StreamNet Project

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Fourth Quarter Progress Report

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Introduction

StreamNet is a cooperative, multi-agency data compilation and data management project authorized by the Northwest Power and Conservation Council's Fish and Wildlife Program (FWP), funded primarily by the Bonneville Power Administration. The project is administered by the Pacific States Marine Fisheries Commission (PSMFC). Three fourths of the project consists of sub-projects within the state fish and wildlife agencies, Columbia River Intertribal Fish Commission and the US Fish and Wildlife Service to acquire, georeference and standardize fish related data; develop databases within the respective agencies; facilitate data transfer regionally; and maintain a library of data references and fish and wildlife related reports and publications. The remaining fourth consists of the regional staff at PSMFC to manage the regional database, disseminate regionally standardized data, provide regional data services and administer the project. Information about the project, fish related data and past reports and other project documents are available at the project website at www.streamnet.org.

This report describes the work accomplished by the StreamNet Project during the fourth quarter of fiscal year 2005 (FY-05). The work reported is tied to the specific jobs contained in the FY-05 Statement of Work, which is available at http://www.streamnet.org/about-sn/project_management.html. Work priorities for FY-05 include updating existing long term data sets, conducting a thorough Quality Assessment review of data, managing 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. Not all project participants address every milestone every quarter, so only the milestones worked on this quarter are included in this report.

Activities in the Fourth Quarter of FY-05 included routine development, maintenance, updating and posting of various data sets; QA reviews of data; administration of the computer systems (hardware and software) necessary for project operations; data dissemination; coordination with related projects and regional entities; and operation of the StreamNet Library, in addition to routine administrative activities to continue project function. Key highlights of project activities are summarized below, with details provided under the individual Milestones.

Submit/Acquire Data

StreamNet's participating agencies continued acquisition, updating, georeferencing and standardization of standard data sets during the quarter. In addition, based on this year's objective of conducting a thorough quality review of all StreamNet data, significant time was spent in reviewing and correcting data sets. Highlights of activities included:

Work on the hydrography: Regional StreamNet (PSMFC) performed major work on the hydrography GIS layers that will be used into the future. IDFG made over 300 hydrography modifications, which will be incorporated into the Idaho and StreamNet hydrography layers in the near future. ODFW and WDFW participated in the multi-agency Hydro Framework/NHD effort. In addition, WDFW completed a mixed-scale hydrography layer for Washington state, which included much error correction of the GNIS (geographic names) database.

Idaho StreamNet (IDFG) completed compiling 2004 field season hatchery return and age composition data. Submission is waiting for completion of a QA/QC review of existing trend data and completion of migration to new hatchery return and age composition Data Exchange Formats (DEF). Significant progress was made developing distribution information for non-game species.

Montana StreamNet (MFWP) exchanged distribution, sightings, resident hatchery releases and all other data types with updated data to StreamNet. Data were sent for development of a draft Sightings DEF. The contacts to state agencies to receive 2004 data were completed and contacts to federal agencies continued this quarter. Dams and the hatchery facilities databases were also updated.

Oregon StreamNet (ODFW) progressed on most project deliverables slated for attention during the quarter. Most data submissions previously delayed by staff vacancies or database changes needed to accommodate the latest DEF were made this quarter. However, the hatchery release data submission continues to be held up while DEF issues are resolved. Updated and corrected hatchery return trends submissions are anticipated when the DEF is finalized. The focus on QA/QC of existing data continues to pay dividends. Existing data records are being corrected and/or made consistent across the years of data availability, and QA/QC protocol documents are being improved and refined as error-checking strategies are added or improved, and employed. All abundance trends, as well as information related to fish passage at various in-stream impediments in Oregon, are seeing improvement. Progress continued toward establishing an agreed upon approach to address 24K hydrography development and the generation of linear event data for the Basin's 24K scale fish distribution. Significant progress was made in developing distribution information for non-game species.

Washington StreamNet (WDFW) completed development of the mixed-scale hydrography layer for Washington state, including a complex system of linework and attribute management programs. Upon completion (September), three reference basins were sent to the StreamNet GIS Manager for review and comment. These basins provided examples of the Washington/Oregon Columbia River border, the Idaho/Washington border, and the Washington/Oregon border in NE Oregon. The Fish GIS Manager also began to transfer generalized fish distribution data for salmon, steelhead and bull trout to the new Washington mixed-scale hydrography layer, based on the new WDFW internal fish distribution data format.

A series of pending WDFW data exchanges all came together this quarter. 4,300 hatchery returns records were resubmitted in the new data exchange format, following a review of issues identified in last quarter's initial submission. This exchange included all historical data through the 2003 return year. In addition, 12,265 culvert records were submitted in the new barriers data exchange format. A preliminary conversion of the fishway and dam records to the new exchange format is underway. Finally, 4,847 data entries in the Age Table were reviewed and updated with new fields prior to submission in the newly-updated data exchange format.

