StreamNet Project

BPA Project No. 198810804

Fiscal Year 2004
Fourth Quarter Progress Report

July 1, 2004 through September 30, 2004

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November, 2004

Introduction

StreamNet is a cooperative, multi-agency data compilation and data management project authorized by the Northwest Power Planning Council's Fish and Wildlife Program (FWP), funded primarily by the Bonneville Power Administration. The project is administered by the Pacific States Marine Fisheries Commission. Three fourths of the project consists of sub-projects within the state fish and wildlife agencies, Columbia River Intertribal Fish Commission and the US Fish and Wildlife Service to develop databases within the respective agencies and to facilitate data transfer regionally. The remaining fourth consists of the regional staff and the database at PSMFC.

The StreamNet Project compiles, manages, standardizes 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. 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, primarily through the StreamNet website (www.streamnet.org). 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 queriable database and also provides maps, individual data sets not contained in the queriable database, and library references. All data in the StreamNet database are referenced to source documents that are housed in the StreamNet Library. Work reported herein is tied to the specific jobs contained in the FY-04 Statement of Work, available at http://www.streamnet.org/about-sn/project_management.html.

This report documents accomplishments made by the project and its cooperators during the fourth quarter of Fiscal Year 2004 (FY-04). 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, 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.

Work priorities for FY-04 include updating existing long term data sets, managing the data and infrastructure necessary to maintain and deliver data, maintaining the StreamNet Library, providing data services to regional entities associated with the Fish and Wildlife Program, and project administration. Activities in the Fourth Quarter of FY-04 included routine development, maintenance and posting of various data sets, as well as routine administrative activities to continue project function. Key highlights of activities in addition to routine project functions this quarter are presented by cooperator below, with details provided in the body of this report.

Regional StreamNet at PSMFC (Region)

During the fourth quarter we published an updated version of the downloadable StreamNet database, ASCII files of StreamNet tables, Data Dictionary definitions and Data Categories Help pages. The downloadable database makes all of the StreamNet data available to users in one convenient format, but because the update is only done about twice a year, the most current data are still available only through the online query system or by direct request. Other data work included the receipt, processing and validation of major databases submitted by the cooperators, particularly from ODFW this quarter.

Work continued on updating the StreamNet Data Exchange Formats (DEF). We completed a new DEF for habitat restoration projects, which will be put forward for formal adoption early in fiscal year 2005. Because of some technical issues with the current DEF for hatchery returns and age data, we are revising the DEF and hope to have these data available early next fiscal year.

StreamNet continued to participate in and support various regional programs. We implemented and supported an online discussion group tool for Subbasin Planning in Oregon, and implemented and supported a web site for Oregon's subbasin technical team , TOAST. We continued participation in the Pacific Northwest Aquatic Monitoring Partnership (PNAMP), the Collaborative Systemwide Monitoring and Evaluation Project (CSMEP), and the Northwest Environmental Data-network (NED).

The StreamNet website (www.streamnet.org) continued to serve as our primary data delivery tool. We performed routine web server maintenance and conducted an upgrade, and accomplished 'up time' of greater than 99.5%. We investigated available options for a replacement database platform should our current database software become too expensive for us to maintain. Routine query system updates and bug fixes were performed, including updated XML output. We implemented a "new" ASP.NET web server for testing and for implementation of CalFish, our companion project in California. The server was actually an old PC that was reconfigured for this purpose.

The new GIS specialist became familiar with StreamNet data and processes. He continued to expand the regional spatial data library and met with the state StreamNet GIS Specialists to develop a plan for an interim mixed-scale hydrography dataset. He completed ESRI training for ArcIMS customization and administration, and upgraded the regional GIS software to ArcGIS 9.0 and ArcIMS 9.0. He also worked with NOAA Fisheries to develop a new IMS application for the presentation of Critical Habitat data for the thirteen northwest anadromous fish species under review. This effort will form the basis for a future redesign of the existing StreamNet IMS applications.

Administrative tasks continued during the quarter, including completion and submission of the FY-05 Statement of Work and budget. We worked carefully with cooperators and staff to maintain project spending within the FY-04 budget in one of the tightest budget years ever.

Columbia River Intertribal Fish Commission (CRITFC)

The StreamNet Library continues to be recognized and used as a major resource for archiving and accessing regional environmental information. Usage was steady or slightly increased compared to previous quarters and year-ago statistics. The Library also received major contributions of material from other agencies and is negotiating with the Audubon Society for management of a portion of their literature related to Columbia Basin habitats.

Archiving of Oregon subbasin planning data was nearly completed. Our success in this effort is serving as the model in regional discussions on archiving other subbasin planning data. The Project Leader is a member of a working group addressing the archiving needs.

The Project leader also participated in several regional inter-agency efforts to bring greater standardization to data collection and management efforts. These include the Pacific Northwest Aquatic Monitoring Partnership, Northwest Environmental Data Network, Cooperative System Monitoring and Evaluation Project, and the John Day Analytical Framework Group. Throughout these discussions a strong role for StreamNet was advocated.

Idaho Department of Fish and Game (IDFG)

Idaho StreamNet completed the compilation and submission of Idaho's core 2003 data. A business rules engine for our internal database was completed and implemented. Utilizing both StreamNet and non-StreamNet staff members, we conducted data workshops for the bull trout status review. Maps of the initial data have been distributed for review and we are checking the database for errors and inconsistencies. We provided support to CSMEP by developing and starting their next set of data inventory work books and we are overseeing IDFG staff in completion of those workbooks.

Montana Fish, Wildlife and Parks (MFWP)

Data entry continued for the 2002-2003 field seasons in the fourth quarter. Data exchange did not occur for the fish distribution table or the barriers table due to the massive amount of new information for those two data types that was provided during bull trout assessment process for Idaho and Montana, which StreamNet staff facilitated. Those data sets will be exchanged in the 1st quarter of FY-05.

A draft creel table was sent to StreamNet in the fourth quarter. Work continues slowly on the annotation layer for the Montana hydro level and several "fits and starts" have occurred over the year. We will pursue moving this job to NRIS staff to complete the annotation; this was not a priority of the StreamNet SOW and was taken on in order to improve the quality of map requests.

Genetic letters were converted to pdf format in the fourth quarter and new results were entered but not exchanged due to the absence of a DEF; this will be updated as an independent data set. A genetics database was created for Montana State University's new genetics lab. Support and training was also provided to the lab manager.

Montana staff continued to assist in the development of the Resident Fish Hatchery Release DEF and the Restoration Project DEF. HUC level maps were generated and provided to every state and federal biologist in Montana displaying Westslope or Yellowstone Cutthroat distribution, location of genetic sampling sites and a table listing the results for the genetic sample. 18 GIS map/data requests were also filled during the quarter.

Montana has participated in several conference calls of the NED project and provided a historical perspective on Montana's involvement in regional data management. The subbasin plans for Montana were reviewed by staff and determined that the only new data type may be fish disease/pathogens; parts of the plan were integrated into Montana's Comprehensive Fish and Wildlife Plan.

Discussions have continued with respect to Kalispell office staff moving to Helena; Lydia Bailey will move to Helena as the GIS/Natural Resource Data Manager; Jeff Hutten will continue as the StreamNet western Montana Information Specialist but only at a half-time level, and Kim Lindstrom will resign as of January 1 and her position will be rewritten and moved to Helena. StreamNet duties associated with Jeff and Kim will be reassigned to the remaining staff positions and some duties will be moved to a contract with NRIS.

Final review of the FY-05 budget occurred and agency work plans were completed for StreamNet duties. The Information Management Unit received .24 FTE from the Fisheries Division for fish data/map requests and technical support outside of the StreamNet Work plan. The Fisheries Manager's meeting was attended in September to discuss a data dissemination policy which includes the distribution of MFISH data on a statewide level.

Oregon Department of Fish and Wildlife (ODFW)

Progress was made on most project deliverables that were slated for attention during this quarter. CBFWA's request for us to conduct data inventory work, and then develop an online database application for the CSMEP project continued to contribute to delays in or postponement of some planned activities. Support of the CBFWA effort continued throughout this report period.

Specific deliverables completed this quarter included the submission of updated Dam, Barrier, and Trend datasets, the posting of updated carcass placement data, internal and external project coordination, reference submissions to the Library, and development of the CSMEP Database Web application. The other significant data related effort centered on providing unrolled hatchery release information to StreamNet for the first time. This pilot submission will assist Regional StreamNet to develop the capability to map and present release information at the individual stream level.

Great attention was paid to organizing and standardizing the way Oregon and StreamNet as a whole manage and maintain reference information.

A pilot effort to develop enhanced 100K stream route data for the Grande Ronde basin was completed this quarter, along with the generation of linear event data for the 24K fish distribution.

A great deal of work was accomplished this quarter related to data and database management infrastructure improvements, including tool and metadata development, which are described in this report.

Work on Oregon's various data update protocols continued this quarter. The draft Distribution Data Update Protocol was presented and discussed at the Resource Management Team meeting, where we received the go-ahead to incorporate the final changes to the Protocol document and move forward with implementation.

US Fish and Wildlife Service

Activities during the fourth quarter were routine in nature, including participation in the Steering Committee and ongoing compilation of data related to the national fish hatcheries.

Washington Department of Fish and Wildlife (WDFW)

Newly defined staff roles became effective this quarter. Our new Location Data Manager still spent about half her time on lingering responsibilities from her previous role. Yet a smorgasbord of the various location issues cropped up this quarter. Researching these issues gave us a refresher on the variety of work needed and practice with new spatial tools. We are now better equipped to prepare a detailed work schedule for FY-05. We also have generated a work plan for the new data compiler who will start work December 1, 2004.

The QC effort for the PCSRF project data provided a blueprint for organizing and documenting QC efforts on other datasets. The blueprint works well for a very cumbersome dataset so it should accommodate other datasets easily. WDFW will put it into place in FY-05 as part of our data conversion and exchange efforts.

Martin Hudson's paper "The StreamNet Hybrid Hydro Initiative - Status and Issues Discussion" captured the early challenges and initial solutions tested for creation of a hybrid 24K/100K hydro layer for StreamNet. Jon Bowers of ODFW was also instrumental in issue identification and solution testing. Creation of this region-wide layer will allow WDFW to update two-year-old 100K-based fish distribution currently available at StreamNet Online with more extensive 24K-based data that is based on a higher-resolution hydro layer. This exciting break-through should result in much-improved StreamNet spatial data starting in the fourth quarter of FY-05.

Significant work was conducted in support of the CSMEP project. WDFW StreamNet staff tested the Web-based data entry tool for CSMEP dataset inventory data by entering data from the Lewis basin inventory. Several rounds of data entry were initiated, and comments on the application (screens and operation) were forwarded to the ODFW staff who created and maintain it. The Project Leader and the Region 5 Data Compiler participated in regular CSMEP Project conference calls to update CSMEP staff on dataset inventory work progress and to keep tabs on related 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 in scope or effort unless new funding is approved.

Objective 1 Data acquisition and development

Task 1 Anadromous distribution and life history (habitat use) at the 1:100,000 scale

Document the occurrence, distribution and life history characteristics of anadromous fish species. Project participants made major updates last fiscal year utilizing the new Data Exchange Format (DEF). Maintenance of this data set will continue. This is a high priority data set.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2004
IDFG	1	Update 100K anadromous fish distributions based on input obtained from subbasin assessment work and NOAA Fisheries critical habitat designation.	We began work to import the updated salmon and steelhead distribution data from subbasin planning into the StreamNet DEF.
ODFW	1	Update, maintain, correct and exchange anadromous fish distribution and documentation information.	The GIS Analyst updated chum salmon distribution in the mainstem Columbia to include spawning use in 3 areas that were recently documented by ODFW researchers. He also implemented changes to the Distribution database for the records that conflicted with impassable culverts. The changes were all based on site visits by ODFW biologists and they resulted in 46 miles of "current" habitat being changed to "historic" habitat. The Data Technician continued to enter new records into the Incidental Fish Observation database, which contributes to Oregon's fish distribution and distribution documentation datasets. We currently have a total of 209 entries into the IFO Database.
WDFW	1	The StreamNet database currently has all WDFW anadromous distribution data collected at 100K resolution. Submit corrections if warranted.	The 100K scale anadromous fish distribution data for Washington will remain fixed (frozen); it will be replaced by 24K scale data once a compatible 4-state hydrography layer can be developed (estimated in the third quarter of FY-05).
WDFW	2	If the data exchange format issues are resolved to accommodate WDFW's 24K distribution data collections, convert and exchange WDFW's most current data.	DEF and hydro layer issue related to supporting 24K scale data have been identified and resolution will commence in FY-05.

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, and project participants will begin expanding data for additional species. This is high priority for Montana and Idaho, and new data will be developed by the other states as time allows.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2004
IDFG	1	Update 100K resident fish distributions using new IDFG data surveys and sources, including westslope cutthroat, Yellowstone cutthroat, interior Columbia-basin redband, and bull trout.	We began work to import the distribution data from the Yellowstone and westslope cutthroat trout status assessments into the StreamNet DEF.
MFWP	1	Complete Distribution and Use Types data sets from data collected from biologists, documents and reports during 2001-2002 using LLID stream routes and Montana's lakes coverage and watercode system. Exchange with StreamNet. Complete distribution and use type data sets for 2002-2003. Update entire state, including missed data from Western Montana in FY03. Focus on target species during the year if opportunity arises. Exchange the data to the regional database in the approved DEF format.	Data entry continued for the 2002-2003 field seasons in the fourth quarter. The data were not distributed due to continuing work on the Bull Trout Assessment project. Data will be exchanged by 11/30/04.
MFWP	2	Visit MFWP, other state and federal fisheries biologists in 2004 to collect 2002-2003 fish distribution and supporting survey data and references. Input all this information into the MFISH tables. To aid in visits, provide maps and other support documents to biologists.	Data entry was ongoing in the fourth quarter. Staff helped conduct the bull trout status review in western Montana by collecting information on distribution and barriers and entering them into MFISH.
WDFW	1	Via distribution proofing parties, organize the effort to update WDFW westslope cutthroat distribution data and compile that data in concert with the existing federal data that was compiled in 2002.	Transfer of westslope cutthroat trout distribution data to 24K scale hydrography will commence in FY2005.
WDFW	2	Convert and exchange the westslope cutthroat distribution data.	This conversion and exchange was postponed until FY-05 due to higher priorities.
WDFW	3	As time and funding permit, scope data availability and work to compile, convert and exchange distribution data for other priority resident species (including coastal cutthroat and rainbow trout).	The Project Leader and Fish Distribution Data Tech prepared maps and data forms for formal Washington bull trout workshops intended to perform extensive statewide assessment of bull trout population status as part of a federally-mandated five-year review. We conducted three workshops in Ellensburg and Olympia, with two more workshops and the data entry work scheduled for October 2004. Additional bull trout distribution and use data, along with updated barriers information, were collected at these workshops in addition to the specific assessment-related data needed. Conversion and exchange of these data will be completed in FY-05.

