular database programs at the agency and regional levels to make consistent tabular data sets for anadromous and resident fish available through the StreamNet online database system. At both the regional and agency levels, provide database management and administration necessary for accomplishing StreamNet objectives, to include: 1) maintaining and updating the hardware and software systems necessary to support the StreamNet project, 2) enhancing or optimizing StreamNet database structures and capabilities, and 3) developing and maintaining electronic tools to facilitate data loading, management and quality assurance.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, Fourth Quarter 2003</u>
CRITFC	1	Manage, maintain and enhance existing tabular database systems, including hardware, software, tools, QA/QC activities, and system administration, backup and security.	Existing systems and data are being maintained. The supplemental Data Management funds allowed us to obtain a new laptop computer to use for supporting and coordinating with subbasin planning data development efforts.
CRITFC	2	Develop prototype electronic data exchange procedures with the Yakama Nation to simplify updates of fish abundance data.	Critical database work in support of subbasin planning in Oregon took precedence over this task. We will address this task again as part of updating the subbasin planning databases in FY-04.
IDFG	1	Manage, maintain and enhance existing tabular database systems, including hardware, software, tools, QA/QC activities, and system administration, backup and security.	Standard maintenance of our database infrastructure continued, including daily backups, application of patches and service packs, security administration, and administration of user accounts and privileges. Continued progress has been made in both design and coding for migrating our existing applications to the .Net framework. The structure of tables for the new hatchery returns and age composition data have been designed and built. The next step is to complete the Trend Editor application which will allow us to maintain our TrendIDs and connection to our hatchery return and age data. After that, our data coordinator will be able to review the newly formatted data before committing to the new tables. We expect submission of these data in the next couple of months.
IDFG	2	Complete the administrative programs to convert locally held data to StreamNet data exchange format. This includes: redd counts, hatchery returns, hatchery facilities, and references. Depending on the adoption of an appropriate StreamNet juvenile data exchange format (see Task 3.4), juvenile trap data map also be included.	We continue to make progress in converting our Fish Reference System to .NET. We also made progress on developing a Trend Editor application in .NET. The Trend Editor will be used to maintain and update TrendIDs. It also provides the linkage of StreamNet TrendIDs to our internal database systems, making the automated conversion of data to the StreamNet DEF possible.

IDFG	3	Prepare documentation of the Idaho Fish and Wildlife Information System (IFWIS). IFWIS is the information system at IDFG that contains the locally held and compiled StreamNet data. Documentation should include resource diagrams, entity relationship diagrams, database standards document, programming standards document, and database metadata.	Documentation of the Idaho Fish and Wildlife Information System is an ongoing aspect of our development work. All computer code is carefully documented with internal comments and explanations. Entity relationship diagrams of our database have been developed. System diagrams are also completed. Further documentation is proceeding.
IDFG	4	Maintain existing modules of IFWIS, including the spawning ground, juvenile trapping, collecting permit reports, and the reference programs. This includes maintenance of data integrity in the IFWIS database.	Spawning Ground Survey and Juvenile Trap Monitoring applications were widely used by IDFG biologists this past season. Each project that used them ended up with their own version of the database containing their own data. We began work this quarter to consolidate those database into a single, centralized database in the Idaho Fish and Wildlife Information System.
MFWP	1	Manage, maintain and enhance existing tabular database systems, including hardware, software, tools, QA/QC activities, and system administration, backup and security.	This ongoing work continued during the quarter.
MFWP	2	Modify/expand the edit/entry interface for the MFWP Collector's Permit fisheries survey data and build other interface/editing tools as needed	The Gallatin National Forest's data was appended to the database this quarter.
ODFW	1	Manage, maintain and enhance existing tabular database systems, including hardware, software, tools, QA/QC activities, and system administration, backup and security.	<p>A new version of the Trend Interface was created for proofing and correcting Trend data. The new version represents an on-going process to improve Oregon StreamNet's QA/QC efforts.</p> <p>The Assistant Database Manager/Developer worked on developing a new barrier database structure for Oregon barriers. Necessary internal data synchronization and redistribution procedures were also completed related to managing Oregon's existing barrier/dam database.</p> <p>Our Database Manager/Developer implemented corrections and enhancements to the Fish Presence Database.</p> <p>Workflow processes have been monitored in an effort to find areas that could be improved by enhancements of existing data systems. As part of this effort, our GIS Analyst initiated development of a MasterLocation database that will allow consistent access to and application of Oregon's spatial reference information.</p>
ODFW	2	Conduct initial development of a corporate information system for trends and barrier/dam data	Oregon StreamNet deployed a new server running the MySQL relational database management system. This server will provide the back-end of the Corporate Information System data model that will be used. Work on the Corporate Information System continues, and will likely intensify now that the server is in place.

Region	1	Manage, maintain and enhance existing tabular database systems, including hardware, software, tools, QA/QC activities, and system administration, backup and security.	Routine maintenance, administration, and backup of the SQL Server databases and servers continued.
Region	2	Update or develop data entry and management tools. Assist the cooperating agencies with tool development, as needed and requested. Tools may include input interfaces, error checking, geographic locators, etc.	Enhancements were made to the Forum issue discussion tool, and the internal bug/fix list tool
WDFW	1	Manage, maintain and enhance existing tabular database systems, including hardware, software, tools, QA/QC activities, and system administration, backup and security.	<p>Work continued with the PSC cross reference tables.</p> <p>A compiler designed MS Access data entry forms for the internal escapement database and Pendragon software forms for the stream survey PDA's. She also devised a plan to download the PDA data into an MS Access database.</p> <p>The WDFW StreamNet Assistant Data Manager finalized more improvements and links between the MS Access natural spawner and age databases. Now routine updates and quality control will be easier.</p> <p>The Assistant Data Manager also transferred the hatchery returns supporting files from Paradox format to MS Access 2000 format.</p> <p>The WDFW StreamNet Data Manager and Compiler organized the work to create .pdf files of popular, yet rare, location coding publications. The scan products are complete and WDFW StreamNet staff continue to research the feasibility of creating searchable documents via Optical Character Recognition (OCR).</p>

Objective 2 Data management and delivery

Task 2 Maintain and enhance the GIS and hydrography database systems at the project and regional
Maintain functional Geographic Information System programs at the agency and regional levels to make consistent GIS layers for anadromous and resident fish available through the StreamNet online database system. At both the regional and state levels, provide GIS management and administration necessary for accomplishing StreamNet objectives, to include: 1) maintaining regional and agency-level GIS systems, including hardware and software, 2) maintaining a regionally consistent hydrography layer at the 1:100,000 scale, and 3) developing and maintaining tools to facilitate use and manipulation of GIS data.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2003
IDFG	1	Maintain and update, as necessary, the hardware and software, including ArcView and other tools, extensions and projects, that constitute the regional and cooperating state agency Geographic Information Systems. Provide system administration, backup and recovery, and security.	We completed normal system administration functions.

IDFG	2	Maintain and update, as necessary, the 1:100,000 scale hydrography files for the states and the PNW region. Submit all changes to the StreamNet database at the Regional office.	We received a list of streams from IDFG biologists to be added to the routed hydrography.
MFWP	1	Maintain and update, as necessary, the hardware and software, including ArcView and other tools, extensions and projects, that constitute the regional and cooperating state agency Geographic Information Systems. Provide system administration, backup and recovery, and security.	This ongoing work continued.
MFWP	2	Maintain and update, as necessary, the 1:100,000 scale hydrography files for the states and the PNW region. Submit all changes to the StreamNet database at the Regional office.	This work was ongoing. No changes were required this quarter.
ODFW	1	Maintain and update, as necessary, the hardware and software, including ArcView and other tools, extensions and projects, that constitute the regional and cooperating state agency Geographic Information Systems. Provide system administration, backup and recovery, and security.	<p>Oregon's GIS Analyst initiated development of a location identifier tool for ArcMap to facilitate working with 24K data.</p> <p>Oregon's GIS Analyst acquired and tested the utility of the USGS Global Mapper software product. This is a freeware program that enables viewing of DRG or other images and allows for the creation and editing of vector datasets that can be saved to shapefiles. The tool has tremendous potential to enable field staff that do not have GIS software to create spatial data in relation to proposed edits to distribution, barrier or other data.</p> <p>The ArcMap TerraServer extension was also acquired and tested to facilitate dynamic viewing of DRG and DOQ images via the web. The tool is useful under certain circumstances (at larger spatial extents), but it is somewhat cumbersome to use at smaller spatial extents.</p>
ODFW	2	Maintain and update, as necessary, the 1:100,000 scale hydrography files for the states and the PNW region. Submit all changes to the StreamNet database at the Regional office.	Oregon StreamNet's GIS Analyst created a new "Oregon Only" stream route data layer. He also consulted with StreamNet Regional staff about protocols for LLID creation. Lastly, he completed development of an ODFW Master Location database, which includes LocationIDs for streams, lakes, bays, ports, dams, barriers and hatcheries.
Region	1	Maintain and update, as necessary, the hardware and software, including ArcView and other tools, extensions and projects, that constitute the regional and cooperating state agency Geographic Information Systems. Provide system administration, backup and recovery, and security.	The GIS Specialist upgraded ArcIMS to version 4.0.1. This upgrade allows the IMS software to be served from a separate machine than the Query System. This resolved a previous conflict between the two programs.