FWS submitted the vast majority of Hatchery Return data for National Fish Hatcheries to the new Hatchery Returns DEF. "Historic" data not previously available through StreamNet was added. A program to convert data to the new Hatchery Returns DEF was partially completed. A change in the DEF part way through the current year was responsible for this work not being fully completed.

Create/Manage/Maintain Database

All project members performed ongoing systems administration (hardware and software maintenance and management), maintained various data management tools and interfaces, maintained data and database systems, and contributed to ongoing review and development of Data Exchange Formats (DEF). A few key highlights by the individual project members includes:

Regional StreamNet at PSMFC received a large number of data submissions from the project partners during the quarter. These data were validated through routine QA procedures and loaded into the regional database (see details on p. 30).

The Columbia River Inter-tribal Fish Commission StreamNet project (CRITFC) improved QA/QC procedures, which led to faster cataloging of material, improved accuracy of information, and improved security of the Library databases. In response to tightened budgets, they began converting the Library catalog to open-source software, thus eliminating software license costs.

IDFG completed initial user interface and database design for the new Spawning Ground Survey using .Net. A coordination effort with IDFG fishery biologists began fine-tuning the application. Work continued on redesign of the IDFG StreamNet database. This included creating a single master hydrography database and formatting to match the new hatchery returns and age composition DEFs. Existing StreamNet data were migrated into the new database, but still require a review and edits. Smolt trapping data from 1990 to 2004 were captured from existing spreadsheets and consolidated into a central database. Web-based reports were developed for querying and reviewing the data. Revisions are being made in coordination with IDFG fishery biologists before posting to the web.

The review of IDFG's redd count trends for Chinook, sockeye and steelhead was completed, and Idaho converted redd count records from whole-stream trends into reach-specific trends, thus providing more detailed information. Because of splitting whole stream trends into individual transect based trends, the number of IDFG redd count trends increased from 113 to 779. These included for the first time non-index trends. The new trends were cross-referenced with the old trends in order to facilitate migration of the redd count data.

MFWP sent sightings and hatchery release data to regional staff for use in developing the draft DEF.

ODFW expended a significant amount of time this quarter ensuring the data quality of existing StreamNet Trend information, and made major strides toward modernizing data management and dissemination capabilities through the use of SQL Server and ArcIMS software packages. A draft general purpose ODFW Internet Map Server (IMS) web site was developed and released for beta testing this quarter. ODFW also began designing an agency geo-database to store agency spatial data sets, as well as other common base data. Other work related to data and database management infrastructure improvements, including tool, website, and database development. Work on the corporate information system continued, with progress on a number of disparate Windows-based components being made.

The WDFW Fish GIS Manager overhauled the internal spatial data format for the files that feed StreamNet's generalized fish distribution data from WDFW. Separate events for the same species-run and location that were once stored on separate records (distribution, use types) are now assimilated into a single record based on a use hierarchy. This organization mirrors the approach used to support the WDFW ArcIMS application "SalmonScape" and will greatly ease data conversion to the StreamNet exchange format.

Disseminate Raw & Summary Data

Data dissemination via the StreamNet web page continued throughout the quarter. The Internet is the project's primary means of data dissemination, and StreamNet members continued website maintenance and management. In addition, all project partners responded to direct requests for data and information. Staff in the seven StreamNet agencies responded to 254 requests for information or assistance during the quarter. Roughly half of these requests were for library materials. Private consultants and state government employees made the most requests. Federal agencies, tribal agencies, and the general public also were significant users of StreamNet services. Of the 254 requests 228 were fully satisfied, 8 were only partially satisfied, for 12 we could only refer the user to other sources, and for 6 we could not help at all. Our inability to help stemmed from the questions posed being inappropriate for the kind of information in our project.

PSMFC expended significant effort on website look and feel improvements, easier navigation, and improved features. This was a significant overhaul, and these improvements will be available on the production StreamNet web site in the first quarter of FY-06. The large amount of new fish data added to the database during this quarter was made available to users via the online web query system, as downloadable ASCII tables and as Access databases. The Northwest Critical Habitat Mapper was revised to reflect the final rule published in August. The Southwest region Critical Habitat Mapper was taken off-line, with users now directed to our partner project, CalFish, to view the final rule designations for California.

IDFG filled 48 requests for data during the fourth quarter. There were 21 requests from private companies, 18 from state agencies, 6 from federal agencies, 1 from a non-governmental organization, and 2 from a university. The data types requested were: barriers-6, distribution/presence (species lists)- 27, GIS layers-9, harvest-1, redd counts-3, references-1, and general technical assistance-1.