Objective   1   Data acquisition and development

Task   3   Adult abundance in the wild

Develop and maintain (update) 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 by other agencies). This is a high priority data type. 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. These are lower priority under base funding.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2004
CRITFC	1	Update mainstem Columbia and Snake River dam counts through 2003 and provide updated data to the StreamNet database.	Updates were submitted to regional staff. A few questions will be resolved during the next quarter.
CRITFC	2	Update available tribal spawning ground survey data.	Updates were submitted to regional staff. A few questions will be resolved during the next quarter.
IDFG	1	Complete the compilation of the 2003 field season redd count data from IDFG. Prepare the data for inclusion into StreamNet and submit.	The final 2003 redd count data were submitted to PSMFC this quarter. We began to compile the 2004 redd count data. IDFG personnel (non-StreamNet) used StreamNet databases and applications to complete the entry of 1960 - 2002 carcass data from spawning ground surveys. Work is proceeding on the 2003-2004 carcass data capture.
MFWP	1	Collect all 2003 stream and lake fish survey data during field office visits; data may be one time visits, index streams and/or results from gill nets in lakes and reservoirs.	Data entry collected from the field biologists was completed in the fourth quarter. The data were not distributed due to continuing work on the Bull Trout Assessment project. These data will be included in the data exchange to be completed by 11/30/2004.
MFWP	2	Input 2003 data into MFISH, including trend, count and references. Through the DEF Process, we will explore the creation of a DEF for Montana's stream survey data. If DEF is not developed, Montana will look into submitting these data as a supplemental dataset to the StreamNet website.	Data entry collected from the field biologists was completed in the fourth quarter. The data were not distributed due to continuing work on the Bull Trout Assessment project. These data will be included in the data exchange to be completed by 11/30/2004.
ODFW	1	Update existing anadromous, resident, and non-game abundance and index trends through 2002. Opportunistically collect new trend information, including marked-to-unmarked ratio data (relative to dam, weir, spawning ground, etc. counts) and hatchery-fraction data.	Trend updates were performed using data collected from ODFW District Biologists, as well as other data contributors in the Columbia Basin. Staff completed entry of John Day Basin steelhead and Chinook redd counts, a number of routine counts in the Willamette R., PGE trends for the North Fork Dam on the Clackamas R., and Marmot Dam on the Sandy R., and lower Columbia coho spawning survey counts. We continued to focus on other lower and mid-Columbia data entry, particularly in the Willamette and Deschutes subbasins. Staff corrected, but also noted the types of errors found in updated trends in preparation for the focused QA/QC efforts that will be conducted during the next fiscal year.

The final Trend data submission of the year was made on September 17th. The submission consisted of 365 updated trends (including 188 new trends),containing 2,476 data records . The 365 trends break out into the following data types: Adult Return Dam/Weir counts (72), Adult Return-Estimates of Spawning Population (72), Adult Return-Redd counts (140), Adult Return-Peak/Other Spawning Counts (94), and Harvest-Freshwater/Estuary (3). There were 25 new references associated with this data submission.

| WDFW | 1 | Update and enhance the existing natural spawner database (escapement estimates and/or detailed counts) for available species (including a focus on steelhead data AND any dam or weir counts that might not already be captured in our on-going Adult Abundance collection). | Natural spawn data for the 2003 return year was completed to the greatest possible extent. Some data are incomplete due to the lead biologist not getting the final numbers done by the end of the Q4 reporting time. In years past, the StreamNet person in charge of the escapement data completed the final escapement numbers for the biologist in order to have a complete data submission. With a considerable amount of effort being put into the CSMEP project in August and September, generating a final escapement estimate for a given population was not possible. A data exchange of 2003 escapement |

Objective   1   Data acquisition and development

Task   4   Hatchery releases

Develop and maintain (update) information on the release of hatchery reared fish. Emphasis this year will be on developing release data before release information is rolled up into PSC location codes. Release data for resident species under base funding will be developed only where the data are readily available (primarily Montana). Efforts will be made to complete cross references between PSC release codes and LLID stream location identifiers. This is a high priority data set.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2004
MFWP	1	Exchange Montana's hatchery release data after development of a resident DEF and/or modifications to the existing anadromous hatchery release DEF. Number of years and number of waters will need to be determined.	The proposed hatchery releases DEF is still in development.
ODFW	1	Compile and submit anadromous hatchery releases through 2002, and 2003 where available.	Staff worked with Regional StreamNet staff during the quarter to address conflicts between ODFW's release data and StreamNet's current Hatchery Release DEF. A sample dataset of unrolled hatchery release information was compiled manually and submitted to Regional StreamNet in late August in an attempt to quicken the process of creating a new Hatchery Release DEF. We also suggested changes to the current DEF that would allow more concise data to be provided and to reduce the number of trends that get created during the compilation process. Once the final DEF is crafted and approved, we will revise our automated data compilation process to match it, and submit all of Oregon's hatchery release information.

ODFW	2	Create a cross table to link Pacific Salmon Commission codes to LLID stream based locations to provide more precise locations for releases.	Staff continued to work on cross-links to PSC codes during the quarter. We discovered that many of the watercodes that occur within ODFW's Hatchery Management Information System (HMIS) have never been used in conjunction with a hatchery release record. Of the 2,250 remaining unmatched watercodes, only 700 have actually been used, and of those, only 306 have been used this decade. Efforts this quarter have focused on reconciling the recently used codes that have associated release records, with 9 codes being matched this quarter. In addition, we were able to associate many more records with Township/Range/ Section information, which if accurate, should improve our chances of finding the correct water bodies. However, this effort will take much longer than anticipated, as we are down to the toughest codes to match with LLIDs. Work will continue until all the unmatched codes that have actually been use are linked with LLIDs.
Region	1	Assist contributing projects with cross referencing PSC codes with LLID codes, as needed or requested.	This fiscal year ODFW acquired direct access to the state hatchery release database (HMIS). We discussed with ODFW how best to interpret that database and convert those data to a yet-to-be-developed StreamNet data exchange format (DEF).
WDFW	1	For anadromous species, finish researching, compiling, converting existing WDFW anadromous release data as detailed, "unrolled" records. Submit the data (and yearly updates) directly to the StreamNet database (instead of via RMIS).	The existence of WDFW's 24K hydro layer has slowed the progress on compiling release data. We met with WDFW's hatchery release data manager to discuss the impacts to cross-coding PSC (RMIS) codes, and the need to reformat his location code file (WALOCS) and create data dictionaries.
WDFW	2	For anadromous species, WDFW and WDFW StreamNet staff work jointly to create a more efficient and predictable means to compile the unrolled releases.	The need to migrate all WDFW centralized hatchery data to a new platform created new internal priorities, and release data work was postponed until FY-05 in favor of concentrating on adult returns data.
WDFW	3	WDFW resident stocking data is fractured in several collections by year. Work at researching, compiling, standardizing 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).	The internal WDFW re-prioritization (See Objective 1, Task 4, Job 2) affected both resident stocking and anadromous release data.

Objective   1   Data acquisition and development

Task   5   Hatchery returns

Develop and maintain (update) information on the return, disposition and straying (e.g., from other hatcheries) 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 2002. Development of disposition data is lower priority and would require additional resources. This is a high priority data set.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2004
FWS	1	Data received from National Fish Hatcheries will be processed and added to the new hatchery return file in the DEF, after a new program is written and debugged.	Carson NFH and Little White Salmon NFH spring Chinook return information was added to the CRiS Returns file.
IDFG	1	Complete compilation of the 2003 field season hatchery return data from IDFG. Prepare the data for inclusion into StreamNet and submit	The 2003 hatchery returns data were completed and submitted to PSMFC this quarter.
ODFW	1	Compile data on returns to ODFW hatchery facilities (updated through 2002 returns where possible).	Staff worked through the StreamNet Forum to resolve issues with our ability to use the current Hatchery Returns DEF. The forum was monitored throughout the quarter, and responses were posted when appropriate. In order to meet our contracted obligation, we ultimately decided to roll up the data without the capture location information, and without including information from STEP programs. Hatchery return data was submitted to StreamNet on September 17th, amounting to 154 hatchery return trends containing 1,481 annual data records, and 8,144 Hatchery Disposition records.
WDFW	1	Update and enhance the existing hatchery return database for available species per the newest DEF.	A concerted effort to convert all old DEF hatchery return data to the new DEF was made. Most of the hatchery return data has been converted to the new DEF but we have hit some stumbling blocks as questions arose because other agencies are restructuring their agency data as well. WDFW is in the process of converting hatchery return data in Paradox over to MS Access. This process will incorporate a lot of new features that will help facilitate the data exchange process in the future. No data exchange of hatchery return data was performed in the 4th quarter due to the time and effort put into dealing with WDFW and other agency concerns and problems.
WDFW	2	WDFW and WDFW StreamNet staff work jointly to create a more efficient means to analyze and simplify the hatchery return data flow from the internal WDFW database.	First drafts of the new internal WDFW returns data tables were released in late September. Further work here will be taken up in FY-05.

Objective   1 Data acquisition and development

Task   6 Dams and Fish Passage Facilities

Develop and maintain information on dam facilities. Update information as necessary. This is a high priority data set.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2004
IDFG	1	Update dam information as necessary.	It was not necessary to make any updates to our dams and fish passage database this year.
MFWP	1	Continue to update Montana's spatial coverage and associated tabular file of dams. Exchange with StreamNet.	Because there were no new dams or fish passage facilities identified, the current StreamNet data are current.
ODFW	1	Maintain and update, as needed, based on errors found in the Oregon dam and fish passage facilities information.	A new Dam table was submitted to Regional StreamNet in mid- September, which covered some recent deletions and modifications.
WDFW	1	Update the dam database, adding records and improving field entries as warranted.	Prompted by the StreamNet Data Manager's questions, WDFW's Location Data Manager started researching how a "retired" staff member compiled the existing Dam dataset. We are awaiting a response from the National Inventory of Dams (NID) stewards regarding the redundant locations of several dams and 400+ dams we found were missing from the NID website.

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. Update information as necessary. This is a high priority data set.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2004
FWS	1	The hatchery facility database file will be updated as needed.	The Access table version of the Hatchery file was updated. Several no longer used facilities were again entered in this table, and several records were updated with new hatchery manager information.
IDFG	1	Update hatchery facility data as necessary.	It was not necessary to make any updates to our hatchery facilities database this year.
MFWP	1	Update the StreamNet hatchery database with Montana's public and private facilities. Exchange with StreamNet upon completion.	Data were reviewed by biologists in the Fisheries Division and one missing hatchery facility was discovered. We are still awaiting a classification for this facility as to ownership.

| ODFW | 1 | Maintain and update, as needed, based on errors found in the Oregon hatchery facilities information. | One new hatchery facility ID was submitted with the Trend submission on September 17th.

The Database Manager worked with Regional StreamNet staff on an issue regarding the lack of references for some of our hatcheries in the StreamNet Hatchery table. A workable solution was agreed upon, and the appropriate changes were made to the database. |
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| WDFW | 1 | Update the hatchery database, adding records and improving field entries as warranted, including record updates for related tables (i.e. HatcheryXProduction data). | No physical progress was made with the Hatchery Facility database this quarter. Several facilities changed their names, etc. Yet, before we even update WDFW's internal database we need to re-organize the entire database accessibility and format. With our current investment in location data management this FY, we are closer to testing the alternatives. |

Objective   1   Data acquisition and development

Task   8   Harvest

Develop and maintain (update) information on sport and commercial harvest. Higher priority is assigned to anadromous species.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2004
CRITFC	1	Complete and update ocean and Columbia River catch data through 2003	This update was postponed due to the demands of supporting subbasin planning efforts. A supplemental contract for support to the John Day subbasin planners will occupy key staff through January 2005.
IDFG	1	Work with IDFG Fisheries staff to incorporate IDFG harvest data into StreamNet.	Because of unanticipated commitments, primarily to CSMEP and the Bull Trout Status Review, we did not work on incorporating Idaho harvest data into StreamNet this year.
MFWP	1	Explore the possibility of exchanging Montana's limited creel survey data using the current Harvest DEF. Exchange if data is compatible and/or desired by the Steering Committee	A draft table for creel survey data was sent to PSMFC in the fourth quarter.
ODFW	1	Compile and exchange Oregon sport harvest data through 2001.	We have requested updated harvest information from ODFW staff who are responsible for maintaining this data, but had not received the information by the end of the quarter. We will continue to pursue this data and update the information in StreamNet once it becomes available.