Region	2	Maintain and update, as necessary, the 1:100,000 scale hydrography files for the states and the PNW region. Submit all changes to the StreamNet database at the Regional office.	The GIS specialist examined differences in hydrography reported between regional data and Washington Data. 1,825 records were identified as being different, although many of the differences were slight. He will work with the Washington GIS specialist to resolve the inconsistencies.
Region	3	Integrate the functioning of the GIS system with the StreamNet fisheries and habitat database in support of the query system. Maintain up-to-date cross tables used via the StreamNet web interface to select information by geographic area.	The regional GIS specialist completed the cross tables for the California 1:100K hydrography.
Region	6	Develop an on-line mapping application for use by data compilers, agency biologists, project sponsors, watershed councils, etc. to assist in mapping projects, assigning LLID and measures on the regional hydrography, and entry of data.	The GIS Specialist worked with ESRI to determine feasibility of this project. Initial indications were that costs would exceed budget if this were done by a contractor. Work will continue on this objective in FY-04 by StreamNet staff. This was part of the Data Management Placeholder funding.
WDFW	2	Maintain and update, as necessary, the 1:100,000 scale hydrography files for the states and the PNW region. Submit all changes to the StreamNet database at the Regional office.	We renewed our effort to edit the 100K hydro layer by simultaneously editing it as we cross-code release data, PSC codes and spatial codes. Edits include re-routing the path of the mainstems, adding 24K streams when they are needed to tie to data and making hydrological connections for stray 100K streams.

Objective 2 Data management and delivery

Task 3 Data management and coordination

This task includes GIS and tabular data management at the regional and cooperating project levels after the data have been developed. Once data are submitted to the regional database, assure they fit established formats, perform appropriate error checks, and load the data into the StreamNet database and perform routine management of the data. The region and contributing agencies will collaborate to fix problems and assure seamless loading of data into the database. The cooperating projects will perform similar functions for managing data in their systems.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2003
CRITFC	1	Maintain and manage all data developed under Objective 1 in functional database systems at the cooperating agency level. Coordinate with regional staff to assure smooth submission of data to the regional StreamNet database.	StreamNet data submitted by CRITFC were maintained either in the library catalog system (for library data) or in databases and spreadsheets managed by the Database Programmer (for tabular data).
CRITFC	2	Prepare FGDC standard metadata for all GIS layers developed by the cooperating agencies and submit to the regional StreamNet database.	River reach systems were completed for Oregon subbasins and available environmental data were associated with river reaches. Metadata are being maintained for these systems. We will discuss providing access to this information through StreamNet in the first quarter of FY-04.

CRITFC	3	Work cooperatively to define the level of effort needed to develop metadata for tabular StreamNet data.	No work was performed this quarter. We will address this task in the first quarter of FY-04 as part of the discussion of storing subbasin planning data on the StreamNet system.
CRITFC	4	Develop data handling applications to ease transfer of tribal data to StreamNet	Two significant tools/procedures were developed this quarter. First, we developed algorithms to convert Oregon Aquatic Inventory Project habitat data into EDT ratings for watershed assessments. This process significantly reduces the assessment work load for subbasin planners where AIP data exist. We also determined that the AIP data collection protocols are consistent with emerging regional habitat monitoring standards and are recommending the AIP protocols for all tribal habitat monitoring work in Oregon. Second, working with ODFW StreamNet we tested and refined a Data Capture Tool (Event Mapper) to capture stream reach definitions directly as GIS events. Use of this tool greatly speeds development of GIS databases for habitat information.
IDFG	1	Maintain and manage all data developed under Objective 1 in functional database systems at the cooperating agency level. Coordinate with regional staff to assure smooth submission of data to the regional StreamNet database.	We identified a handful of TrendID issues in the IDFG data on the StreamNet web site and worked with PSMFC staff to correct them. We have utilized components of our internal fisheries information system to manage all the data that we have submitted to PSMFC. This includes both new data compilation and QC of the existing historical data. During data submission, we coordinated closely with the PSMFC data manager to work out data formatting and submission issues.
IDFG	4	On an opportunistic basis, coordinate with IDFG fishery programs to facilitate the use of data standards that are consistent with StreamNet and other regional standards.	The IDFG/StreamNet data coordinator participated in annual salmon and steelhead redds counts this summer. His role was to help conduct counts and to facilitate the use of our applications for data storage and management. He provided training in conducting redds counts and in the use of our applications.
MFWP	1	Maintain and manage all data developed under Objective 1 in functional database systems at the cooperating agency level. Coordinate with regional staff to assure smooth submission of data to the regional StreamNet database.	This ongoing work continued.
ODFW	1	Maintain and manage all data developed under Objective 1 in functional database systems at the cooperating agency level. Coordinate with regional staff to assure smooth submission of data to the regional StreamNet database.	Oregon StreamNet's Data Analyst received some trend corrections from the Regional Database Manager concerning the September 2003 trend submission. Identifying and solving those errors led to finding discrepancies in Oregon's Trend location table as compared to Regional StreamNet's. To avoid discrepancies in the future, ODFW will synch up all StreamNet-related lookup tables with those posted on the StreamNet website on a regular basis to verify information accuracy.

While acquiring disposition records from the ODFW Hatchery Management Information System, our Database Manager/Developer discovered some fairly significant problems in HMIS QA procedures, including duplicate entry of the same information in different sections of the system with apparently no checks between them. Also, hatchery collections and disposition numbers should match and are commonly corrected with end-of-year adjustments, but there is no requirement to do so, therefore some years do not match up. If changes cannot be made at the mainframe level to address these issues, we hope to learn enough about the internal structure of HMIS data to implement our own QA/QC procedures prior to data transformation.

Oregon's GIS Analyst completed a pilot effort to merge the documentation (observation) event records into the distribution event table for spring chinook to compare data management efforts needed under this scenario versus maintaining the data separately. The results of this effort were summarized and can be made available if needed.

In the process of populating the MasterLocation database, Oregon's GIS Analyst discovered that the 4th decimal of the longitudinal coordinate values for 24K barriers had been rounded to 0 due to the fact that the original datasets were created as single precision. These datasets were recreated as double precision and the coordinate values were corrected.

Oregon StreamNet's GIS Analyst updated metadata for all distribution datasets to include new contact information related to the move of ODFW's headquarters from Portland to Salem. The updated metadata has been posted to the ODFW FTP server.

- ODFW 2 Prepare FGDC standard metadata for all GIS layers developed by the cooperating agencies and submit to the regional StreamNet database.

- Region 1 Update and append data as submitted by StreamNet participants. Isolate erroneous or duplicative data and work with source agencies to correct problems. Produce downloadable versions of StreamNet databases. Maintain logs of data submissions and major database changes.

- Region 3 Maintain a library of StreamNet GIS layers for internal use and as downloadable data on the web site with complete documentation (metadata).

The greatest percentage increase in StreamNet data tables during the fourth quarter occurred in the Age table, where an additional 4,569 records from WDFW and CRITFC amounted to over a 1000% increase. New time series Trends, Escapement count data, and/or Hatchery Returns information was loaded from CRITFC, ODFW, USFWS, WDFW and CDFG.

The GIS layers and map catalog were maintained and they remained available over the StreamNet website. The GIS specialist reorganized the distribution data to fit into a logical hierarchy.

Region	7	Assist data contributing agencies in development of data, including formatting, coding, data entry, error checking, and submitting to the regional database.	Regional staff began listing the wide range of error-checks that could be done to help identify existing errors and to check new data for errors. Many possibilities for errors exist, and thus the number of checks that could be performed is in the hundreds. Many errors that could happen can be categorized as 'inappropriate code combinations' such as species/run combinations or category/type combinations that do not match. Other errors could be inconsistencies among data categories -- for example, redd counts where the fish distribution data say the species/run does not exist. Such errors are easy to check for in concept, but the number of combinations is very large and a major effort will be needed to create a full set of data integrity check routines.
Region	8	Examine the StreamNet database for errors and report any found to the appropriate entity for correction.	Many miscellaneous updates were made with the assistance and authorization of data compilers in the cooperating projects.
WDFW	1	Maintain and manage all data developed under Objective 1 in functional database systems at the cooperating agency level. Coordinate with regional staff to assure smooth submission of data to the regional StreamNet database.	This quarter the Assistant StreamNet Data Manager submitted Age data records directly to StreamNet. This is among the first Age data submissions for StreamNet and it tests the newly adopted Age DEF. After the submission, the StreamNet Data Manager summarized some questions about the DEFs intended inter-relationship between fields and tables using examples from WDFW's submission. The StreamNet Regional Data Manager has not responded or taken issue with the data submission yet.
WDFW	2	Prepare FGDC standard metadata for all GIS layers developed by the cooperating agencies and submit to the regional StreamNet database.	WDFW StreamNet hired a temporary in August to continue our work on generating standardized metadata for our GIS layers. During the seven weeks she worked, she became familiar with the spatial data we manage, updated formal data dictionaries for both the StreamNet (100K) and WLRIS (24K) datasets, including hydro, fish distribution, and stock status. She worked with other GIS staff to develop an agency-standard routine to generate FGDC-compliant metadata using the current WDFW version of ArcGIS, version 8.3. She generated a single metadata document covering statewide fish distribution for salmon, steelhead and bull trout and submitted her final draft for review at the end of September. Once reviewed, this document will be forwarded to the Regional GIS Analyst at PSMFC StreamNet.

Objective 2 Data management and delivery

Task 4 Data exchange standards

Establish and maintain data exchange standards to ensure consistent content and format of data that originate from multiple data sources.

Monitor adopted and proposed data exchange formats for data categories described under Objective 1. This task will provide coordination and technical assistance regarding interpretation of database structures and codes.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, Fourth Quarter 2003</u>
All	2	Develop a protocol / process for changing and making additions to the DEF	The new DEF process document adopted by the Steering Committee was formally put into use this quarter. Several cooperators began using the new process to work on DEF development this quarter.
CRITFC	1	All project participants will jointly work through the Steering Committee to revise the existing and develop new DEFs to assure regional data consistency and allow for inclusion of new data types.	CRITFC staff populated the draft fish age DEF with data for review by the Steering Committee. A test data set was also developed for aggregated habitat survey data. A draft DEF for these data will be developed in the next quarter.
IDFG	1	All project participants will jointly work through the Steering Committee to revise the existing and develop new DEFs to assure regional data consistency and allow for inclusion of new data types.	The IDFG/StreamNet project leader discussed DEF issues at the Steering Committee meeting.
MFWP	1	All project participants will jointly work through the Steering Committee to revise the existing and develop new DEFs to assure regional data consistency and allow for inclusion of new data types.	A new version of the DEF was released and reviewed by MFWP. The Loc_ID issue was reviewed via phone calls.
ODFW	1	All project participants will jointly work through the Steering Committee to revise the existing and develop new DEFs to assure regional data consistency and allow for inclusion of new data types.	Staff downloaded the 2003.1 version of the DEF, reviewed it, and met with StreamNet Regional staff by phone to discuss specific details, including changes, timing for a final technical meeting, and areas of interest to pay close attention to in the DEF. Staff also participated in a StreamNet conference call with technical staff from the other NW states to address issues related to the proposed DEF changes. The Assistant Database Manager/Developer completed the Wildlife Habitat Conservation and Management Program Database Data Exchange Format document.
ODFW	3	Develop and submit a draft DEF for carcass placement efforts	StreamNet's new protocol for submitting a newly developed DEF was adopted during the quarter. Oregon StreamNet's Data Analyst continues to work with StreamNet personnel to develop a DEF for carcass placement information. A draft DEF will be submitted during FY-04, but in the interim, Oregon's 1998 - 2002 carcass placement information is supplied on the NRIMP web site in Excel and HTML format. These tables are available on the StreamNet web site via a link to NRIMP. This data delivery approach will continue until a new DEF is approved and the data are reformatted to fit into StreamNet's online data query system.

Region 1 All project participants will jointly work through the Steering Committee to revise the existing and develop new DEFs to assure regional data consistency and allow for inclusion of new data types.

During the Summer meeting of the Steering Committee, assignments of who would lead development of new DEFs in FY-04 were made. These assignments were then incorporated into the Statement of Work for next fiscal year.

A new version of the StreamNet Data Exchange Format, version 2003.1, was published. Version 2003.1 contains a major change in location coding procedures which simplifies location coding. This change affects all data categories and is a major change. The lone exception is hatchery facilities, because location coding is more complicated for this data category and the conversion was not straight-forward. Also included in version 2003.1 are: a new format for age data; an improved and simplified format for hatchery returns, including the ability to track movement of fish between hatcheries; and correction of a barriers table problem that had existed. The hatchery releases table was removed because these data are not being updated until a crosswalk is created between the RMIS and StreamNet location coding schemes; this table will be replaced when we again can capture release data. A new data structure for habitat restoration/improvement projects was completed during the quarter but was not implemented or included in DEF 2003.1 because necessary testing was not completed in time. This change should be included in the next version of the DEF.

The Regional Fisheries Biologist worked with StreamNet staffs from the cooperating agencies to add codes necessary for data submittal. (New species; location coding; restoration project codes; etc.)

Region 4 Assist with development of XML schema based data exchange options for both incoming and outgoing data. Develop a written recommendation on how to utilize XML to maximize exchange of data for consideration by the StreamNet Steering Committee for future action.

We implemented a formal procedure (data use agreement) for access to the StreamNet data via XML.

WDFW 1 All project participants will jointly work through the Steering Committee to revise the existing and develop new DEFs to assure regional data consistency and allow for inclusion of new data types.

The WDFW StreamNet Project Manager drafted a summary of event measure issues related to inaccurate values for the EndFt measures for certain Washington streams stored in PSMFC data validation tables. The summary was distributed at the July Steering Committee meeting and the subject was assigned to the Forum for follow-up discussion and resolution.

The WDFW StreamNet Data Manager (Sikora) participated in the conference call to finalize the LocMaster table and related tables. The group was unable to finalize the links in the Hatchery table and Sikora will organize the original Hatchery Tech Team to resolve the issues.

We also scoped more information on Washington diversion screening data for future DEF discussions.

Objective 2 Data management and delivery

Task 5 StreamNet Internet site

Continue to maintain and enhance the existing client-server system to provide access to StreamNet data products through the Internet at both the regional and cooperating project levels. The StreamNet home page will continue to be utilized as the project's primary data delivery vehicle. Priority will be given to incorporating data developed through Objective 1 and providing access to reference materials secured through Objective 3. GIS systems will be used to promote data sharing, data transfer, communication, and to pilot efforts that improve efficiency in data migration to the StreamNet database. Appropriate training on the use of the system will be provided through a combination of on-line help and in-person training sessions.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, Fourth Quarter 2003</u>
All Cooperators	1	Provide ongoing review of the StreamNet Internet site, as time permits. Identify problems or needed improvements, and critique new features and functions.	During the course of routine operations, cooperators occasionally used the StreamNet web site, providing an opportunity to review its function and offer suggestions for improvements and future function. This quarter, IDFG StreamNet provided input on several data issues to PSMFC staff for correction. FWS StreamNet used the site to verify loading of 2002 return and age information.
ODFW	2	Manage and maintain Oregon's web-based data integration, communication, and transfer system site and their links to StreamNet.	Oregon StreamNet has installed and configured a new Windows-based server for deployment of http and ftp services. Currently all NRIMP FTP services have been migrated to this new server. Probable web service migration will happen in the future. Oregon StreamNet staff worked to resolve network connectivity and firewall issues related to bringing our web and ftp server back online after the Headquarters move from Portland to Salem.
Region	1	Maintain and upgrade the StreamNet web server and software, including programming, tool development, system security, etc.	The StreamNet web server had very good up-time this quarter with no significant problems. The Apache web server software was updated to include the latest security enhancements. The core Windows OS was patched multiple times to include security releases from Microsoft even though we are protected at the firewall level from computer viruses like the Blaster worm that affected so many systems connected to the Internet.
Region	2	Maintain and enhance the functionality, look and usability of the StreamNet web-based query system.	We updated the reference documents relating to data table relationships and table layouts. Most items on the bug/fix list (100+) were resolved this quarter.
Region	3	Maintain the GIS Data, Map, and PNW Reach File Internet pages.	These pages were maintained as a routine part of managing the system.
Region	4	Maintain, update as necessary, and improve the Internet mapping component to the StreamNet web site to allow users to access data through interactive map interfaces. Improvements might include such items as adding DRGs or aerial photos to the IMS applications, and showing trend locations in the web query system.	Routine management of the mapping system continued this quarter.