WDFW	1	Although we should only be in maintenance mode for this data set, WDFW re-organized their data collection process several times since our last StreamNet update (and it's still in flux) so it poses a large workload. As such, we need a large allotment of time before renewing this effort and this year we're devoting any discretionary time to barriers. As funding and time permits, compile freshwater harvest for key Columbia Basin salmonid stocks for both anadromous and resident data, using existing WDFW data sets (i.e. Angler Fish Database) and other sources. Standardize the data (to stock if possible), convert and submit it to the StreamNet database.	WDFW StreamNet made no significant progress on this data task in FY-04 due to low priority and emergence of other areas of focus.

Objective   1   Data acquisition and development

Task   9   Hydrography

Maintain a regionally consistent routed hydrography layer at the 1:100,000 scale. This LLID based hydrography is the basis for georeferencing and displaying locations for all other data in the StreamNet database, and as such is an essential data set. Data will be updated as necessary. Exploratory work will be initiated in preparation for the eventual, inevitable move to the 1:24,000 scale hydrography being developed by other entities.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2004
MFWP	1	Using the NHD, complete updating the routes using the updated NHD layer; quality check the cross-reference between the LLID system and MFWP's watercode system (a system still used to index fishing pressure, hatchery plans and numerous other databases).	No edits were completed in the fourth quarter. Data were exchanged 10/18/04.
MFWP	2	Error check and edit Montana's lakes layer which was created using 1:24 000 and 1:100 000 base hydrography. Provide to StreamNet for use with Hatchery Release Data.	Editing continued on the lake layer during the fourth quarter. Data were exchanged 10/18/04.
MFWP	3	Using ArcGIS, create new stream annotation layers at 3 Scales: generalized, HUC level and Stream Level.	Work continued slowly on this and several "fits and starts" have occurred over the year. We will pursue moving this job to NRIS staff to complete the annotation. This was not a priority of the StreamNet project and was added to improve our hydrography layer; it was removed from the FY-05 SOW.
ODFW	1	Maintain and update, as necessary, the 1:100,000 scale hydrography files for Oregon. Submit all changes to the StreamNet database at the Regional office.	The MultipleHUCStreams table in the ODFW Hydrography database was updated this quarter.

The GIS Analyst completed a pilot effort to develop enhanced 100K stream route data for the Grande Ronde basin. He also generated linear event data for the 24K distribution. The process was summarized and the data were submitted to the Regional StreamNet GIS Specialist. A meeting will occur early in the next quarter to follow up on this effort and discuss ways to improve upon the process.

WDFW	1	Update, as necessary, the Washington 1:100,000 scale Stream, Lake, and Marine Area hydrography files. Submit all spatial and tabular changes to the StreamNet database at the Regional office for inclusion in the PNW regional hydrography layer.	On July 9 we met with Framework participants to continue to discuss coordination efforts for creating a standard Washington state 24K hydrography layer.

Our Location Data Manager started tabular comparisons of the 24K hydrography against the 100K hydrography to research the 24K compatibility with our data cross-references. She also started researching the GNIS and Washington State Naming Board's requirements to formalize or change official names.

Stan Hammer (WDFW) started collecting GPS readings for various hatchery release sites as he conducted his standard field work. Sikora met with Hammer (and his supervisors) to direct his work. More direction is needed when time permits.

The Location Data Manager used ARCGIS to match select lake MUCODES with existing lake polygons. She also reviewed staff efforts to create a spatial cross-reference table for spawner data tied to stream catalog codes.

Objective 1 Data acquisition and development

Task 10 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. Preliminary work has been completed on this data type, but regional priority has not been assigned to developing these data. Work continues on improving the data structure and DEF, primarily through work being done by a related project in California. This currently remains a low priority data type under current base funding, but is ready should a higher priority be assigned by regional entities.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2004
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.	Data entry is complete and the data will be exchanged by 11/30/2004.
MFWP	3	If the opportunity arises, participate in any regional actives related to restoration projects including the Pacific Coast Salmon Recovery Fund.	Montana has been involved in the review and testing of the proposed DEF for restoration projects and approved of the changes.

| WDFW | 1 | If funding and time permits, convert habitat restoration project data stored in Washington's IRC's (Interactive Committee for Outdoor Recreation) PRISM database and submit to StreamNet. NOTE - We anticipate a pilot effort (under other funding) to compile other source habitat restoration data in StreamNet's newest format. | We continued work refining QC tools/queries for the PCSRF data.

To create a glossary database to augment any project dataset, we searched for an electronic copy of the late Neil Armantrout's publication Aquatic Habitat Inventory Terminology. Although the American Fisheries Society sells printed copies, they don't have an electronic copy and we're currently at an impasse.

The loss of our data compiler this quarter and hiring delays that will last until November effectively froze further habitat restoration project work until FY-05. |

Objective   1   Data acquisition and development

Task 11 Barriers

Develop and maintain data sets for barriers to fish migration. 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 and culverts may require revisions to the DEF. The primary emphasis is on anadromous species except in non-anadromous areas. This is a low priority data set under current base funding, and will be addressed as time and other priorities allow.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2004
MFWP	1	Complete update to barrier location, species affected and other fields on stream barriers in Montana once the data collected during the Westslope Cutthroat Assessment Process conducted in 2002 is reviewed by MFWP biologists. Information will be collected on all species regardless of life history. Exchange Barriers data with the StreamNet database.	Data exchange was delayed because additional fish passage barriers were added during the bull trout status review conducted by Montana and Idaho. This effort is near completion and data will be exchanged by 11/30/2004.
ODFW	1	Update and maintain Oregon's Barrier data and minimal Fish Barrier data development based on new barrier information.	We evaluated a variety of options for resolving the issue of numerous and erroneous categories in the Fishway Type table, and worked with ODFW staff to arrive at a list of 6 primary types, with several additional categories such as "unspecified ladder". The old fishway coding was converted to reflect the new fishway table values, and inconsistent diversion detail and project type coding was also cleaned up. We corrected erroneous LLID and measure values associated with 100K barriers that were not mapping, and added a record to the Barrier database for the hatchery facility related structure at the Salmon River hatchery. The Barrier dataset now includes all dams, culverts and natural barriers together. There are 7 related tables, which include the fish passage table and all of the various barrier type-specific "detail" tables. Metadata for our updated Barrier information was nearly completed until an ArcGIS 9 bug that does not adequately allow you to document the entity and attribute values for related tables was encountered. Our GIS Analyst spent considerable time troubleshooting this problem, but completed the metadata (via a manual workaround) for the version 2 Barrier GIS dataset. The Barrier, FishBarrier and LocMaster data and metadata were submitted to StreamNet in early September.

WDFW	1	Scope any existing Washington state barriers data for a pilot data submission this FY. Data sources will at least include the SSHIAP and TAPPS databases.	No progress was made on this low priority dataset in FY-04. Barriers has been upgraded in priority in the FY-05 work statement and the new data compiler will be focused on this as one of the highest priorities.

Objective 1 Data acquisition and development

Task 12 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 a low priority data set under current base funding, and will be addressed as time and other priorities allow.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2004
ODFW	1	Compile juvenile abundance data as they are identified and become available.	According to correspondence with Bart Butterfield (IDFG StreamNet), they will not propose a new juvenile abundance data section of the DEF, and because Oregon's effort was dependent upon having a new DEF to work from, we were unable to complete this deliverable during this fiscal year.
WDFW	1	As funding and time permit, 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.	Continued effort was made to update and maintain the Cedar Creek smolt trap data. Statistical analysis was performed on the data and delivered to the Natural Resources Building headquarters in order to justify and maintain funding for continued data collection. A fit for this data within a StreamNet format will be pursued in the future. Maintaining this data for the regional biologists along with WDFW managers is important for not only resource tracking but management purposes.

Objective 1 Data acquisition and development

Task 13 Age

Develop and maintain information on age/sex composition of returning adults, primarily for anadromous species. Emphasis on this data type will increase once the draft DEF is tested and finalized. This is a low priority under current base funding.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2004
CRITFC	1	Update CRITFC age data on sockeye and Bonneville Dam sampling	Updates were submitted to regional staff. A few questions will be resolved during the next quarter.
FWS	1	The Age table will be updated using the Snage program after processing is completed within the CRiS database.	Age composition information for Carson NFH and Little White Salmon NFH spring Chinook were added to CRiS files.
IDFG	1	Complete the compilation of the 2003 field season age data using hatchery returns data from IDFG.	The 2003 age composition data were completed and submitted to PSMFC.

ODFW	1	Compile age composition data as they are identified and become available.	Staff continued to contact potential age data providers this quarter, and continued to work with Regional StreamNet to resolve issues related to the Age data DEF.
WDFW	1	As warranted, update Age data links with other "count" data records (i.e. hatchery returns and adult abundance).	Continued effort was made to collect age data associated with hatchery return data. Age data currently in Paradox has been ported to MS Access for future data manipulation.

Objective   1   Data acquisition and development

Task 14 Production factors and run reconstruction

Develop and maintain information on survival, production factors, spawner / recruit estimates, and run reconstruction. This is a low priority data type under current base funding, but the existing spawner / recruit estimate data will be maintained. Current effort will focus on what aspects of this kind of data are most needed.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2004
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.	Some productivity data is available in datasets created during subbasin planning. Some of this information exists in the EDT system maintained by Mobrand Biometrics. It cannot be accessed through the interactive Web-based version of EDT, however. We will continue to work with MBI to gain access to this information.
ODFW	1	Participate and/or contribute to the maintenance of existing data related to production factors and run reconstruction.	The Data Analyst worked with Idaho and Washington counterparts to definitively identify the source of StreamNet's existing Spawner-Recruit information. Working together, they located a corrected hard copy and electronic file of a 1997 document, and concluded that the Spawner-Recruit Data on StreamNet does indeed refer to this 1997 document. This information was provided to Regional StreamNet so the trends could be updated with the correct reference number.
WDFW	1	Scope the availability of stock based catches used in the PSC treaty process which are crucial for run reconstruction.	WDFW made no significant progress on this data task in FY-04 due to low priority and emergence of other areas of focus.

Objective 1 Data acquisition and development

Task 15 Diversion Screening

Explore the availability of data on diversion screening. Capture data on screens as time and other priorities allow. The DEF will need to be finalized before much can be done with this data type. This is a low priority data set under current base level funding.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2004
ODFW	2	Capture GPS coordinates for water diversions and fish screens in the Willamette subbasin.	The Data Technician attempted to obtain fish screen location information in the Calapooia River system from below Thompson's Mill to the city of Albany, but found only two possible current irrigators. However, no landowners could be located, so no coordinates were taken. She also worked during the quarter on gathering fish screen location data for the Long Tom River system, gathering landowner names, and contacting Long Tom Watershed council representatives for information.
WDFW	1	As funding and time permit, review existing Washington diversion screening data, identify additions and corrections needed and plan for future exchanges. Possible data sources include Yakima Screen Shop, SSHIAP, TAPPS, HPA databases.	WDFW made no significant progress on this data task in FY-04 due to low priority and emergence of other areas of focus.

Objective 1 Data acquisition and development

Task 16 Other data sets

On an opportunistic basis, develop other types of data as available or as requested by FWP participants. This relates to data relevant to StreamNet objectives which would be developed by StreamNet cooperators. Actual acquisition, standardization, georeferencing and distribution of these data will be dependent on available time and funding. These data may be included in the DEF in the future, or may be obtained and distributed as independent data sets in 'as is' condition. This is a low priority under current base funding.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2004
MFWP	1	Provide updated genetic results information on Montana's species of concern. Explore providing data on Whirling Disease results for Montana's streams and rivers; creel data if format is not appropriate for harvest DEF; and fishing pressure data on Montana's lakes and streams.	Genetic letter entry continued in the 4th quarter. Genetic letters were converted to .pdf format in the fourth quarter. No DEF is available to exchange genetic data with StreamNet.
ODFW	1	We will work with ODFW and other agency staff to facilitate either the incorporation of their data into StreamNet or independently posting their data on the StreamNet web site.	Staff obtained carcass placement information for 2002 - 2004 and posted the information on the NRIMP website as an independent dataset for StreamNet. A link to the new Carcass Placement data (up-to-date through May 2004) was included with the September 17th data submission to StreamNet. No requests were received during this project period to post independent data sets from Oregon.

Region	1	Advise and assist data developers with other data sets (those being compiled by StreamNet cooperators but not currently in the StreamNet DEF or the queryable database). Low priority, and within current resources only.	No work was requested for this job this fiscal year.
WDFW	1	On an opportunistic basis, develop other types of data, as time allows	WDFW developed no other data types in FY2004.

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 meet their policy, planning, monitoring, and management needs.

Objective 2 Data management and delivery

Task 1 System Administration

Manage and maintain the computer systems (hardware and software) necessary for supporting the tabular and GIS data systems at the regional and cooperating agency levels, including system backup.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2004
IDFG	1	Manage, maintain and enhance the computer systems (hardware and software) necessary for supporting the tabular and GIS data systems, including system administration, backup and recovery, hardware and software upgrades, and security.	Working with the IDFG IT Bureau and the State of Idaho Department of Administration, we worked on developing Internet access to our IIS server with appropriate security through the state's firewall. This will provide access by outside agencies to our fish and wildlife databases. Routine system administration and management continued throughout the quarter.
MFWP	1	Manage, maintain and enhance the computer systems (hardware and software) necessary for supporting the tabular and GIS data systems, including system administration, backup and recovery, hardware and software upgrades, and security.	Ongoing. No major problems were encountered in the system that is used to store tabular and spatial data for MFISH.