- Region 6 Incorporate 5th and 6th field HUC GIS coverages into the web-based data query system and Internet mapping applications so data can be provided by HUC 5 and/or 6
- Region 7 Convert the core data query system to an open ColdFusion environment
- Region 8 Deploy new query system components and data categories that are approved by the Steering Committee
- Region 9 Maintain logs of web query history and error events. Track and report Internet site usage by month and investigate web query system errors encountered.

No work was completed on this item. We are still waiting for 5th field HUC coverage to be completed by the Framework project so we will be using the same core coverage as the States. Another issue to consider here is whether we should target our completion of these selection criteria to match the rollout of 24K hydrography if we will be moving to 24K in the not so distant future.

XML output was completed. Most all data categories are now serviced through ColdFusion as well, however we are still using Delphi code for some things because it provides better performance at this point.

A data use agreement was implemented for access to the whole StreamNet database in MS Access or XML format.

Website use during the quarter was logged and is summarized in Table 1.

Table 1. Summary of usage of the StreamNet website <www.streamnet.org> during the Fourth Quarter of FY-03

	July-03	August-03	September-03
<i>Overall Page Requests</i>	44,468	41,158	44,165
<i>Data Query Page Requests</i>	11,413	9,065	9,183
<i>Unique Query Sessions</i>	1,839	1,321	2,056
<i>Data Reports Viewed</i>	2,290	1,842	1,390
<i>FTP Files Downloaded</i>			682
<i>Top 10 individual requesters</i>	virginia.edu, attbi.com, 207.173.155, washington.edu, noaa.gov, aol.com, comcast.net, uswest.net, blm.gov, state.id.us	attbi.com, washington.edu, uswest.net, aol.com, comcast.net, noaa.gov, teoma.com, r6.fs.fed.us, rr.com, 207.173.155	attbi.com, aol.com, noaa.gov, parametrix.com, 216.88.158, uswest.net, comcast.net, webster.com, rr.com, qwest.net

Objective 2 Data management and delivery

Task 6 Respond to data / information requests

Receive and respond to requests for data and information, source materials, and custom products. Response to requests will be honored within the limits of available resources, with priority given to information requests having direct relevance to the Fish and Wildlife Program. Other priorities will include implementation of the Endangered Species Act and federal, state, and tribal natural resource management activities.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2003
CRITFC	1	Respond to requests for data, maps, technical assistance, source materials, or custom data products, within the capabilities provided by the base funding level. All requests will be logged and reported	This is not a funded CRITFC activity under the base budget. Nevertheless, we coordinated with ODFW StreamNet staff to incorporate and distribute StreamNet data to each subbasin planning group in Oregon. We also developed a standard set of GIS databases and products for delivery to subbasin planning teams, in cooperation with the subbasin planning project.
IDFG	1	Respond to requests for data, maps, technical assistance, source materials, or custom data products, within the capabilities provided by the base funding level. All requests will be logged and reported	We responded to 37 requests for data or information: 1 from federal agencies, 7 from state agencies, 1 from a tribal agency, 27 from private industry and 1 from the National Academy of Sciences. Twenty-five of the requests were for species distribution information, 4 for general GIS data, 6 for redd counts, 2 for other miscellaneous information.
MFWP	1	Respond to requests for data, maps, technical assistance, source materials, or custom data products, within the capabilities provided by the base funding level. All requests will be logged and reported	Staff provided data and/or maps for 22 GIS related requests; 3 of these were fisheries related.
ODFW	1	Respond to requests for data, maps, technical assistance, source materials, or custom data products, within the capabilities provided by the base funding level. All requests will be logged and reported	Five hundred ninety five unique users viewed / downloaded data from the ODFW FTP site during this quarter. Also, 3,010 data downloads were made from this site. A total of 18 data, 1 document, 2 map, and 11 'other' requests were answered during this quarter. A detailed list by requester and request type can be made available upon request. The list of requests below is provided as an example of the range of requests we respond to. These requests include: a. Reformatted and distributed County codes that had been previously received from ODFW's Hatchery Management Information System to ODFW staff upon request. b. Created a draft map displaying fish screen and passage projects in Oregon, as requested by Fish Screen and Passage Program staff for a report they are writing. c. Assisted USFS staff with route creation questions d. Assisted ODFW / OWEB staff with questions related to the spatial component of some mitigation data that we worked on in the past. e. Responded to a request for cutthroat observation data and also questions related to fish presence in the Luckiamute watershed. f. Discussed distribution / observation event overlay issues with NOAA Fisheries staff.

- g. Cut a slice of the Benton County portion of the Fish Presence Survey database and provided it along with the Fish Survey Observation table to the Benton County SWCD.
- h. Converted Clackamas district 8.5 x 11 Coho distribution maps into jpg format based on a request from ODFW North Willamette District staff.
- i. Provided EPA with ODFW's Fish Distribution database as well as statewide fish distribution GIS datasets on CD.

Region 1 Respond to requests for data, maps, technical assistance, source materials, or custom data products, within the capabilities provided by the base funding level. All requests will be logged and reported

A total of 36 requests were received at the regional office at PSMFC. Responses were provided (in most cases within one business day), as summarized in Table 2. These do not include information accessed directly from the StreamNet web site.

Table 2. Direct data or information requests responded to by the regional StreamNet office during the fourth quarter.

User type	No.
Federal government	6
State government	2
County/local government	1
Tribal government or CRITFC	0
NWPPC	2
CBFWA	1
University faculty	0
Undergraduate student	0
Graduate student	4
Private consultant	9
General public	6
Utility district	0
Industry	0
Environmental/nonprofit group	3
Undisclosed	2
Total	36

WDFW 1 Respond to requests for data, maps, technical assistance, source materials, or custom data products, within the capabilities provided by the base funding level. All requests will be logged and reported

WDFW StreamNet staff responded to about 40 data requests this quarter. Maps of fish distribution continue as the single most requested dataset. There is popular demand for the most extensive fish distribution (ergo 24K distribution) in the requested areas.

Objective 3 Library and reference services

Provide professional library services to the Columbia Basin's fish and wildlife decision-makers, planners, managers, and researchers by acquiring and cataloging StreamNet source documents and other related material; and by providing open and efficient access to these materials

Objective 3 Library and reference services

Task 1 Collection development

Develop a collection of materials applicable to the mission of StreamNet. Collect, catalog and organize materials to document data sources, Fish and Wildlife Program activities and reports, and other gray literature for access by regional scientists, agencies, interested parties, and other libraries. Project participants will submit reference documents for all data to be included in the collection.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, Fourth Quarter 2003</u>
CRITFC	1	Obtain reference documents for all data developed under Objective 1 and submit them to the StreamNet Library for inclusion in the collection and catalog.	The StreamNet Library received and catalogued reference documents received from project participants.
CRITFC	2	Coordinate source material submissions for data compiled by participants.	The Library accepted several donations of materials from other libraries as well as clients interested in disseminating information to a wider range of colleagues.
CRITFC	3	Develop a collection of materials related to the Columbia Basin, including reports from other Fish and Wildlife Program projects, other agency documents as they relate to the Basin, and other published and unpublished materials as requested by clients.	The Library obtained many books and documents that will strengthen the collections. Several bibliographies have been analyzed to show those materials that are most frequently cited. These materials have been identified as priorities for acquisition.
CRITFC	4	Maintain and develop a collection of journals related to fisheries and aquatic sciences as well as other related scientific topics.	Several titles have been identified as important to the Library's focus. Negotiations with clients for donations of subscriptions are currently underway.
CRITFC	5	Format the library reference table of StreamNet documents for inclusion in the StreamNet database. New updates will be sent to the regional database monthly after that.	Negotiations were continued and data was submitted to the Regional Data Manger for inclusion.
ODFW	1	Obtain reference documents for all data developed under Objective 1 and submit them to the StreamNet Library for inclusion in the collection and catalog.	Oregon's 4th Quarter Library submission was delivered to the StreamNet Library on September 18th.

Oregon StreamNet's Data Analyst conferred with the head StreamNet Librarian on the method for handling submitted references already catalogued in the StreamNet library that had not been submitted previously by a StreamNet cooperator. The final agreed upon process was that cooperators should not send the actual document, but rather supply a reference ID number for the document on the Reference submission form that accompanies all library submissions. The StreamNet librarian also mentioned that cooperators should enter into the notes field on the Reference submission form that the document is already catalogued at the StreamNet library and include the catalog number.

Oregon StreamNet's Data Analyst created a cross table to provide StreamNet assigned 50,000 series numbers to 70,000 series referenced documents collected during a 1999 distribution update project. These documents can now be submitted to the StreamNet Library.

Region 1 Obtain reference documents for all data developed under Objective 1 and submit them to the StreamNet Library for inclusion in the collection and catalog.

25 new reference titles were added this quarter. 169 new RefIDs were added in the project year.

Region 2 Enhance the StreamNet data reference system by repairing or establishing procedures for updating and reconciling data-related references between the StreamNet database at PSMFC and the StreamNet Library database housed at CRITFC.

A Library database dump was processed during the fourth quarter, but problems dealing with the Library software periodically recreating it's record keys made the effort useless. A new field was added to the Library database, named LibID, that will be maintained permanently on each record, and permit synchronization between the Library and the Reference table that maintains data citations on the StreamNet web site.

WDFW 1 Obtain reference documents for all data developed under Objective 1 and submit them to the StreamNet Library for inclusion in the collection and catalog.

WDFW StreamNet staff submitted new references or reference updates as warranted to the StreamNet Library.

Objective 3 Library and reference services

Task 2 Provide access to collection

Provide user access to the materials described in Task 3.1 by providing facilities for storage of paper and electronic copies of documents, an online catalog of all documents in collections, and staff to answer location questions and respond to requests.

Project Job Planned work elements

Accomplishments, Fourth Quarter 2003

CRITFC 1 Provide and maintain an appropriate facility for the storage and public use of the StreamNet Library collections.

The Library was open to the public on a regular schedule, which is posted on the website.

CRITFC 2 Catalog and organize the materials for ease of use by clients and staff.

Over 400 records were added to the catalog during this quarter. In addition, the catalog software was upgraded for improved access to the collections.

CRITFC	3	Provide access to the catalog of materials via the Internet and update the online catalog on at least a monthly basis.	The catalog was updated on the website http://www.fishlib.org/ . In addition the software used to provide public access to the catalog was upgraded. Included in the upgrade was the shopping cart function to allow patrons to order documents, as well as XML enhancements.
CRITFC	4	Develop and execute a plan to place electronic documents in the catalog and on the library website.	Documents were added to the website for subbasin planning. Most of these documents are considered key references for subbasin planners.
CRITFC	5	Develop and keep a schedule of open times and reference desk staff hours.	The library schedule was maintained. An additional staff member from another contract will make scheduling hours easier on existing staff.

Objective 3 Library and reference services

Task 3 Library services

Manage the StreamNet Library and provide library services to the StreamNet user community, Fish and Wildlife Program, and the general public.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2003
CRITFC	1	Provide information and reference services to library clients	Uncategorized clients represent the largest number of requests this quarter, with the U.S. Fish and Wildlife Service coming in second.
CRITFC	2	Provide information about services and hours to library clients via print and Internet	The library website http://www.fishlib.org/ continues to be our primary vehicle for information about the library. In addition, the brochure is kept on small print runs in order that it might also be more frequently updated to reflect changes in the library's services and collections.
CRITFC	3	Provide interlibrary borrowing services for library patrons to access materials not yet owned by the StreamNet Library.	Over 314 written requests for information were received by the Library. Many of these requests are filled through our subscription to the OCLC bibliographic utility. Several new clients have come in to the library throughout the quarter. There are two Ph.D. candidates who are using the collections to research their dissertations. Several other clients have also been frequenting the library to look for materials.
CRITFC	4	Provide access to hardcopy and electronic files of draft and final documents related to subbasin planning and the NPPC amendment process.	Work continued on analyzing the 1990 subbasin plan bibliographies.

Objective	3	Library and reference services	
Task	4	Inter-library coordination	
		Engage in networking activities with other agency and regional library service providers to provide better access to other collections that will enhance the StreamNet Library and to avoid unnecessary duplication of effort and materials	
<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, Fourth Quarter 2003</u>
CRITFC	1	Provide interlibrary lending services for other libraries to access the library's unique collection	The library filled over 60 requests from other libraries for materials in our collections. These requests were received through OCLC, IAMSLIC and several other lists for librarians to share materials.
CRITFC	2	Maintenance of memberships in appropriate library and subject-related associations. Ex. IAMSLIC, NRIC, OFWIM, etc.	The invoice for renewal in the International Association of Aquatic and Marine Science Library and Information Centers (IAMSLIC) was received.
CRITFC	3	Provide consultations for groups and other agencies on library organization and services.	Assistance was given to the Research Assistant at EcoTrust to help her understand metadata and library organization.

Objective 4 Services to the Fish and Wildlife Program
Provide technical data services to Fish and Wildlife Program decision-makers and appropriate Fish and Wildlife Program projects

Objective	4	Services to the Fish and Wildlife Program	
Task	1	Data and services to support the Fish and Wildlife Program (Base project level only)	
		Provide data management assistance to the Fish and Wildlife Program, as requested. Services may include custom development of data, provision of data from the StreamNet database to support FWP activities (such as planning, monitoring and evaluation, etc.), and general advice and technical assistance with database management, data delivery, and GIS. Under base funding, requests under this objective will have to be balanced against other ongoing activities.	
<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, Fourth Quarter 2003</u>
CRITFC	1	Support Fish and Wildlife activities, such as subbasin planning and monitoring, by providing data and maps of existing StreamNet data and technical information management advice, as requested, and only within available time and budget under base level funding.	StreamNet data sets were assembled for all Oregon subbasins. StreamNet GIS data were used for development of the subbasin planning river reaches. The CRITFC StreamNet Project Manager is a participant in the Pacific Northwest Aquatic Monitoring Partnership, an interagency group developing a strategy to coordinating monitoring efforts conducted under several programs throughout the Pacific Northwest. A strategy proposal is scheduled for completion in December.

CRITFC	2	Participate in various NWPPC planning and management work groups to improve and coordinate regional information management programs, such as serving as leader of the technical work group for Oregon's Subbasin Planning effort.	As chair of the Oregon technical assistance team for subbasin planning (TOAST), the project leader supervised completion of standard data sets and GIS products for Oregon subbasins. Three workshops were conducted to train local planning teams in the use of EDT and QHA tools. This work is supported under separate funding, but all activities are closely coordinated with the StreamNet project..
IDFG	1	Support Fish and Wildlife activities, such as subbasin planning and monitoring, by providing data and maps of existing StreamNet data and technical information management advice, as requested, and only within available time and budget under base level funding.	StreamNet staff have spent considerable time helping subbasin assessment staff get started with our databases and resources. We explained our data holdings and how to utilize them. The focus of the subbasin assessments has been on developing an actual (as opposed to potential) distribution layer for chinook, steelhead, and bull trout. This utilizes an ArcView application written by a non-StreamNet GIS Analyst on our staff. We will submit these as updated distributions when completed. Subbasin assessments are also developing a state wide big game winter range layer. We have provided some GIS expertise in this effort.
ODFW	1	Support Fish and Wildlife activities, such as subbasin planning and monitoring, by providing data and maps of existing StreamNet data and technical information management advice, as requested, and only within available time and budget under base level funding.	Our Database Manager/Developer worked with Subbasin Planning TOAST staff on installing and troubleshooting the Subbasin Data Capture Tool on TOAST workstations. He also started work on a problem with the Subbasin DCT that produces incorrect measurements over long routed streams. The Project Leader summarized his observations from the Sept. 9-10 Deschutes Reach Rating meeting, with the goal of informing other subbasin planners of the lessons learned. The take home message was that all subbasins need to move quickly to initiate whatever assessment method (EDT, QHA, etc.) they intend to use to complete their subbasin plan because any of the assessment approaches will take quite a bit of time.
Region	1	Support Fish and Wildlife activities, such as subbasin planning and monitoring, by providing data and maps of existing StreamNet data and technical information management advice, as requested, and only within available time and budget under base level funding.	No requests for data to support these programs were received this quarter.
Region	2	Participate in regional discussions of Monitoring and Evaluation and/or Subbasin Planning to identify means of capturing information generated and making them available regionally.	The Program Manager began review of the draft RM&E Plan from the Action Agencies. Data management in the plan appears to rely on development of a CBCIS, as proposed by SAIC, but that is many years away from reality. Feedback on the plan will be provided next quarter.

WDFW 1 Support Fish and Wildlife activities, such as subbasin planning and monitoring, by providing data and maps of existing StreamNet data and technical information management advice, as requested, and only within available time and budget under base level funding.

The WDFW StreamNet Project manager responded to Council staff John Harrison on the current status and availability of Washington diversion screen data in digital format. There is currently no coordinated effort in Washington to centralize these data into a standardized collection.

WDFW StreamNet staff filled various data requests for consulting firms that are working on the Lower Columbia River recovery plan.

Objective 4 Services to the Fish and Wildlife Program

Task 2 Archive and deliver independent data sets, as requested

Work with regional entities to aid in the capture and distribution of data generated through Fish and Wildlife Program activities and to help determine the most appropriate means of storing and disseminating them. Where data do not fit in existing StreamNet data sets, develop archive functions to, at a minimum, make data available 'as is', regardless of their current form.