ODFW	1	Manage, maintain and enhance the computer systems (hardware and software) necessary for supporting the tabular and GIS data systems, including system administration, backup and recovery, hardware and software upgrades, and security.	In order to improve our ability to manage and provide access to Oregon's GIS products, our GIS Analyst: -- Continued to coordinate the transfer and renewing of ODFW's various GIS licenses. This process was completed this quarter. -- Researched ESRI's white papers and contacted a sales representative for pricing information on IMS and SDE. He met with the Oregon ESRI account manager and also an SDE / IMS expert from the Olympia office to discuss both programmatic and technical details of and ODFW implementation of these software packages. He learned of the capabilities and limitations of each, in particular related to linear referencing systems. He drafted an ArcSDE / ArcIMS evaluation plan, requested an evaluation copy of these two products, and worked with ESRI throughout the quarter to obtain them. To further advance his understanding, he attended an ArcIMS user group meeting in Portland in August, where presentations were made on the Data Delivery Extension (DDE) to ArcIMS and also on the ESRI GIS Portal Toolkit. He also participated in the Portland ArcSDE user group meeting in Portland in late August. -- Researched SQL Server to better understand the various options and licensing available, and talked with ODFW Information Systems Division (ISD) staff regarding possibly using their Enterprise version of SQL Server. He learned that ISD currently has some additional capacity and could potentially host some of NRIMPs/Oregon StreamNet's applications. We will follow-up on this option in the near future. -- Researched MySQL and ArcGIS issues, in particular related to ODBC and OLE DB for accessing the (MySQL) barrier database from ArcGIS. There are a number of issues that prevent seamless usage between the two programs with the long text field format causing some, but not all of the problems. More research will need to be done on this before we can move forward in any meaningful way. --Installed the development version of SQL server on his local machine and spent considerable time familiarizing himself with the database and application development architecture. All staff performed other routine system administration functions during the quarter.
Region	1	Manage, maintain and enhance the existing tabular database systems, including hardware, software, tools, database structure, QA/QC activities, and system administration, backup and security.	Routine backups were frequently made of all important databases. Detailed review of the SQL Server StreamNet database schema was undertaken relative to the current StreamNet Data Exchange Format to make table and field naming, data types and definitions as identical as possible.
Region	2	Maintain and update, as necessary, the hardware and software, including ArcView and other tools, extensions and projects, that constitute the regional Geographic Information System. Provide system administration, backup and recovery, and security.	Routine GIS system maintenance continued and GIS software was upgraded to ArcGIS v9.0 and ArcIMS v9.0.

Region	3	Maintain and upgrade the StreamNet web server and software, including programming, tool development, system security, etc.	There were no significant updates required this quarter and operational up-time was excellent, exceeding 99.5%.
Region	4	Assist with development of XML schema based options for both incoming and outgoing data. Continue exploration of how XML can enhance data exchange and develop data use agreement to control subsequent use of StreamNet data by other websites.	We implemented basic web services using both ColdFusion and Microsoft IIS on a new .NET test server. This "new" server is actually an old PC that was converted to this new function since no funds were available in the flat budget for a new server.
WDFW	1	Manage, maintain and enhance the computer systems (hardware and software) necessary for supporting the tabular and GIS data systems, including system administration, backup and recovery, hardware and software upgrades, and security.	New GPS units were purchased to better collect and cover the vast index areas within the Columbia River. ArcGIS shape files were updated and new MS Access tables added to the Columbia River layers at the Vancouver office. Routine patches and updates were made to essential software in order to maintain day to day activity.

Objective 2 Data management and delivery

Task 2 Application and Interface Development

Develop computer applications and interfaces that facilitate the entry, management and dissemination of tabular and GIS data at the regional and cooperating agency levels. This will include development of new applications and tools as well as maintenance or modification of existing applications.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2004
CRITFC	1	Develop data handling applications to ease transfer of tribal data to StreamNet	Gradual erosion of funding through budget restrictions and inflation have removed support for this task at the present time. Instead we will seek other funding sources and collaborative partners to accomplish this task. We will also encouraging tribal staffs to use the StreamNet system more frequently, assuming that as use increases, they will recognize the value of contributing their own data to StreamNet.
IDFG	1	Develop and/or maintain computerized databases, applications and interfaces that facilitate the entry, compilation, management and dissemination of tabular and GIS data.	A business rules engine was completed and implemented for our local fish and wildlife databases. Business rules conduct procedures such as checking for valid values entered into user interfaces. They help to insure accurate data entry and maintain data integrity in the databases. We enhanced our new Reference System coded in VB.Net with the business rules engine.
			We also worked on various other pieces of our database framework. Progress was made on the Importer/Exporter program that transfers data between the distributed client-user databases and our central database.
			Our data coordinator linked the IDFG Spawning Ground Report Microsoft Word documents to our spawning ground survey database. This provides automatic updating of the Spawning Ground Reports whenever the database is updated.

MFWP	1	Develop and/or maintain computerized databases, applications and interfaces that facilitate the entry, compilation, management and dissemination of tabular and GIS data.	A genetics database was created for Montana State University's new genetics lab. Support and training was also provided to the lab manager. Routine database management was ongoing.
ODFW	1	Develop and/or maintain computerized databases, applications and interfaces that facilitate the entry, compilation, management and dissemination of tabular and GIS data.	An online Reference application was developed and posted on our production server. Users can now add new, or update existing records, as well as query the database using a Google-type query. The search allows users to query on multiple authors and titles at once.

Development of a project proposal web application that could be used to propose new and track existing projects/efforts within our program, including StreamNet tasks continued during the quarter. A beta version of the application was deployed to our production server and is being tested.

Our Database Manager completed work on a new ASP.NET application framework for use in developing any of our web application sites, including the graphical update. The previous version that was created was used extensively to minimize common coding and the time required to implement web applications, but had some issues associated with login authorization that will be addressed by this new version. Also included in the new framework is the ability to modify pages real-time without needing to code or compile the application. The framework is now being used to implement one of our existing sites, as a test.

Our GIS Analyst developed a geodatabase raster catalog of all DRG's statewide, making the problem of having to load individual DRG's a thing of the past. Having these data in a catalog enables nearly instantaneous display of DRG data statewide (at appropriate scales). This could also be applied to either DOQ's or DEM's. |
| Region | 1 | Develop and/or maintain computerized databases, applications and interfaces that facilitate the entry, compilation, management and dissemination of tabular and GIS data.. Assist cooperating agencies with tool development, as requested. Tools may include input interfaces, error checking, geographic locators, etc. | No new tools were requested or developed this quarter. All existing databases and tools were maintained. |
| Region | 2 | Maintain and improve the LLID/NHD hydrography conversion tool. Immediate need is to complete error trapping routines and polish the final application. | No attempt was made to improve the hydrography conversion tool this year due to a combination of higher priorities and turnover in the GIS Specialist position. |

Region	3	Create an Online Event Mapper to allow users to create event tables based on 1:100K Hydrography over the Internet.	Work on the online Event Mapper (to assign LLID values to locations on the 1:100,000 hydrography) was delayed by the vacant GIS Specialist position last quarter and the need for the new GIS Specialist to become familiar with StreamNet functions and increase his familiarity with ArcIMS. This job will be moved forward to next fiscal year.
WDFW	1	Develop and/or maintain computerized databases, applications and interfaces that facilitate the entry, compilation, management and dissemination of tabular and GIS data.	Routine maintenance of WDFW StreamNet databases continued during the quarter.

Objective   2   Data management and delivery

Task   3   Data (content) Management

Manage data at the regional and cooperating agency levels to assure timely and accurate data flow from source to final distribution. Activities include exchange of data to PSMFC, data loading, updating data, quality assurance procedures, metadata development, etc.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2004
CRITFC	1	Manage data at the agency level (including data loading, data updating and quality assurance), develop and maintain FGDC compliant metadata for GIS data, work toward developing metadata for tabular data, and exchange data to PSMFC according to deadlines specified in this work statement.	Metadata have been completed for all archived Oregon subbasin planning data. Describing QA/QC procedures was begun for all data reported by CRITFC to the StreamNet system.
FWS	1	Manage data at the agency level (including data loading, data updating and quality assurance), develop and maintain FGDC compliant metadata for GIS data, work toward developing metadata for tabular data, and exchange data to PSMFC according to deadlines specified in this work statement.	Hopefully, the final subtleties were added to the program that converts data form CRiS files to files in the StreamNet DEF. After a substantial and sustained effort, all known HatcheryReturn, HatchDisposition, and Age data for hatcheries and species in the Columbia River Basin were added to StreamNet files and submitted to PSMFC.
IDFG	1	Manage data at the agency level (including data loading, data updating and quality assurance), develop and maintain FGDC compliant metadata for GIS data, work toward developing metadata for tabular data, and exchange data to PSMFC according to deadlines specified in this work statement.	As mentioned under Objective 1, we submitted 2003 hatchery returns and age composition data to PSMFC. We started a cooperative effort with IDFG biologists to develop metadata for IDFG stream survey data.
MFWP	1	Manage data at the agency level (including data loading, data updating and quality assurance), develop and maintain FGDC compliant metadata for GIS data, work toward developing metadata for tabular data, and exchange data to PSMFC according to deadlines specified in this work statement.	Data within the data systems that we are responsible for were updated, backed up and quality checked where necessary. No new metadata was developed this quarter.

| ODFW | 1 | Manage data at the agency level (including data loading, data updating and quality assurance), develop and maintain FGDC compliant metadata for GIS data, work toward developing metadata for tabular data, and exchange data to PSMFC according to deadlines specified in this work statement. | Staff worked throughout the quarter to correct, synchronize, and centralize the various reference tables that exist among our staff, and to strategize how to avoid synchronization problems in the future. |

Staff continued to develop documents describing our QA/QC processes, particularly within the trend, reference, and incidental fish observation datasets.

Staff worked throughout the quarter on the StreamNet forum issue related to updating references where the 'year published' field is populated with the placeholder, '9999'. Efforts included comparing the list of references in question against the hardcopy references that are housed at our office, and against those on the StreamNet Library web site in order to populate this field with accurate information. Many of the records have been corrected and submitted to Regional StreamNet. The remainder will be addressed when the issues raised on the Forum are addressed.

As a follow up to the September StreamNet barrier data submission, the GIS Analyst conducted some Q/A targeted specifically at dam records. He identified and corrected a number of duplicate records as well as a number that did not have proper LLID / measure coding. These issues were cleaned up and the Dams data submission to StreamNet was prepared.

The GIS Analyst developed a set of data integrity rules that need to be enforced within the Barrier database. These will be implemented either through application logic if we continue to maintain these data in MySQL or as relationship classes, domains, and validation rules, etc., within a GeoDatabase if we migrate these data permanently to an SQL Server

| ODFW | 2 | Continue development of a corporate information system. | Work on the corporate information system came in the form of development of component applications, including our web application framework and our online reference application. Much of the work described under Objective 2, Task 2 contributes to the development of a corporate information system. |

| ODFW | 3 | Coordinate and work with internal ODFW staff to improve the agency data collection efforts to allow more efficient compiling into internal intermediate ODFW-NRIMP/ StreamNet databases and/or StreamNet databases. | We completed edits to the draft Distribution Update Protocol's Objective, Issues, & Recommendations section, including the creation of a checklist, examples, and draft flow chart outlining the update process to facilitate ease of use. Several biologists were contacted for input on how the protocol should address changing "current" habitat to "historic" habitat for a variety of resident species including rainbow trout. lamprey, and various cutthroat trout. Preparations for presenting the draft protocol to ODFW's Resource Management Team (RMT) were also finalized. The Update Protocol was presented and discussed at the RMT meeting in early September. The Team gave us approval to incorporate the final changes to the Protocol document and move forward with implementation. |

| Region | 1 | Assist data contributing agencies in development of data, including formatting, coding, data entry, error checking, and submitting to the regional database. | Work continued refining Data Exchange Format issues with new HatcheryReturns, HatchDisposition and Age data tables as compilers provided their first attempts at providing these data. |

Region 2 — Examine the StreamNet database for errors and report any found to the appropriate entity for correction. Continue to improve error-checking capabilities.

Many exchanges between the Regional Data Manager and agency data compilers occurred as data records containing errors, omissions, ambiguities or inconsistencies were encountered.

Region 3 — Update and append data as submitted by StreamNet participants. Isolate erroneous or duplicative data and work with source agencies to correct problems. Maintain logs of data submissions and major database changes. Produce downloadable versions of the StreamNet databases to keep in synch with the updated regional databases.

We published updated Access 2002 and Access 97 versions of the downloadable StreamNet databases on the StreamNet web site. We replaced all individually downloadable ASCII files of StreamNet tables, Data Dictionary definitions and Data Categories Help pages.

Major data updates from ODFW were submitted and validated this quarter, including 185 new Trends, 1,936 new EscData (escapement) records, 1,429 new HatcheryReturns records, 4,926 Barriers (new and replacement records), and updates to Reference and Dam tables. ODFW also submitted a sample database of Hatchery Release data, but this submission was not processed during this project quarter. IDFG submitted 41 new EscData records and updated References that were validated. IDFG and USFWS both submitted HatcheryReturns and Age data that did not complete validation during this quarter.CRITFC provided Library Reference key updates.CDFG submitted updates to Dams, Barriers and Location codes.

Region 4 — Work with RMIS and the StreamNet partners to develop a means of georeferencing hatchery release data. Since it is not currently possible to georeference the RMIS hatchery release data to the 100K hydrography and the data can't be updated without such georeferencing, work with StreamNet data compilers to provide release data in StreamNet data exchange formats to be developed. Until that time, send data users to the RMIS site for current release information.

A sample database of Hatchery Release data prior to combining planting records by coded-wire tag code was provided by ODFW, but was not processed or validated during this project quarter.

Region 5 — Help the StreamNet Librarian to optimally format an export of the library reference database of StreamNet documents for routine inclusion in the StreamNet database for use by the web query system.

The StreamNet Librarian provided updates to LibID keys in order to maintain the one-to-one relationship between records in the StreamNet Library database and the StreamNet data system's Reference table.