Project Job Planned work elements

Accomplishments, Fourth Quarter 2003

CRITFC 1 On an opportunistic basis, obtain, warehouse and deliver data sets of non-StreamNet type fish and wildlife data from FWP participants or related entities. These data sets will be maintained in their original formats for posting 'as is' to make them available regionally through the regional StreamNet web site, but not through the StreamNet online data query system.

The data sets for subbasin assessment mentioned in the third quarter report were completed. We will meet with regional StreamNet staff in November to discuss how to make them accessible through the StreamNet system.

CRITFC 2 Develop strategies for ESA recovery planning and NWPPC subbasin planning efforts to ensure data and technical literature are captured and made regionally accessible. This will be done 'as possible' under base level funding.

StreamNet Library staff continued preparing electronic copies of core literature for subbasin planning under contract to the NPCC. The Library staff is also working with Council staff and state subbasin planning coordinators to request additional literature from subbasin planning teams. Actual collection and cataloging of this material will occur in the second and third quarters of FY-04.

Objective 4 Services to the Fish and Wildlife Program

Task 3 Protected Areas

StreamNet will a) maintain and provide access to the Council's Protected Areas dataset, b) archive the official version as a historic record, c) in consultation with the Council, respond to requests for information concerning Protected Areas, and d) modernize georeferencing and make data available through online mapping.

Project Job Planned work elements

Accomplishments, Fourth Quarter 2003

Region 3 Provide Protected Areas data, by subbasin, to subbasin planners for use in planning and for review and updating

GIS layers of the Protected Areas were provided to the Northwest Habitat Institute.

Objective 5 Project management and coordination

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

Objective 5 Project management and coordination

Task 1 Manage project activities

Administer all aspects of the StreamNet project at the regional and cooperator levels, including oversight of budget, personnel (including training and staff development), work statement preparation and implementation, coordination among participating agencies, active participation in steering committee work, and project reporting.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2003
CRITFC	1	Project oversight and guidance. Participate cooperatively in the StreamNet Steering Committee to guide the direction of the project, coordinate within respective agencies, and resolve policy and technical issues for the project	Voice and e-mail conversations were held concerning particular aspects of the project, especially project management, reporting, and funding issues. The project leader participated in the summer Steering Committee meeting.
CRITFC	2	Supervision. Supervise project staff at the cooperating agency and regional levels to provide guidance and staff development.	Normal staff supervision was provided. Several conversations were held concerning issues of integrating library operations smoothly with the subbasin planning activities.
CRITFC	3	Budget. Manage expenditures to accomplish the jobs in the Statement of Work within the approved budget.	Expenditures were reviewed monthly to insure they do not exceed projected and approved spending levels.
CRITFC	4	Develop the annual project proposal and budget within submission deadlines	The project leader completed review and revision of the FY-04 budget and work statement.
CRITFC	5	Report accomplishment of the work outlined in the annual SOW through quarterly reports submitted to BPA within 30 days of the end of each quarter	The Third Quarter report input was submitted.
FWS	1	Project oversight and guidance. Participate cooperatively in the StreamNet Steering Committee to guide the direction of the project, coordinate within respective agencies, and resolve policy and technical issues for the project	The project leader participated in the summer Steering Committee meeting.
FWS	3	Budget. Manage expenditures to accomplish the jobs in the Statement of Work within the approved budget.	The FWS StreamNet Project Leader coordinated with in-office accounting personnel to verify StreamNet budget expenditures.
FWS	4	Develop the annual project proposal and budget within submission deadlines	The budget for the FWS portion of the StreamNet Project was prepared for fiscal year 2004.

FWS	5	Report accomplishment of the work outlined in the annual SOW through quarterly reports submitted to BPA within 30 days of the end of each quarter	Accomplishments for the third quarter were reported.
IDFG	1	Project oversight and guidance. Participate cooperatively in the StreamNet Steering Committee to guide the direction of the project, coordinate within respective agencies, and resolve policy and technical issues for the project	The IDFG/StreamNet project manager provided project planning, management, and work scheduling. He participated in the regularly scheduled Steering Committee meeting.
IDFG	2	Supervision. Supervise project staff at the cooperating agency and regional levels to provide guidance and staff development.	The IDFG/StreamNet project manager provided supervision over 3 StreamNet staff members and 1 non-StreamNet staff person. In addition, the IDFG/StreamNet data coordinator supervised the data coordinator for the subbasin assessments.
IDFG	3	Budget. Manage expenditures to accomplish the jobs in the Statement of Work within the approved budget.	The IDFG/StreamNet project manager provided budget management and oversight of the IDFG/StreamNet budget.
IDFG	4	Develop the annual project proposal and budget within submission deadlines	We developed our FY-04 Statement of Work and budget within submission deadlines.
IDFG	5	Report accomplishment of the work outlined in the annual SOW through quarterly reports submitted to BPA within 30 days of the end of each quarter	The third quarter report was completed.
MFWP	1	Project oversight and guidance. Participate cooperatively in the StreamNet Steering Committee to guide the direction of the project, coordinate within respective agencies, and resolve policy and technical issues for the project	The project leader attended the Steering Committee meeting in July.
MFWP	2	Supervision. Supervise project staff at the cooperating agency and regional levels to provide guidance and staff development.	Mid-year performance reviews were performed for all staff members. Amy Pearson was moved from contractor status to part-time FWP employee.
MFWP	3	Budget. Manage expenditures to accomplish the jobs in the Statement of Work within the approved budget.	We provided draft and final budgets to PSMFC after content review by Montana StreamNet staff. A budget tracking system was set up. Unspent funding was provided back to PSMFC for reallocation within the project.
MFWP	4	Develop the annual project proposal and budget within submission deadlines	We provided the draft and final FY-04 Statement of Work to PSMFC after review by the Montana StreamNet staff. We set up a meeting for October with all Montana StreamNet staff members to assign duties and review tasks.
MFWP	5	Report accomplishment of the work outlined in the annual SOW through quarterly reports submitted to BPA within 30 days of the end of each quarter	Input for the third quarter report was submitted.

ODFW 1 Project oversight and guidance. Participate cooperatively in the StreamNet Steering Committee to guide the direction of the project, coordinate within respective agencies, and resolve policy and technical issues for the project

Oregon StreamNet's Data Analyst attempted to contact EPA's regional representatives office for the upcoming deadline for grants submitted under the National Environmental Network Grant Program. After failing to reach the regional representative, the Director in Washington, D.C. was called. The Director provided information that the bill funding the grant program has passed Congress and was currently awaiting Senate approval. After it passes, the next grant deadline will be next spring. She said anyone interested in these grants should check the website after October 1st for the actual due date. As of October 30th, no new date had been posted.

The Project Leader attended the summer Steering Committee meeting on July 7-8, at the CRITFC office in Portland.

ODFW 2 Supervision. Supervise project staff at the cooperating agency and regional levels to provide guidance and staff development.

The Project Leader:

- a. worked to laterally transfer limited duration staff into newly acquired permanent positions in order to avoid loss of continuity in the project. As of the end of this quarter, no answer has been received from ODFW's Human Resources office.
- b. interviewed and hired one staffer for the Fish Screen and Diversion Location Project to work out of The Dalles PSMFC office. He also arranged a vehicle and cell phone for the project. He met with the Fish Screen and Diversion Location Project staff, and reviewed the goals of, and the equipment for the project. He also met with ODFW Screen Shop staff to discuss project priorities and areas we should target. The decision was made to target Mill Creek (The Dalles) and the upper Willamette.
- c. hired a staffer using FRIMA funds to q/a the ODFW State and County culvert data. Ultimately these culvert data will be integrated into the ODFW Barrier database and will be made available to StreamNet. Our GIS Analyst worked extensively to get this new Barrier GIS person up and running with her work. He drafted a workplan for this effort.
- d. tried to hire someone to work on organizing the ODFW Library holdings, as part of our effort to reopen the library for StreamNet and internal ODFW service. Unfortunately, the request-to-hire was not approved in time to get someone on board before the end on the fiscal year.

ODFW 3 Budget. Manage expenditures to accomplish the jobs in the Statement of Work within the approved budget.

The Project Leader:

- a. managed project expenditures to accomplish the work plan.
- b. drafted and submitted responses to questions relating to justification for why Oregon is requesting more money from StreamNet in FY-04 than was requested in the original (FY-03) proposal.
- c. submitted Oregon StreamNet's budget accrual (spending) estimates for August and September 2003 to PSMFC and Linda Stokes (ODFW).

ODFW	4	Develop the annual project proposal and budget within submission deadlines	The Project Leader developed the StreamNet budget and Statement of Work for FY-04 and submitted it to Tony Nigro (ODFW CBFWA representative) and ODFW Managers for review, then submitted it to Regional StreamNet
ODFW	5	Report accomplishment of the work outlined in the annual SOW through quarterly reports submitted to BPA within 30 days of the end of each quarter	We completed and submitted our StreamNet 3rd Quarter Report on July 29 th , and reviewed and submitted comments/corrections for the draft StreamNet third quarter report.
Region	1	Project oversight and guidance. Participate cooperatively in the StreamNet Steering Committee to guide the direction of the project, coordinate within respective agencies, and resolve policy and technical issues for the project	<p>The Summer quarterly meeting of the StreamNet Steering Committee was held at CRITFC on July 7 and 8. Both technical and managerial topics were covered. A draft set of meeting minutes was sent to all participants. The minutes included a list of assignments for all cooperating projects.</p> <p>The Program Manger continued to participate in program manager's meetings within PSMFC. PSMFC decided to relocate operations to a new location in Sellwood. The StreamNet staff inspected the new location and planned out use of the available office space. The move is currently expected to take place around the end of the calendar year in the first quarter of FY-04.</p>
Region	2	Supervision. Supervise project staff at the cooperating agency and regional levels to provide guidance and staff development.	<p>Routine staff supervision was conducted during the quarter.</p> <p>Based on new funds provided by NWPCC from the Data Management Placeholder for new work near the end of FY-03, position descriptions for technicians to do work in Washington and Oregon were prepared. Interviews were held and new temporary staff were hired and put to work on several data tasks, including gathering GPS locations on spawning ground survey locations in Washington and fish screens in Oregon. The positions are from one to two months in duration. The sudden funding of this work late in the fiscal year may lead to some of the work having to be done in the first quarter of FY-04.</p> <p>Based on a small contract with NOAA Fisheries, a temporary data technician was hired to work with tribes in Oregon to obtain and organize data on the use of Pacific Coast Salmon Restoration Funds (PCSRF) to contribute to a report to Congress on how these funds are being used to enhance salmon populations.</p>
Region	3	Budget. Manage expenditures to accomplish the jobs in the Statement of Work within the approved budget.	<p>The Program Manager continued to be involved in workshops and meetings related to BPA funding and contracting.. The Program Manager and Regional Fisheries Biologist reviewed the BPA Draft Fish and Wildlife Policy Manual, and provided input for the PSMFC comments to BPA.</p> <p>The FY-04 budget and Statement of Work was prepared, incorporating input from the cooperating projects, and submitted to BPA.</p>

Last minute action by the NPCC resulted in an unexpected addition of funds from the Data Management Placeholder to the FY-03 budget to accomplish several data related tasks at the end of the fiscal year. As a result, the FY-03 Statement of Work and budget were modified and resubmitted to BPA.

As part of the FY-03 budget modification mentioned above, adjustments were made in the budgets of the project cooperators to balance changes in planned spending. Estimates of actual accruals for the entire fiscal year were conveyed to the PSMFC fiscal office. The accrual this year should come close to the entire project budget, except for a small amount of spending reprogrammed into FY-04 for the new work called for in the sudden end of year funds added by the NPCC

Region 4 Develop the annual project proposal and budget within submission deadlines

Project proposal procedures this year for the upcoming fiscal year were significantly different than in the past. The FY-03 project proposal was essentially carried forward to FY-04, largely due to the lengthy review and approval process for the Mainstem / Systemwide Provincial Review. As a result, no new FY-04 proposal was required. The budget amount approved by the Council was used to create the FY-04 budget, which was submitted to BPA along with the Statement of Work.

Region 5 Report accomplishment of the work outlined in the annual SOW through quarterly reports submitted to BPA within 30 days of the end of each quarter

The Third Quarter Performance Report was developed with input from all cooperating agencies. Workloads and vacations delayed final editing and completion. The report was submitted to BPA a little later in the quarter than planned.

WDFW 1 Project oversight and guidance. Participate cooperatively in the StreamNet Steering Committee to guide the direction of the project, coordinate within respective agencies, and resolve policy and technical issues for the project

Project oversight continued during the quarter. The project leader participated in the summer meeting of the Steering Committee.

WDFW 2 Supervision. Supervise project staff at the cooperating agency and regional levels to provide guidance and staff development.

WDFW StreamNet staff conducted performance evaluations and attended Washington state agency civil reform meetings and other internal meetings and workshops this quarter.

WDFW 3 Budget. Manage expenditures to accomplish the jobs in the Statement of Work within the approved budget.

Routine budget management continued during the quarter. Review and comment was provided as part of finalization of the FY-04 budget and work statement.

WDFW 5 Report accomplishment of the work outlined in the annual SOW through quarterly reports submitted to BPA within 30 days of the end of each quarter

Input to the third quarter report was provided within the deadline.

Objective 5 Project management and coordination

Task 2 Participate in Fish and Wildlife Program development activities

Work with regional entities to assist in the area of data management as requested to support development of Fish and Wildlife Program projects and programs. Organize, facilitate, and/or participate in appropriate coordination meetings with BPA, CBFWA, the Council, ESA officials, ISAB/ISRP, and/or staff and management of participating organizations to identify ways StreamNet can effectively contribute to the Fish and Wildlife Program (FWP) and facilitate capture and dissemination of data. Participate in advisory groups, task forces, and other groups whose purpose is enhancing the effectiveness of the Fish and Wildlife Program relative to its data development activities.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, Fourth Quarter 2003</u>
CRITFC	1	Work with regional entities to contribute data management expertise toward development of activities within the scope of the Fish and Wildlife Program. Serve as a data management resource to the FWP.	The Project Leader and Database Programmer worked with subbasin teams in Oregon to complete individual subbasin databases to support subbasin planning.
Region	1	Work with regional entities to contribute data management expertise toward development of activities within the scope of the Fish and Wildlife Program. Serve as a data management resource to the FWP.	The Program Manager met with Rod Sando of CBFWA and Council staff to consider the potential of developing a regional data management committee under CBFWA auspices. The need for a regional scope oversight group dedicated to data management was recognized. Next steps will include development of a charter to outline the purpose and responsibilities of such a committee if it is formed.

Objective 5 Project management and coordination

Task 3 Coordinate with other related activities

Maintain communications between StreamNet and other applicable regional and state-level fish and wildlife activities and agencies beyond the Council's Fish and Wildlife Program to identify means for collaborative data collection, storage, and dissemination. Collaborative data activities will include tribal fishery programs within the Columbia Basin, federal land managers' fishery programs, state fish and wildlife agencies, and, with respect to water use and stream development, state water resource management and environmental quality agencies. Collaboration with coast-wide and private data collection/compilation efforts will be pursued when this supports overall project goals.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, Fourth Quarter 2003</u>
MFWP	1	On an opportunistic basis, coordinate with other state, federal, or tribal agencies and various regional inter agency planning and management work groups to enhance the collection and management of data related to management of fish and wildlife resources.	Project staff worked at providing fisheries data to the Comprehensive Fish and Wildlife Program and to the Natural Heritage Program to develop element occurrence records.

ODFW 1 On an opportunistic basis, coordinate with other state, federal, or tribal agencies and various regional inter agency planning and management work groups to enhance the collection and management of data related to management of fish and wildlife resources.

Oregon's GIS Analyst assisted Bobbi Riggers (OWEB) with the development of metadata for the OWEB Restoration Projects database in relation to some data processing that NRIMP completed for them several years ago.

Staff met briefly with Tom Stahl (ODFW Fish Passage Coordinator) to discuss the personnel and other resources he might need to move forward on implementing a statewide barrier prioritization effort.

Oregon's GIS Analyst worked with NOAAF staff members to address questions related to their development of static 24K linework from Oregon's 24K point datasets of fish habitat distribution. He also assessed and summarized issues related to this effort, and provided feedback to NOAAF. There will likely need to be additional q/a work done on the datasets to address some of the issues that were identified.

Oregon's GIS Analyst met with Tom Thornton (ODFW Big Game Manager) and Tad Larsen (OSU grad student in Forest Resources) regarding the development of statewide winter range data for deer and elk. Issues related to scale, timing and approach were addressed. Tad will be assessing the differences between the existing digital data and existing hardcopy maps to determine whether significant portions of the hardcopy data remain to be digitized. Tad plans to produce maps with the best available data, meet with agency wildlife biologists over the next several months, and create GIS data layers for typical and critical winter range for deer and elk. He will mostly be coordinating with Tom Thornton in this effort, but may need occasional input from the Oregon StreamNet GIS Analyst.