Region	6	Whenever new tabular data with a spatial component are submitted to the Region (e.g., fish distribution, hatchery facilities, etc.), create regional GIS layer(s) from this information where possible. Verify correct format, accuracy and logical consistency of spatial data sets and attributes through coordination with state GIS contacts and then load data to the regional database in coordination with the database manager. Post mappable layer(s) to the online query system, the ArcIMS interactive mapping system, and as downloadable layer(s) for StreamNet GIS users.	Limited progress was made on this task this quarter. New tabular data were submitted to the region late in the quarter and they are undergoing review. These data will be incorporated into the regional GIS and posted in FY-05.
Region	7	Maintain a library of StreamNet GIS layers for internal use and as downloadable data on the web site with complete documentation (metadata).	The library of GIS layers and metadata was maintained.
Region	8	Obtain and refine layers such as ESUs, ecoregions, or elevations, and create cross tables for use by the query system.	Work continued to expand the regional spatial data library. Draft Northwest critical habitat data and modified regional watershed boundaries were obtained from NOAA Fisheries. Improved base data layers (administrative boundaries, transportation, etc.) were compiled from numerous sources (USGS, ESRI, BLM, etc.).
Region	9	Assist the database manager with the spatial component of data and its implementation online.	The GIS Specialist gained familiarity with the spatial referencing routines used by the on-line query system and helped the database manager resolve location coding issues as they surfaced.
Region	10	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 Regional GIS specialist worked with the states to develop a plan for enhancing the 1:100,000 scale hydrography with 1:24,000 scale linework in areas where fisheries data exists. Plan development is on-going and includes procedures for incorporating updates at the regional level.
Region	11	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.	Routine coordination between the GIS and database systems continued during the quarter.
Region	12	Maintain the Protected Areas database. Provide access to the Protected Areas data through the online queryable database and through the interactive map application. Work to resolve the remaining location issues where protected areas did not translate well to the 1:100,000 hydrography	See Objective 4, Task 5, Job 1. This job is a duplicate and will be dropped in the next work statement.

| WDFW | 1 | Manage data at the agency level (including data loading, data updating and quality assurance), develop and maintain FGDC compliant metadata for GIS data, work toward developing metadata for tabular data, and exchange data to PSMFC according to deadlines specified in this work statement. | We maintained and updated smolt and adult trap databases. Documentation is taking place to better understand the dynamics of these two databases and to better understand the data contained within them. Data were managed at the agency level as well as the StreamNet level to meet the special needs of both entities. Work is being done to bring WDFW data closer to the StreamNet DEF which was developed to capture data not only for management purposes but to better meet the needs of everybody who is data driven. Continued effort was made to better manage data and bring them closer to a standardized format for easier and more timely exchanges.

StreamNet Staff who manage key spatial datasets attended WDFW's metadata training on September 20. |

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 (DEF) for data categories described under Objective 1. This task will provide coordination and technical assistance regarding interpretation of database structures and codes. The formal process for creating new and revising old DEFs may require significant amounts of time, potentially more than a year, for complex data categories

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2004
CRITFC	1	Work cooperatively through the Steering Committee, following the DEF Process document, to revise existing and develop new DEFs to assure regional data consistency and allow for inclusion of new data types.	The Oregon subbasin planning data pose a number of questions concerning DEFs. If these data are to be maintained for periodic updates of the watershed assessments, then we need to consider which of them are candidates for DEF development. We will use the Oregon data archives to raise this question with the Steering Committee. Long term maintenance is really a regional question which must be decided by the NPCC. We will work to encourage the NPCC to adopt archiving and maintenance procedures.
FWS	1	Work cooperatively through the Steering Committee, following the DEF Process document, to revise existing and develop new DEFs to assure regional data consistency and allow for inclusion of new data types.	The StreamNet forum hosted very lively discussions of the new HatcheryReturns, HatchDisposition, and Age DEF for several weeks. This required significant participation of personnel who were involved in the redesign of this DEF, including the FWS StreamNet Project Leader.
IDFG	1	Work cooperatively through the Steering Committee, following the DEF Process document, to revise existing and develop new DEFs to assure regional data consistency and allow for inclusion of new data types.	The data coordinator has continued to participate in DEF discussions, most notably for hatchery returns and barrier types.

IDFG	2	IDFG StreamNet will take the lead on developing DEFs for two new data categories: Juvenile Fish Abundance and Run Reconstruction.	Due to work on CSMEP and the Bull Trout Status Review, plus just already having a full plate of data compilation, we did not initiate any new DEFs this year.
MFWP	1	Work cooperatively through the Steering Committee, following the DEF Process document, to revise existing and develop new DEFs to assure regional data consistency and allow for inclusion of new data types.	Montana staff continued to assist in the development of the Resident Fish Hatchery Release DEF and the Restoration Project DEF.
MFWP	2	Co-develop a draft resident release DEF, in cooperation with Leslie Sikora, WA StreamNet	MFWP and WDFW Staff worked on the hatchery release DEF and Mike Banach has developed a draft DEF.
ODFW	1	Work cooperatively through the Steering Committee, following the DEF Process document, to revise existing and develop new DEFs to assure regional data consistency and allow for inclusion of new data types.	Staff communicated with Regional StreamNet and other StreamNet partners on issues related to the Hatchery Release, Hatchery Return, and Age data DEFs during the quarter.
ODFW	2	Review the Barrier DEF for juvenile fish passage and recommend an approach to the Steering Committee.	The GIS Analyst continued efforts to refine the DEF related to the StreamNet Fish Barrier table. He posted a proposed set of Fishway Type codes to the StreamNet Forum and solicited feedback as part of the DEF update process. He also worked with Regional StreamNet staff to find agreement on barrier related changes that will be included in the upcoming draft DEF document.
ODFW	3	Initiate the process to develop a new DEF for fish screen data.	Effort toward developing a new fish screen DEF was redirected this year due to staff vacancies and a shift in priorities. Unless a DEF for fish screen data becomes a priority at the Regional level, this task will be postponed through FY-2005 as well.
ODFW	4	Investigate the potential for developing a Life-stage Timing DEF.	Effort toward developing a life state timing DEF was redirected this year due to priority shifts brought on by the CSMEP effort and staff vacancies. Unless a DEF for life-stage timing data becomes a priority at the Regional level, this task will be postponed through FY-2005 as well.

Region   1   Work cooperatively through the Steering Committee, following the DEF Process document, to revise existing and develop new DEFs to assure regional data consistency and allow for inclusion of new data types. The regional Biologist will serve as the primary coordinator of the DEF process and is responsible for updating and publishing the official DEF document.

Development of a new DEF for habitat restoration projects was completed and reviewed by all StreamNet partner agencies. This data exchange format took significant time in both quarter 3 and quarter 4, with substantial time required to negotiate lookup tables for the various activities that occur on the ground. These changes will be incorporated into the next version of the StreamNet DEF document, which is scheduled to be completed in the first quarter of fiscal year 2005. This effort's time investment delayed other work. Late in the quarter the Program manager and the Regional Fisheries Biologist attended the annual meeting of the Organization of Fish and Wildlife Information Managers. At that meeting a representative of Ducks Unlimited from the San Francisco area presented work they have done on a habitat enhancement database for their scope. The database structure shown was very similar to the new StreamNet structure, which we were happy to see. Two independent database design efforts arriving at the same place is a good sign that a best solution was achieved. Also, we think it holds promise of easily sharing data with Ducks Unlimited both in the San Francisco area and in StreamNet's area.

During this quarter difficulties arose with the data exchange formats we created last year for hatchery returns and age data. Both issues arise when fish from several sources are pooled together prior to being sexed or spawned or trucked to other locations. A probably best solution was identified prior to the end of the quarter but this effort was not quite finished. It is anticipated that resolutions to these issues will be adopted for inclusion in a new DEF in the first quarter of fiscal year 2005.

While working with hatchery returns data, apparently duplicate data were found to actually differ because two stocks of the same subrun of fish returned to a single hatchery. Because this is very likely confusing to data users, we discussed the possibility of capturing the "stock" of fish in the hatchery returns data. Discussions about this continued past the end of the quarter and into fiscal year 2005.

Since the inception of our fish migration barriers data category (at least 6 years), we have been using a draft list of fishways that may be present to help fish pass barriers. This quarter ODFW suggested we develop a better, smaller list of fishway types and presented a new draft list. As the quarter came to an end, this new draft list was being reviewed by the Regional Fisheries Biologist. The new list should be adopted with the next DEF.

Region   2   Investigate the use of the "TypeID" field in StreamNet time series data in relation to other fields. Propose fixes if appropriate, and adopt through the DEF modification process.

No work occurred on this task this fiscal year. Other time-sensitive priorities that came up prevented dedicating time to this job. This task will be carried over into fiscal year 2005.

Region	3	Initiate work on a new DEF for Fish Sightings data. Review the approach being taken in California and in coordination with the cooperating projects, adapt for use in the Columbia Basin.	No work occurred on this task this fiscal year. Other time-sensitive priorities that came up prevented dedicating time to this job. This task will be carried over into fiscal year 2005.
WDFW	1	Work cooperatively through the Steering Committee, following the DEF Process document, to revise existing and develop new DEFs to assure regional data consistency and allow for inclusion of new data types.	The Location Data Manager worked with the Habitat Restoration Project DEF team to finalize their proposal.
WDFW	2	Co-develop a draft resident release DEF, in cooperation with Janet Hess-Herbert, MT StreamNet.	Early this quarter, discussions revealed that we generally agree that the hatchery release DEF should focus on bare-bones information. WDFW didn't have time this quarter to finalize discussion on what this means and is planning time to engage in this next quarter (FY-05).

Objective   2   Data management and delivery

Task   5   StreamNet Internet sites

Continue to maintain and enhance the StreamNet Internet sites. Provide access to StreamNet data products through the Internet at both the regional and cooperating project levels. The StreamNet home page (www.streamnet.org) 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. The site will also be used to archive data sets developed by FWP participants for data that do not fit within the StreamNet DEF, including the means to index and search the archive.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2004
CRITFC	1	Provide ongoing review of the StreamNet website through routine use of the site, providing feedback to StreamNet staff at PSMFC on any problems, errors or needed improvements.	Oregon subbasin planning data archives are being posted to StreamNet. While some questions concerning the best method of providing access to these data to users remain, it is likely data will be posted to the subbasin planning FTP site, at least initially.
CRITFC	2	Maintain, and enhance as needed, the web pages used to provide public access to the StreamNet Library collections and services, including hardware and software maintenance, web page development, and system security.	Library web pages were updated as needed. Several documents were digitized and added to the website for retrieval by patrons.
CRITFC	3	Work with PSMFC staff to upgrade formats for displaying library catalog search results to facilitate development of bibliographies and to assist patrons locating needed literature.	We added the availability of materials to the web catalog displays.
ODFW	1	Provide ongoing review of the StreamNet website through routine use of the site, providing feedback to StreamNet staff at PSMFC on any problems, errors or needed improvements.	Review of the StreamNet website continued during this quarter. Specifically, Regional StreamNet staff were notified of a data type error in the online query system, and of a road label display error in the IMS system.

ODFW	2	Manage and maintain Oregon's web-based data integration, communication, and data transfer systems and their links to StreamNet.	For the period of July through September 2004, our web server had 577,815 total hits (FTP and HTTP combined), and 44,296 page views via HTTP and 4,520 files downloaded totaling 1.53 GB's via FTP. The monthly page view statistics for the NRIMP website alone were 5,725 in July, 6,065 in August, and 5,842 in September for a total of 17,659

Many additions, modifications and improvements were made to the NRIMP web site, including posting the new report, "Upper Rogue Smolt Trapping Project, 2004", re-establishing links to our stream flow restoration priority maps page, and updating the carcass placement, contact, and Barrier GIS pages to reflect the latest information.

The Database Manager has begun incorporating the Oregon.gov website design model into our web application framework. This will allow our sites to adhere to the specifications of the Oregon.gov web initiative while maintaining our use of dynamically generated content. The Assistant Database Manager updated the online NRIMP Reference site |
Region	2	Maintain and enhance the functionality, look and usability of the StreamNet web-based query system.	No significant updates were made to the web query system this quarter because of other priorities.
Region	4	Review and rearrange the links pages on the StreamNet web site.	A link to the Federal Caucus web site (www.salmonrecovery.gov) was added.
Region	5	Maintain the GIS Data, Map, and PNW Reach File Internet pages.	Routine maintenance continued for the GIS data, map and PNW Reach File web. pages
Region	6	Maintain, update as necessary, and improve the Internet mapping component to the StreamNet web site to allow users to access StreamNet 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.	The GIS specialist attended on-line mapper (ArcIMS) training and began work on a new Internet mapping application for StreamNet. This includes testing Web Map Services as a means of adding background imagery (e.g., DRGs and orthophotos) to the StreamNet IMS applications.

Region	7	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, as data become available at those scales.	This item was discussed during the fourth quarter, with the intention of determining a timeframe for completion. The discussion turned to the necessity and feasibility of doing this job, as well as the work load involved. It was decided that at least for the present time we would not pursue this functionality in the query system for two main reasons. First, this would require extensive effort, but during a reexamination of the utility of this idea we decided that, for the types of data that we currently deliver, division by 5th-field HUC may be useful in the future, but division by 6th-field will probably never be of significant value. Second, the existing 5th- and 6th-field HUC boundaries still have a few remaining problems. For these reasons we thought it best to put this effort off until a more definite need develops in the future.

Region	8	Deploy new query system components and data categories that are approved by the Steering Committee.	Much progress was made in determining how to deliver age data via the web query system. We hope to have age data available for querying and download during the first half of fiscal year 2005. The main issue remaining is identifying which years' records to include in the output.

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.	Use of the StreamNet website remained strong during the quarter, with an average of 7,365 non-StreamNet visits per month from 4,362 unique IP addresses (Table 1). Use of the online data query system averaged over 10 per hour for the quarter on a 24 hr day basis.

Table 1. Use of the StreamNet website during the fourth quarter, 2004.