The Project Leader met on Sept. 22nd with Bobbi Riggers (OWEB), Bruce Schmidt and Adam Ve llutini (StreamNet) regarding GIS support that StreamNet can provide for OWEB's restoration project data. This is to meet a data request from NOAAF, which needs to submit an accounting of how the restoration project money has been spent. One stumbling block is that OWEB's accounting database is separate from the project database.

Region 1 On an opportunistic basis, coordinate with other state, federal, or tribal agencies and various regional inter agency planning and management work groups to enhance the collection and management of data related to management of fish and wildlife resources.

The Program Manager participated in meetings related to a project to report to Congress on progress of applying funds from the Pacific Coast Salmon Recovery Fund. StreamNet already has a database designed to manage restoration project data, and will assist this cooperative effort through working with tribal entities to gather and organize data on their PCSRF funded activities. This information will be combined with other data from PRISM and OWEB at the NOAA Fisheries Northwest Fisheries Science Center for development of the report. Planning for this work was done this quarter, with the actual work being done in the first quarter next fiscal year on contract funding for temporary data technician staff provided by NOAA Fisheries..

Region	2	Coordinate with agencies and organizations involved with habitat restoration work in the Columbia Basin regarding data needs, standards and formats, storage and delivery. Work toward achieving regional consistency in restoration project data with efforts such as the REO and AREMP.	The Program Manager met with the State/Federal/Tribal Watershed Monitoring Partnership (now renamed the Pacific Northwest Aquatic Monitoring Partnership). The partnership is attempting to create a regional approach to collecting and managing monitoring data, including fish related data. This is the most collaborative approach to data management so far, and may prove to be an excellent forum in which to discuss and plan regional scale data management. We will continue to work with this group.
Region	4	Participate with regional entities in the development of effective regional data management programs and approaches, such as through SAIC and RPA 198.	The Program Manager continued to work with the Project Team from the SAIC project to review a draft report for the NW Power and Conservation Council on next steps toward developing a regional scale data system (CBCIS). The report will be presented to the Council in October. Regional staff reviewed NOAA Fisheries' Research, Monitoring, and Evaluation proposal, and submitted comments back to NOAA Fisheries.
WDFW	1	On an opportunistic basis, coordinate with other state, federal, or tribal agencies and various regional inter agency planning and management work groups to enhance the collection and management of data related to management of fish and wildlife resources.	The WDFW StreamNet Project Manager held meetings with the WDFW staff that serves on the Pacific Salmon Treaty Technical Committees to explore gaining access to stock-based ocean harvest figures generated by technical committee cohort analyses to add this data category to the StreamNet online data holdings. More standardized work needs to be done by the committee members before such data are ready for public viewing/downloading, but the staff feels such Web posting would provide a useful service to regional resource managers.

Objective 5 Project management and coordination

Task 4 Prepare and present public and professional information related to the StreamNet Project.

As needed, produce public information materials and participate in various meetings and forums (public or professional) to explain the project's capabilities and purpose and to generate support and additional data sources. Activities may include brochures, demonstrations, posters and talks to public, policy or professional groups and organizations.

Project Job Planned work elements

Accomplishments, Fourth Quarter 2003

MFWP	1	Prepare and deliver presentations to scientific and professional meetings to demonstrate project capabilities, services and accomplishments and to solicit additional data and involvement or coordination with the project.	Project staff members attended the Organization of Fish and Wildlife Information Managers annual meeting in Rapid City, South Dakota, where they participated in the "Hacker's Ball" (an active online demonstration of fish and wildlife data systems and applications) and led a discussion on species selection for the Comprehensive Fish and Wildlife Plan.
Region	1	Prepare and deliver presentations to scientific and professional meetings to demonstrate project capabilities, services and accomplishments and to solicit additional data and involvement or coordination with the project.	The Program Manager participated in the annual meeting of the Organization of Fish and Wildlife Information Managers, giving a presentation on examples of how database projects (including StreamNet) in the Pacific Northwest directly benefit fisheries resources listed under the Endangered Species Act.

Based on a last minute request from NBII, the Program Manager attended the annual meeting of the American Fisheries Society, participating in a symposium on the value and effects of database management on fisheries resources. Examples were drawn from StreamNet and other database projects in the Pacific Northwest.

A new StreamNet poster presentation, for use at scientific conferences and other meetings, was produced this quarter. The old materials were several years out of date. The new materials were displayed at the PSMFC commissioner's annual meeting, and at the annual meeting of the Organization of Fish and Wildlife Information Managers.

Region 2 Develop materials to support the project. Improve public materials such as the StreamNet brochure, data inventories, etc. as needed. Maintain and update explanatory materials such as the Query System User Guide and documents that explain data categories and structures. Prepare and deliver StreamNet E-Newsletter at least twice as information becomes available.

Under separate funding provided by NOAA Fisheries, personnel were hired for Washington, Oregon, and California to compile data for a report to Congress on the use of funds distributed by NOAA Fisheries under the Pacific Coastal Salmon Recovery Fund (PCSRF). Regional and California PSMFC personnel who work with habitat restoration data participated in meetings with NOAA Fisheries and others to develop the data needs for the report. PSMFC staff began developing data entry tools, and staff were hired under PCSRF funding to compile data. Data capture from Native American tribes in California, Oregon, and Washington will be the major focus of this work, though assisting the Oregon Watershed Enhancement Board with location coding will also be done under PCSRF funding. The StreamNet Regional Fisheries biologist was designated a supervisor/coordinator for this work, which is expected to produce data which can be incorporated into StreamNet's database by the end of December 2003. PCSRF funding is allowing us to develop StreamNet's data capture abilities -- existing BPA-funded infrastructure is proving valuable for the PCSRF work, and work done under PCSRF funding will help develop StreamNet's capabilities.

WDFW 1 Prepare and deliver presentations to scientific and professional meetings to demonstrate project capabilities, services and accomplishments and to solicit additional data and involvement or coordination with the project.

WDFW StreamNet staff made short presentations and answered questions on current work for WDFW staff at the Fish Management Division's Stock Assessment Workshop (July 2003).

Generalized fish distribution and stock status maps for steelhead were generated for a display table set up at the WDFW Fish Program Science Division's Annual Meeting in September 2003. Posters summarized the types of datasets and services that can be made available to WDFW staff by contacting WDFW StreamNet personnel.

Supplemental Information. Work accomplished outside the specific work elements in the Statement of Work

Specific accomplishments during the fourth quarter, often on other funding sources, that did not relate specifically to any of the Tasks / Jobs in the annual Statement of Work, but that did relate to StreamNet and served the project mission.

Project	Accomplishments, Second Quarter 2003
CRITFC	Little of the project leader's time is covered under the StreamNet contract, so much of the activity reported above was accomplished on additional funding from other sources, particularly CRITFC. Details of that work were included in the main body of this report..
MFWP	Staff participated at the technical committee level in the development of Montana's Comprehensive Fish and Wildlife Program. We drafted a data dissemination policy for the agency and presented it at the Wildlife Manager's meeting. We attended the OFWIM conference in Rapid City outside of StreamNet funding. Staff developed several new applications for the FWP website including the Montana Field Guide and the "Fish Planner" (scheduled release November 15, 2003). We began planning for the update to the FWP IT Strategic Plan.
ODFW	<p>The Assistant Database Manager/Developer made changes to the reports and forms in the Fish Screening and Passage Program database user interface and released a new version, 3.0.1, in August 2003.</p> <p>Oregon's GIS Analyst reviewed updated barrier prioritization materials, and attended a meeting of the prioritization subcommittee of the Fish Passage Task Force where the first cut of the conceptual approach, formula, assumptions and a list of the next tasks were finalized.</p>
WDFW	<p>The WDFW StreamNet Project and Data Manager worked with Stan Allen (PSMFC) to recruit and hire a temporary worker on PCSRF funding to compile and load tribal habitat restoration project information into a database using the StreamNet data format.</p> <p>The WDFW StreamNet Project Manager began meeting with Dept. of Ecology and EPA staff to help them use generalized fish distribution data to inform new water quality rules that are required to identify core habitat for sensitive fish species and stocks.</p> <p>The WDFW StreamNet Project Manager held introductory meetings with WDFW Hatchery Data Unit staff that now report to him in order to begin the process of revamping hatchery datasets to improve quality and provide improved products to customers (including the WDFW StreamNet staff).</p>
Region	The StreamNet Project began work under a contract with NOAA Fisheries to assist regional entities organize information on how the Pacific Coast Salmon Restoration Funds were used as part of a report to Congress. The StreamNet role was to assist tribal organizations in Oregon, Washington and California georeference and report this information. A temporary position was established under subcontract to WDFW for the work in Washington, while the work in Oregon and California is being done by temporary staff hired by PSMFC. Most of the actual work will be done in the first quarter of FY-04.