	July-04	Aug. -04	Sept.-04
Overall Page Requests	51,244	61,654	57,156
Number of Visits	7,278	7,656	7,160
Unique Visitors	4,422	4,312	4,351
Data Query Page Requests	16,942	17,522	12,439
Unique Query Sessions	7,974	9,992	4,390
Unique Query Sessions / hr.	10.7	13.4	6.1
Data Reports Viewed	2,056	1,629	1,970
FTP Files Downloaded	581	1,183	1,216

WDFW	1	Provide ongoing review of the StreamNet website through routine use of the site, providing feedback to StreamNet staff at PSMFC on any problems, errors or needed improvements.	No significant new capabilities needed review during FY-04.

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 at the regional and cooperating agency levels. 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 2004
IDFG	1	Respond to requests for data, maps, technical assistance, source materials, or custom data products at the agency level, within the capabilities provided by base funding. Requests will be logged and reported.	We responded to 21 requests for information, maps or technical assistance. The requests were distributed as 2 state government, 1 federal government, 15 private industry, and 3 non-governmental organizations. The requests included 19 species lists or distribution queries, 1 for redd counts and 1 general GIS data.
MFWP	1	Respond to requests for data, maps, technical assistance, source materials, or custom data products at the agency level, within the capabilities provided by base funding. Requests will be logged and reported.	We provided a HUC level map to every state and federal biologist in Montana displaying Westslope or Yellowstone Cutthroat distribution, location of genetic sampling sites and a table listing the results for the genetic sample. We also filled 18 GIS map/data requests during the quarter.
ODFW	1	Respond to requests for data, maps, technical assistance, source materials, or custom data products at the agency level, within the capabilities provided by base funding. Requests will be logged and reported.	The monthly breakdown of unique users (reflected as distinct IPs) who viewed / downloaded data from the ODFW FTP site during this quarter is 160 (July), 166 (August), and 196 (September). Also, 1.53 GB of data were downloaded from this site by 444 unique users.

The monthly breakdown of unique users (reflected as distinct IPAs) reported for the April – June period were incorrect. The actual number unique users who viewed / downloaded data from the ODFW FTP site during the previous quarter was 186 (April), 176 (May), and 168 (June).

A total of 7 data, 3 document, 4 map, and 6 "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 included:

a. Providing MS Access technical support to ODFW Fish Division staff in Salem.

b. Summarizing barrier and stream mile information in response to a request related to potential trout angling opportunity areas within the Willamette basin.

c. Summarizing fish passage barrier information above Bonneville Dam related to BiOp comments that ODFW is preparing.

d. Responding to questions related to our life-stage timing dataset, a fire intensity dataset, and our fish presence survey data.

e. Providing GIS technical support to the Statewide Wildlife Conservation Strategy effort.

f. Producing a map related to proposed changes to fishing regulations on the Rogue River.
g. Providing our existing list of PSC Code - LLID cross references to NOAA-Fisheries staff in Seattle so he could map coastal coho hatchery release information.
h. Creating a series of 8.5 "x 11" maps that would give a basic illustration of the hydrology of the Molalla, Santiam, and Upper Willamette/ McKenzie watershed areas.
i. Providing an Oregon Lakes dataset with LLID's to DEQ.
j. Providing Regional StreamNet with a list of data NRIMP provides access to that isn't provided to and made available on StreamNet.

Region	1	Respond within one business day to requests for data, information or help. Log and report responses to all requests received.

Staff responded to 21 information requests during the quarter (Table 2).

Table 2. Number and types of information and help requests serviced by Regional staff during the fourth quarter, FY-04

Requester Type	#		Type of Request	#
Environmental group	2		Can't find data	2
Federal agency	4		Data interpretation	2
General public	4		Error report	4
Graduate student	1		General fish biology	2
Local government	1		GIS	7
Private consultant	3		Library	1
State agency	3		Map	1
Tribe / tribal organization	3		Other	2
Total	21		Total	21

Region	2	Finalize a standard user request tracking database structure so that all StreamNet partner agencies can use the same format for reporting responses to requests for data and other information or help.

Higher priority tasks came up this quarter and as a result this task was not addressed. This task will be addressed next fiscal year as directed by the Steering Committee.

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

Over two dozen custom data requests were handled by WDFW StreamNet staff this quarter, largely involving fish distribution, spawner survey, and age data. Custom maps were also generated for both internal and external customers. WDFW's SalmonScape Web-based application and the StreamNet online application also provide users with WDFW StreamNet data, though the specific figures there are hard to obtain. In addition, over 100 standard data requests were handled by WDFW's Priority Habitats and Species data release staff, all of which involve spatial hydro or fish distribution data that are compiled and managed by WDFW StreamNet

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. Provide a repository for the source documents for the data contained in the StreamNet database.

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 contained in the StreamNet

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2004
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.	Reference documents for data submissions were received from participants and scheduled for cataloging. Work proceeded on integrating the StreamNet references with the classified collection.
CRITFC	2	Coordinate source material submissions for data compiled by StreamNet participants under Objective 1.	The library continued to receive information and references from participating agencies. Oregon has been very proactive in making sure all their references are correctly identified and up-to-date.
CRITFC	3	Develop a collection of materials related to the Columbia Basin, including reports from other Fish & Wildlife Program projects, other agency documents as they relate to the Basin, and other published and unpublished materials as requested by clients.	We began to work on bibliographies of documents published by BPA in order to make sure we have a complete collection of documents for the Fish and Wildlife Division.
IDFG	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.	Library materials referenced in our data submissions for hatchery returns and age composition were submitted to the StreamNet library.
MFWP	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.	New references were entered as they were received in the library.
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.	The Data Analyst continued to add references related to data captured under Objective 1 tasks, and performing quality assurance on the Reference Database records. She also researched, located, requested, acquired, and provided a copy of a document needed by the StreamNet Library.

Staff made a couple of StreamNet Library submission this quarter, including 15 references related to 24K fish habitat distribution data in early August, and 37 references in late-September. The hardcopy documents associated with this submission were delivered to the StreamNet Library on September 29th. We also submitted corrected/updated information on 13 previously submitted StreamNet Library references that had been changed in our reference database as a result of our quality assurance.

Project	Job	Planned work elements	Accomplishments
ODFW	2	Initiate organization of ODFW Library documents and update the library bibliography with new titles as they are identified.	Organization of the ODFW Library continued throughout the quarter. The Library Technician sorted through many boxes, and shelved roughly half the materials in the Library. She also coordinated the efforts of a local volunteer who spent nearly30 hours sorting ODFW Progress Reports by title and putting duplicates into boxes.
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.	The Assistant Data Manager, Region 5, re-submitted documents to the StreamNet library that were missing. Various reports were collected to help document data contained within the databases managed by the WDFW StreamNet data managers.

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 the collection, and staff to answer location questions and respond to requests.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2004
CRITFC	1	Provide and maintain an appropriate facility for the storage and public use of the StreamNet Library collections.	The library space has been maintained. We continue to evaluate our current floor plan to ensure we are making the best use of our space and shelving.
CRITFC	2	Catalog and organize the materials for ease of use by clients and staff.	We were able to hire two interns over the summer through funding from CRITFC member tribes. These interns greatly assisted our efforts in loading temporary records into the catalog for a large number of materials.
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 slightly more frequently than monthly using the Dreamweaver software.
CRITFC	4	Develop and execute a plan to place electronic documents in the catalog and on the library website.	URL's for documents were added to the catalog as documents were processed for the digital collection.
CRITFC	5	Develop and keep a schedule of open times and reference desk staff hours.	The new library technician was hired and assisted with keeping the library open on a regular schedule.

Objective   3   Library and reference services

Task   3   Library services

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

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2004
CRITFC	1	Provide information and reference services to library clients.	Over 160 reference requests were received from clients.
CRITFC	3	Provide interlibrary borrowing services for library patrons to access materials not yet owned by the StreamNet Library.	We continued to develop our collections through patron requests and Interlibrary loan.

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

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2004
CRITFC	1	Provide interlibrary lending services for other libraries to access the StreamNet Library's unique collection.	The library filled 40 requests from other libraries through OCLC.
CRITFC	2	Maintain memberships in appropriate library and subject-related associations. Ex. IAMSLIC, NRIC, OFWIM, etc.	The librarian attended the Pacific Northwest Library Association
CRITFC	3	Provide consultations for groups and other agencies on library organization and services.	The librarian met with the Audubon Society of Portland to discuss the possibility of the organization depositing a major collection on ornithology with the StreamNet library for management. In addition, the USFWS Columbia River Research Laboratory delivered approximately 40 boxes of materials for the library's collections.

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 Data Services to Support the Fish and Wildlife Program

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. Work under this task will have to be based on time available, particularly for larger requests.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2004
CRITFC	1	Participate in various NWPCC 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.	We met several times with NPCC, Mobrand, or StreamNet Regional staffs to discuss options for archiving data and other material developed during subbasin planning. The NPCC has not decided how to archive subbasin planning information regionally. We continue to urge resolution of this issue as opportunities arise. The newly formed Northwest Environmental Data Network lists this issue as one of its tasks. We will work through that group, at least in the short term.

Staff nearly completed archiving Oregon subbasin planning data. These archives are nearly 4 GB in size, containing information on all or parts of 15 subbasins. Most of the data are in GIS formats. |
| IDFG | 1 | At the agency level, support Fish and Wildlife Program activities, such as R, M & E, subbasin assessment, etc., by providing data and maps of existing StreamNet data and technical information management advice or assistance as requested, within available time and budget under base level funding. | The data coordinator documented the procedures used in the CSMEP pilot data inventory. He also set up new workbooks for new CSMEP subbasins: the upper Middle Fork Salmon River and upper Salmon River, and populated them with relevant data from the earlier pilot data inventory. He is now providing training and oversight to IDFG staff who are entering additional new data inventory information. |
| MFWP | 1 | At the agency level, support Fish and Wildlife Program activities, such as R, M & E, subbasin assessment, etc., by providing data and maps of existing StreamNet data and technical information management advice or assistance as requested, within available time and budget under base level funding. | Montana continues to monitor the activities of CSMEP. |

ODFW	1	At the agency level, support Fish and Wildlife Program activities, such as R, M & E, subbasin assessment, etc., by providing data and maps of existing StreamNet data and technical information management advice or assistance as requested, within available time and budget under base level funding.	This task was dominated this quarter with supporting the CSMEP effort. Staff completed development and beta testing of the CSMEP Database Web application. The application is able to complete a Table C1 spreadsheet's lifecycle, from data entry to the grouped display of data. Focused attention was put toward error-proofing as much of the application as possible, developing a discussion forum for users to share comments and discuss data related topics, writing instructions and creating a tutorial for using the application, providing technical support to data entry staff from all the CSMEP participants, resolving technical glitches that arose during the beta test phase, and adding features as requested and warranted.

The Data Technician finished populating the CSMEP data inventory spreadsheets for the Lower Columbia, and performed quality assurance on previously populated spreadsheets. All the spreadsheets that have been developed by Oregon StreamNet staff were provided to ODFW's CSMEP Biologists on August 24th for their review, evaluation, and continuance.

The Project Leader reviewed and revised an 'off the top of the head' listing of Columbia Basin data management (not data collection) projects that was put together by John Piccininni (our BPA COTR), as assigned during the Steering Committee meeting. |
Region	1	At the regional level, support Fish and Wildlife Program activities, such as R, M & E, subbasin assessment, etc., by providing data and maps of existing StreamNet data and technical information management advice or assistance as requested, within available time and budget under base level funding.	No specific requests for data were received this quarter.
Region	2	Participate in and assist regional Monitoring and Evaluation efforts to provide relevant StreamNet data, and to initiate work to obtain new data types necessary for R,M&E. Since no specific requests or funding have been received for this, work may be limited to scoping and advising. Development of new data types to serve R,M&E will be initiated only as current time and funding permit, or as current work priorities are reprioritized by regional processes.	The Program Manager continued participation with PNAMP and CSMEP to assist with any data needs identified.
WDFW	1	At the agency level, support Fish and Wildlife Program activities, such as R, M & E, subbasin assessment, etc., by providing data and maps of existing StreamNet data and technical information management advice or assistance as requested, within available time and budget under base level funding.	No data requests or specific requests for assistance were received this quarter.

Task   2   Participate in Fish and Wildlife Program Development Activities

Participate in planning, development and/or coordination meetings with regional entities to provide assistance in the area of data management, as requested, to support development of Fish and Wildlife Program projects and programs. Provide input on ways StreamNet can effectively contribute to the programs and general advice about data management. Participate in advisory groups, task forces, and other groups whose purpose is to enhance the effectiveness of the Fish and Wildlife Program relative to its data development activities.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2004
CRITFC	1	Participate in groups to develop strategies for ESA recovery planning efforts to ensure data and technical literature are captured and made regionally accessible. This will be done "as possible"' under base level funding.	No substantial work on this task was accomplished this quarter. We continued to pursue and advocate for this activity through staff participation in several inter-agency groups. We did identify a substantial amount of "one-of-a-kind" gray literature and data in the ODFW John Day field office. We will explore ways of capturing these data as time and funding allow.
IDFG	1	At the agency level, 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.	Throughout this year, we have provided expertise and time in support of the CSMEP project in Idaho.
MFWP	1	At the agency level, 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.	Montana has participated in several conference calls of the NED project and provided information on Montana's involvement in regional data management.
ODFW	1	At the agency level, 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.	Oregon StreamNet staff participated in CSMEP meetings/conference calls on July 15th, July 29th, August 31st, and September 15th. The Oregon StreamNet Project Leader participated in the North-west Environmental Data-network (formerly CBCIS) regular Project Team meeting via conference call on June 27th.
Region	1	At the regional level, 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 continued participation with CSMEP to provide advice and support related to data management. We reiterated our offer of providing two person months of assistance per state to the CSMEP data inventory effort. That support was built into work plans for FY-05.
Region	2	Continue participation on the Program Team for the Council's project to develop a Columbia Basin Cooperative Information System to convey recommendations based on experience in the development of a regional approach to data submission.	The Program Manager continued participation in the Northwest Environmental Data-network.

| Region | 3 | Continue participation in the Federal/State/Tribal Partnership for watershed data coordination (now known as the Pacific Northwest Aquatic Monitoring Partnership). Participate in other R, M & E groups, including the Action Agencies and CBFWA, to provide support and data management expertise. | The Program Manager continued participation in PNAMP, serving on the Steering Committee and the Data Management Module. StreamNet offered to provide a portion of the StreamNet Biologist's time to facilitate development of a project tracking data system.

The Fisheries Biologist participated in two PNAMP Effectiveness Monitoring Module meetings. PNAMP is beginning discussions about how to share information about habitat restoration projects, or about all projects funded by multiple agencies. The scope of their effort is being defined, and we are assisting by helping them discuss and clearly define the scope of their effort. |
| WDFW | 1 | At the agency level, 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 provided extensive additions and corrections to a list of regional monitoring data projects compiled by John Piccininni (BPA) and Bruce Crawford (Washington IAC). The list, titled "PNW Management Resources", is being used by PNAMP and other activity coordinating groups in the Region to identify potential overlapping work and responsibilities among the many entities working on salmon recovery. |

Objective   4   Services to the Fish and Wildlife Program

Task   3   Support to Subbasin Planning

At the regional and cooperating agency levels, work with subbasin planners to provide needed information from the StreamNet database and to capture data developed as part of the subbasin planning process.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2004
CRITFC	1	Participate in subbasin planning efforts, such as serving as leader of the technical work group for Oregon's Subbasin Planning effort.	The Project Leader continued to coordinate and provide technical assistance to Oregon subbasin planning groups. Most of the effort this quarter involved archiving data from Oregon subbasins. The Project Leader did participate in planning for additional subbasin plan development during a "response loop" period. We anticipate receiving an additional contract next quarter to provide additional assistance to John Day subbasin planners.
MFWP	1	At the state or local level, and within existing resources, work with subbasin planners to provide needed information from the StreamNet database and to capture data developed as part of the subbasin planning process.	Staff reviewed the subbasin plans and determined where they can integrate data and how they fit within the Comprehensive Fish and Wildlife Plan. The only data type new to MFISH would be a disease/pathogen database.
ODFW	1	At the state or local level, and within existing resources, work with subbasin planners to provide needed information from the StreamNet database and to capture data developed as part of the subbasin planning process.	The Oregon StreamNet Project Leader reviewed some of the Oregon Level II Group comments on some of Oregon's Subbasin Plans, noting where improved data management might have addressed some of the concerns.

Region	1	At the regional level, and within existing resources, work with subbasin planning groups to provide needed information from the StreamNet database and to capture data developed as part of the subbasin planning process and make it publicly available.	The Regional Fisheries Biologist reviewed a draft data layout for subbasin planning/ TOAST that was developed by CRITFC. No data have been obtained yet.
WDFW	1	At the state or local level, and within existing resources, work with subbasin planners to provide needed information from the StreamNet database and to capture data developed as part of the subbasin planning process.	Contacts with biologists who manage the Lewis and Kalama watersheds were made in order to complete the CSMEP data inventory for those two watersheds. Several phone conferences were attended to discuss web based data entry for this model. Discussions on progress and needs were covered in these phone conferences.

Objective   4   Services to the Fish and Wildlife Program

Task   4   Archive and deliver independent data sets, as requested

Work with participants 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, post data in the archive as independent data sets in their native formats.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2004
IDFG	1	Work with FWP supported projects in the state to assist them with submission of their data sets to StreamNet for archiving and dissemination as part of the formal DEF or as Independent Data Sets.	No independent data sets suitable for posting through StreamNet came to our attention in Idaho, so none were delivered to PSMFC this year.
MFWP	1	Work with FWP supported projects in the state to assist them with submission of their data sets to StreamNet for archiving and dissemination as part of the formal DEF or as Independent Data Sets.	The subbasin plans were used during the review of northwestern Montana for the Comprehensive Fish and Wildlife Plan; the appendices are still being reviewed to insure there are no new data types of value to MFISH and that the data collected by the planning process are incorporated in MFISH.
ODFW	1	Work with FWP supported projects in the state to assist them with submission of their data sets to StreamNet for archiving and dissemination as part of the formal DEF or as Independent Data Sets.	This task was intended to be performed on an opportunistic basis. During the year, no opportunities presented themselves, and therefore no work was performed under this task.
Region	2	Coordinate with BPA and BPA contractors and the StreamNet cooperators to capture data sets, reports, and other electronic materials for inclusion in the StreamNet Independent Data Sets page. Finalize metadata needs. Create a tool to help data submitters to easily provide needed information.	This new independent data sets capability has not yet been advertised, so any use to date is only from people who have been directed to use it. During this quarter we received a water temperature data set from the Nez Perce County (Idaho) Soil and Water Conservation District.. They encountered a bit of difficulty installing the tool, but successfully installed and used it, sending their data set to StreamNet.

WDFW	1	Work with FWP supported projects in the state to assist them with submission of their data sets to StreamNet for archiving and dissemination as part of the formal DEF or as Independent Data Sets.		Some work was done in this area with Bull Trout data, smolt and adult trap data and historical index survey data. Due to the work load with the escapement data, hatchery returns data and CSMEP data, no in depth look at a possible DEF for these data was explored. This will be explored more in the next year due to these data being more complete and work with the regional biologists to move this data into a database structure and away from paper or spreadsheet format. Problems have arisen in the past with data being collected in a year to year format and different data collected in each year to meet management needs for that year. Standardized data collection has been pursued for year to year collection and the storage and manipulation of historical data stored in various formats and software are being converted to a MS Access database.

Objective   4   Services to the Fish and Wildlife Program

Task   5   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 these data available through online mapping. If the Council so directs, work with subbasin planners to record any desired changes to the protected status of individual streams.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2004
Region	1	Maintain the Protected Areas database, and as time allows, work to resolve the remaining unresolved location issues that resulted from conversion of the data from the 1:250,000 scale to the 1:100,000 regional hydrography.	The Protected Areas data and interactive map pages were maintained during the quarter. No effort to resolve the remaining unresolved location issues from the transfer of data from 1:250,000 to 1:100,000 were made due to higher priorities for the new GIS Specialist. This work will be carried forward to next fiscal year.

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 cooperating agency 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 2004
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.	The Project Leader attended one steering committee meeting this quarter. Input on agenda items was provided via e-mail and discussions at the steering committee meeting.

CRITFC	2	Supervision. Supervise project staff at the cooperator level to provide guidance and staff development.	Normal staff supervision was provided.
CRITFC	3	Budget. Manage expenditures to accomplish the jobs in the Statement of Work within the approved budget.	We had about a $2,000 over expenditure at the end of the fiscal year. This was resolved by reclassifying some expenses to other funding sources.
CRITFC	4	Develop the annual project proposal and budget within submission deadlines.	The draft work statement and budget prepared last quarter was reviewed and revised slightly prior to submission to BPA.
CRITFC	5	Report accomplishment of the work outlined in the annual Statement of Work through quarterly progress reports submitted to PSMFC within 20 days of the end of each quarter.	The fourth quarter report was submitted within 30 days of the end of the quarter.
CRITFC	6	Submit the draft FY-03 annual progress report for the sub project to PSMFC within 60 days of the end of the fiscal year.	Initial scoping of the annual report was done. Work on producing the report will occur next quarter.
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 attended the quarterly Steering Committee meeting, providing significant input during discussion of the new Hatchery related DEFs.
FWS	3	Budget. Manage expenditures to accomplish the jobs in the Statement of Work within the approved budget.	The remaining funding was allocated to completing the HatcheryReturns, HatchDisposition, and Age data submission for this fiscal year.
FWS	4	Develop the annual project proposal and budget within submission deadlines.	The preliminary budget for FY 05 was prepared and sent to PSMFC.
FWS	5	Report accomplishment of the work outlined in the annual Statement of Work through quarterly progress reports submitted to PSMFC within 20 days of the end of each quarter	The accomplishment report for the previous quarter was completed and submitted to PSMFC.
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 coordinator attended and participated in the July Steering Committee meeting in Portland, OR.
IDFG	2	Supervision. Supervise project staff at the cooperator level to provide guidance and staff development.	Project coordination and supervision for both StreamNet and non- StreamNet staff were provided by the IDFG StreamNet project.
IDFG	3	Budget. Manage expenditures to accomplish the jobs in the Statement of Work within the approved budget.	The IDFG StreamNet budget was regularly monitored throughout the quarter.

IDFG	5	Report accomplishment of the work outlined in the annual Statement of Work through quarterly progress reports submitted to PSMFC within 20 days of the end of each quarter.	The 2004 IDFG StreamNet third quarter report was completed and submitted to the StreamNet project manager at PSMFC.
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.	We attended the Steering Committee meeting in July in Gladstone. Following the meeting, we performed assigned tasks from the meeting, including completing review of our portions of the budget and the SOW for FY-05.
MFWP	2	Supervision. Supervise project staff at the cooperator level to provide guidance and staff development.	The discussions have continued with respect to Kalispell office staff moving to Helena; decisions made included Lydia Bailey will move to Helena as the GIS/Natural Resource Data Manager; Jeff Hutten will continue as the StreamNet western Montana Information Specialist but only at a half-time level; Kim Lindstrom will resign as of January 1 and her position will be rewritten and moved to Helena. Steve Carson will continue as the Fish and Wildlife Data Manager. StreamNet duties associated with Jeff and Kim will be reassigned to the remaining staff positions and some duties will be moved to a contract with NRIS.
MFWP	3	Budget. Manage expenditures to accomplish the jobs in the Statement of Work within the approved budget.	Final review of the FY-05 budget occurred and agency work plans were completed for StreamNet duties. The Information Management Unit received .24 FTE from the Fisheries work for fish data/map requests and technical support outside of the StreamNet Workplan.
MFWP	4	Develop the annual project proposal and budget within submission deadlines.	The Montana FY-05 Statement of Work was approved and incorporated into the StreamNet SOW to BPA and submitted. Upon receiving the SOW back for the regional staff, the Montana portion was provided to all FWP staff receiving StreamNet funding.
MFWP	5	Report accomplishment of the work outlined in the annual Statement of Work through quarterly progress reports submitted to PSMFC within 20 days of the end of each quarter.	The FY-04 3rd quarter report was completed.
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.	A number of Oregon StreamNet staff members attended and participated in the July 19 StreamNet Steering Committee meeting. A demonstration of the new CSMEP Database Web application was given, and feedback was recorded and addressed. The Steering Committee was also updated on Oregon's pilot effort in the Grande Ronde basin to test out the development of an enhanced 100k hydrography dataset.
ODFW	2	Supervision. Supervise project staff at the cooperator level to provide guidance and staff development.	Oregon StreamNet's Project Leader exercised routine supervision of StreamNet staff, and in some cases, non StreamNet staff.

The Data Analyst and Data Technician attended a PowerPoint training session at Oregon State University on Thursday, July 22nd. This was the second portion of the training, as they both felt they had enough experience to skip the first session.

Oregon's GIS Analyst spent a day assisting Fish Screen and Passage program staff installing a sluice gate on the Clatskanie Falls fishway, and used the opportunity to discuss fishway categorization issues with the fish passage coordinator.

The Database Manager accompanied ODFW Fish Propagation staff to Elk Creek Hatchery to assist with a CWT retention check on two stocks of fall Chinook salmon. About 1,000 smolts were checked for both coded-wire tags and fin clips. The information captured, and the forms that were filled out represent what ultimately gets sent through HMIS to the RMIS system to calculate shed tag percentages for stocks of coded-wire tagged fish. This real world experience aids in understanding the origin of the data we work with, and provides opportunities to consider data management related modifications that benefit the data flow process.

The GIS Analyst participated in a free online training seminar presented by ESRI on Scripting in ArcGIS.

ODFW	3	Budget. Manage expenditures to accomplish the jobs in the Statement of Work within the approved budget.	Routine budget tracking continued during the quarter. A revised FY-04 budget was submitted to StreamNet to account for the purchase of a new computer for our GIS Analyst. Oregon's proposed FY-05 budget was provided to ODFW management staff for review and forwarded to Regional StreamNet in mid-July..
ODFW	4	Develop the annual project proposal and budget within submission deadlines.	The draft FY-05 Statement of Work was submitted to Regional StreamNet in mid-July. At BPA's request, a month-by-month spending plan was developed for our FY-05 StreamNet contract and submitted it to Regional StreamNet in late August.
ODFW	5	Report accomplishment of the work outlined in the annual Statement of Work through quarterly progress reports submitted to PSMFC within 20 days of the end of each quarter.	Oregon's StreamNet 3rd-Quarter Report was completed and delivered to Regional StreamNet in late August. Oregon StreamNet staff also reviewed and commented on the corporate third-quarter report, and submitted our comments in late September.
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. Serve as chair of the Steering Committee.	The Steering Committee meeting was held in Portland on July 19-20. Topics covered included: CSMEP plans for FY-05, demonstration of the new online data inventory tool, finalizing content of the FY-05 Statement of Work, feedback from NOAA Fisheries on the critical habitat project, PNAMP, the new CalFish web page, and a variety of technical issues.
Region	2	Supervision. Supervise project staff at the regional level to provide guidance and staff development.	Routine supervision of regional personnel continued. Regional staff also welcomed and provided guidance to Van Hare, the new GIS Specialist.
Region	3	Budget. Manage expenditures to accomplish the jobs in the Statement of Work within the approved budget.	Routine budget expenditure tracking continued during the quarter.

Region	4	Develop the annual project proposal and budget within submission deadlines.	The FY-05 Statement of Work and budget were finalized and submitted to BPA.
Region	5	Report accomplishment of the work outlined in the annual Statement of Work through quarterly progress reports submitted to BPA within 30 days of the end of each quarter.	The Third Quarter Report was prepared with input from all of the project cooperators and submitted to BPA.
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.	The WDFW StreamNet Project Manager participated in the July 19-20 Steering Committee meeting, delivering a round-table summary of recent work and contributing to key discussion topics. Materials were prepared for contributions to CSMEP, FY-05 work plan content finalization, a 24K/100K hydro hybrid layer proposal, and the StreamNet QA/QC White Paper project. The Committee decided to continue pursuing the hybrid hydro layer and developing state-centric materials for the White Paper.
WDFW	2	Supervision. Supervise project staff at the cooperator level to provide guidance and staff development.	We talked with Washington's Department of Personnel to understand why viable candidates weren't able to get on the hiring register.

Staff debriefed data compiler Gretchen Blatz before she left in order to understand the files she left behind.

To fill our vacant compiler position, we created an MS Access test for applicants and conducted interviews on the last three days of September.

The Project Manager and Region 5 Assistant Database Manager conducted personnel evaluations for the StreamNet staff under their supervision as part of the annual WDFW requirements.

On September 15 & 16, 2004, the Location Data Manager attended a class of ESRI's ArcHydro to further explore how we can integrate ESRI's products into our location data management. She also made a small start on learning Structured Query Language (SQL). |
| WDFW | 3 | Budget. Manage expenditures to accomplish the jobs in the Statement of Work within the approved budget. | The Project Manager worked with the StreamNet Program Manager at PSMFC and the WDFW Fiscal Office to enact a late-term WDFW StreamNet FY-04 budget reduction in order to offset some field work done in Spring 2004 for WDFW but charged to PSMFC.

The Project Manager managed the WDFW StreamNet budget toward an ending balance target of $1,000. |

| WDFW | 4 | Develop the annual project proposal and budget within submission deadlines. | The Project Manager worked with his staff to finalize tasks, priorities, and assignments for the WDFW StreamNet FY-05 work plan. Budget details were finalized using the most recent WDFW benefits and overhead figures, and a monthly spending plan was developed and submitted to the StreamNet Program Manager (PSMFC). |
| WDFW | 5 | Report accomplishment of the work outlined in the annual Statement of Work through quarterly progress reports submitted to PSMFC within 20 days of the end of each quarter. | We submitted the WDFW FY-04 Third Quarter Progress Report to PSMFC on July 16, 2004. |

Objective   5   Project management and coordination

Task   2   Coordinate with Related Activities Beyond the FWP

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.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2004
CRITFC	1	On an opportunistic basis, coordinate with other state, federal, or tribal agencies and various local inter-agency planning and management work groups beyond the FWP to enhance the collection and management of data related to management of fish and wildlife resources.	The Project Leader is also serves on the Pacific Northwest Aquatic Monitoring Partnership (PNAMP), Northwest Environmental Data Network (NED), and the John Day Analytical Framework Group. Improved data management and sharing are concerns for all these groups.
IDFG	1	On an opportunistic basis, coordinate with other state, federal, or tribal agencies and various local inter-agency planning and management work groups beyond the FWP to enhance the collection and management of data related to management of fish and wildlife resources.	Working with IDFG staff, we completed all but one of the bull trout status review workshops. Only the Jarbidge-Bruneau workshop remains. We have prepared and distributed to all IDFG regional biologists draft maps based on those workshops. Review comments are being input into the database and we are also reviewing the entire database for errors and inconsistencies among workshops.
MFWP	1	On an opportunistic basis, coordinate with other state, federal, or tribal agencies and various local inter-agency planning and management work groups beyond the FWP to enhance the collection and management of data related to management of fish and wildlife resources.	Discussions continue between the Natural Heritage Program (NHP) and FWP concerning FWP incorporating NHP into the agency. Options scoping will occur next quarter. We attended the Fisheries Manager's meeting in September to discuss a data dissemination policy which includes the distribution of MFISH data on a state level. We continued to engage in discussions with NHP in the development of the process and implementing the process of determining Element Occurrence records. MFISH data continued to play a key role in the creation of the aquatic matrix for the Montana Comprehensive Fish and Wildlife Plan.

| ODFW | 1 | On an opportunistic basis, coordinate with other state, federal, or tribal agencies and various local inter-agency planning and management work groups beyond the FWP to enhance the collection and management of data related to management of fish and wildlife resources. | Several coordination activities occurred during this quarter, including:

-- Meeting with ODFW, OWEB, and OSU Library staff to discuss how we can assist in making data collected by the North Coast Web Portal Project accessible via the web. They are interested in using our Oregon Plan web application as their initial data storage vehicle, which the portal would tap for responding to online inquiries. We also discussed a strategy to avoid duplicating effort when we start collecting data from North Coast watershed councils.

-- Our data management staff also met with North Coast Web Portal staff regarding the interoperability of their upcoming portal system to the OPSW metadata site. They also discussed conforming searches of the site to some current bibliography standard, such as Z.3950. A schema format and field descriptions for the OPSW data site were provided to Portal staff.

-- Meeting with ODFW Wildlife Division staff and staff from the Oregon Bridge Delivery Partners (OBDP) on Monday, Aug. 9th to coordinate GIS data development efforts regarding the in-water timing guidelines. We agreed upon an initial data development approach and will be working cooperatively to address issues as the process evolves.

-- Staff participated in a conference call on Tuesday, September 7th, then met with Marine Program staff in Newport on Thursday, September 9th to discuss their data management, access, and dissemination needs, and our ability to help. Several areas for different datasets were identified that we could streamline and make the transition of data to information on the web both easier and less error-prone. |
| WDFW | 1 | On an opportunistic basis, coordinate with other state, federal, or tribal agencies and various local inter-agency planning and management work groups beyond the FWP to enhance the collection and management of data related to management of fish and wildlife resources. | The Project Manager worked with TetraTech consultants to review a Web-based ArcIMS site developed for displaying EDT data of interest to Council members and BPA. He sent the URL around to StreamNet Steering Committee members and did a brief demonstration at the July Steering Committee meeting.

The Project Manager held discussions with WDFW staff from the Habitat Program and others on barriers data compilation and any post-removal monitoring activities that were taking place, as a Steering Committee follow-up activity. WDFW does not have a coordinated procedure for collecting standardized post-project data, as the staff who work on passage issues currently only do pre-project assessments and the improvement work itself. |

Objective   5   Project management and coordination

Task   3   Professional and Public Involvement

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, issue papers, demonstrations, posters and talks to public, policy or professional groups and organizations.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2004
CRITFC	1	As requested, prepare and deliver presentations to public, scientific and professional meetings to demonstrate project capabilities, services and accomplishments and to solicit additional data and involvement or coordination with the project.	The Project Leader has been invited to participate in a panel discussion on subbasin planning at the North Pacific/International Chapter of the AFS in November.
IDFG	1	As requested, prepare and deliver presentations to public, scientific and professional meetings to demonstrate project capabilities, services and accomplishments and to solicit additional data and involvement or coordination with the project.	No meetings were attended under the StreamNet project this year.
MFWP	1	As requested, prepare and deliver presentations to public, scientific and professional meetings to demonstrate project capabilities, services and accomplishments and to solicit additional data and involvement or coordination with the project.	We continued the regional meeting presentations including MFISH and the Fishing Guide which uses all MFISH data. We will attend the angler's forum next month and give a demo of the Fishing Guide.
Region	1	Publish at least two editions of the StreamNet Newsletter during the fiscal year, providing readers with information about StreamNet activities, available data, data updates, new data services, etc.	Only one newsletter was sent out during the fiscal year, though potential items were collected all through the fiscal year. At the end of the fourth quarter preparations for the next newsletter began, and we anticipate one being published in the first quarter of fiscal year 2005.

Region	2	Prepare and deliver presentations to scientific and professional meetings to demonstrate project capabilities and accomplishments, and to solicit additional data and coordination with the project.	The Program Manager and the Regional Fisheries Biologist (under other funding) attended the annual meeting of the Organization of Fish and Wildlife Information Managers (OFWIM) in San Diego, California. StreamNet's Program Manager became OFWIM's new president and delivered the keynote talk at the meeting, discussing "Partnerships and the future of fish and wildlife information management." He also chaired two mini-workshops, one entitled "Incorporation of end-user input into application design" and the other "Strategies for motivating field data collectors to provide metadata -- A brainstorm session." The Regional Fisheries Biologist gave a presentation on StreamNet's new Independent Data Sets page and data submission tool, soliciting feedback on whether this concept exists in other places and also on how we might improve our current effort. He also presented the StreamNet poster (updated during this quarter) during the poster session, and attended a USGS-National Biological Information Infrastructure metadata training. It was hoped that the metadata training would let us produce NBII-compliant metadata for StreamNet's data sets and send these metadata to the NBII system, but the training was hampered by poor software. Follow-up information was provided and further efforts will occur to meet the NBII metadata standard and send metadata to the NBII metadata clearinghouse.
Region	3	Developed and distribute 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 explaining data categories and structures, as necessary.	The StreamNet Fisheries Biologist updated the StreamNet poster in preparation for display at the annual OFWIM meeting.
WDFW	1	As requested, prepare and deliver presentations to public, scientific and professional meetings to demonstrate project capabilities, services and accomplishments and to solicit additional data and involvement or coordination with the project.	This quarter, there were no opportunities to present the StreamNet Project at formal meetings.

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, fourth Quarter 2004
CRITFC	Work on the objectives and tasks relating to subbasin planning, regional monitoring and data management groups involved a combination of StreamNet supported staff and CRITFC staff funded by other resources
MFWP	Discussions continue between the Natural Heritage Program (NHP) and FWP concerning FWP incorporated NHP into the agency. Options scoping will occur next quarter. Continued to engage in discussions with NHP in the development of the process and implementing the process of determining Element Occurrence records. MFISH data continued to play a key role in the creation of the aquatic matrix for the Montana Comprehensive Fish and Wildlife Plan. The FWP Strategic Information Technology Plan has been accepted by the State Information Services Division; issues raised in the Needs Assessment portion of the plan are being reviewed and addressed by the FWP Information Services Steering Committee; issues have included a data dissemination policy, hardware/software purchases; procedures for designing/implementing centralized databases and a new Request Tracker that will be used for all information services requests within the Department. We attended the annual Organization of Fish and Wildlife Managers meeting in San Diego which provided food for thought with respect to addressing data management issues within FWP and between FWP and other state and federal agencies.
ODFW	Oregon StreamNet's Database Manager continued to support the Oregon Plan Review (Metadata Warehouse) site and provide technical support to numerous users of the site.
	Oregon's Statewide Wildlife Conservation Strategy GIS Coordinator fulfilled a request for a map to assist the Wolf Management Task Force. Oregon StreamNet staff support of Statewide Wildlife Conservation Strategy continued throughout the quarter, mainly focused on providing GIS and analytical support.
	Revisions to a Native Non-game Fish Distribution Development Project funding proposal were completed this quarter, and the proposal was submitted to the ODFW Wildlife Division for their review and approval.
	ODFW's Wildlife Division agreed to continue funding our support of the Wildlife Habitat Conservation Management Plan web application. As a result, we incorporated additional requested changes to the site, and will continue to make modifications as warranted. Interest was also expressed for us to develop a similar application for the Landowner Incentive Program.
	We received approval to continue to pursue information on fishing sites in Oregon to bolster the information provided on the Oregon Fish Finder web site. Work on this effort will resume in the next quarter.
	Staff support of Oregon Subbasin Planning continued at a much lower level throughout the quarter. The final Subbasin Planning Invoice Certification form was completed and submitted, officially completing our funded Subbasin Planning support.

The GIS Technician completed development of Travel Management Area maps for the Dairy Creek, Conroy, Fox Butte, Rager, Devine Ridge, Chesnimnus, Tualatin, Upper Tualatin, Murderer's Creek, Luckiamute, Eagle Creek, Upper Rogue, Starkey, Jackson, and Rickreall areas during the quarter. Many of the maps were sent to ODFW District Biologists for review, returned, and have been processed for printing. He also filled a request for hunting access maps for the Heppner, Coombs Canyon, Timbers, Pokagama, and Forsea Ranch areas.

Web use statistics for the various web sites maintained by or related to Oregon StreamNet are provided in Table 3.

Table 3. Page views recorded in the fourth quarter for the web pages maintained by or related to Oregon StreamNet.

	July	August	September	Total
Oregon Plan Metadata Warehouse	542	230	206	978
CSMEP Database Web Application	3,128	822	991	4,941
Oregon Fish Finder	6,191	5,759	3,844	15,794

Region   During this quarter StreamNet was contacted by Gavin F. Hanke, Curator of Vertebrate Zoology at the Royal British Columbia Museum in Victoria, British Columbia. He pointed out several errors on our existing "Species Database -- Freshwater Fish of the Pacific Northwest" web page in the Public Education section of StreamNet's web site. Several people over the past few years have pointed out other obvious errors, but we did not feel we had the required knowledge or reference materials to correct this page. Several recent authoritative publications, along with information supplied by Gavin Hanke, now allowed us to correct this page. The old version of this page can be seen at http://web.archive.org/web/20040221174131/www.streamnet.org/pub-ed/ff/Species/index.html. The updated page is available at http://www.streamnet.org/pub-ed/ff/Species/index.html -- the new page also lists the sources of information used to create the page.

WDFW   Dick O'Connor and Brian McTeague participated in the 2004 Annual Meeting of the Organization of Fish and Wildlife Information Managers. O'Connor gave a presentation on data collaboration in the making of WDFW's SalmonScape Web application, and McTeague hosted a poster session on SalmonScape at the "Hacker's Ball". Participation in the meeting was supported outside of the StreamNet contract.

Martin Hudson, Arleta Agun, O'Connor and McTeague collaborated in developing a model for deriving aboriginal (1880's) distribution of steelhead in Washington state, creating maps of such distribution, and providing assessment of the gains and losses in distribution from that time until the present. These materials have been incorporated into WDFW's Steelhead White Paper, the scientific foundation for the upcoming statewide Steelhead Management Plan.