MFWP filled 13 requests for map products or data from the Fisheries Division. There were no requests from the public. The FWP electronic fisheries library was enhanced by adding the Repository ID to collector's permits. High resolution color aerial photographs and a layer containing updated plat maps of the Flathead and Kootenai River watersheds (the main river corridors are top priority) were provided for use by a 3-way MOA (MFWP-BPA-CSKT [Confederated Salish and Kootenai Tribes]) for land acquisitions and conservation easements to protect critical fisheries habitat in the two watersheds for BPA mitigation staff in northwest Montana. The maps will be used to define criteria for parcel selection in order to identify 10 properties to review and rank based on the criteria.

ODFW performed routine maintenance of its web sites and responded to 26 direct information requests. A draft Work Request Form / GIS Dataset Development Request Appendix was developed to facilitate responding to spatial data-related requests.

WDFW responded to 18 major data requests directly during the fourth quarter, including 11 for GIS data and 7 for tabular data or general information. The most frequent data types this quarter were harvest, population numbers, and GIS data (standard maps, EDT stream reach priorities and generalized fish distribution layers). Details can be found in the WDFW Q4 StreamNet Data Requests database records (at PSMFC). In addition, fish and hydrography GIS layers built and maintained by StreamNet staff were used by WDFW's Priority Habitats and Species group to respond to over 350 data requests, involving 1,080 maps and 70 digital datasets.

Library Services

The StreamNet Library at CRITFC continued to provide responsive services for a large and growing user base. Library staff responded to 127 requests for direct services plus walk-in visitors and regular web service users. QA/QC procedures were improved, leading to faster cataloging of material, improved accuracy of information, and improved security of the Library databases. In response to tightened budgets, the library began converting the library catalog to open-source software, thus eliminating software license costs.

Organization of the ODFW Library and updates to the bibliography continued, with nearly 9,500 bibliography records in the database so far. Organization activities will not continue through the first quarter of FY-06 due to budget limitations.

Coordination

StreamNet members at all levels coordinated with and provided data services to a wide variety of entities in support of data management programs. StreamNet staff continued participation in regional efforts such as PNAMP, NED, CSMEP, creation of a standard regional GIS hydrography, and capture of information generated during subbasin planning.

PSMFC staff spent significant time in assisting other data development efforts in the region or in exploring potential collaborations. These included on-going participation in NED and PNAMP, reviews of a "protocol builder" being developed by BOR, testing of a new web site for PTAGIS, meeting with the PNW mussels work group to discuss data sharing and archive capabilities, and meeting with the PNW Water Quality Data Exchange to discuss real-time interaction between that system and StreamNet.

The CRITFC Project Leader was very active in support of related regional and NPCC program activities. Specifically, he served as an ex-officio member of the ISAB, served on the steering committees of the PNAMP and NED, and served as co-chair of the NED Subbasin Data Workgroup. In addition, the Librarian participated in the development of the NED white paper on marketing, education and outreach. She also worked with the NED web portal development team.

MFWP regional staff met with various USGS and state representatives concerning the future of regional hydro. Steve Carson provided input and follow-up discussion. Discussion on this topic is slated for the October 2005 Steering Committee meeting.

IDFG completed the CSMEP data inventories for the upper Salmon and Middle Fork Salmon basins.

ODFW continued support for the CSMEP effort, including participation in regularly scheduled meetings/calls, and routine maintenance and updating of the CSMEP web application. Currently there are 1,450 records in the CSMEP web application, 174 of which were added this quarter. Oregon StreamNet staff participated in the NED/PNAMP Data Management Meetings on August 3rd and September 7th. A great deal of collaboration and support took place this quarter with the Oregon Plan Monitoring Team, resulting in three data management-related funding proposals being submitted for consideration by the Monitoring Team. Contributions to Recovery Planning efforts were also significant this quarter based on a shift in agency priorities. Coordination continued with the ODFW Marine Resources Program (MRP) by maintaining and updating the online harvest status tracking system for the 2005 marine sport season. A lower level of support to the Oregon Plan Assessment continued via data compilation of Oregon Watershed Council datasets, data management, and database and web site development. Staff continued to support the Comprehensive Wildlife Conservation Strategy throughout the quarter, contributing GIS and analytical support to the successful completion of the draft

strategy. Staff members helped initiate the development of a GIS Coordination Group in ODFW to make progress in the area of agency collaboration in order to obtain the full value, understanding, and support of GIS at ODFW.

The WDFW StreamNet Project manager met with other WDFW and CRITFC staff in Vancouver on 8/9/2005 to discuss CRITFC involvement in a project to compile and store Washington EDT spatial data for the Columbia River Basin in a repository that would hold all Basin EDT data. In addition, the agency sent four representatives to a 9/15/2005 meeting between StreamNet participants and the Pacific Northwest Hydrography Framework Working Group to discuss issues with the coming NHD hydrography linework and format standards, including migration from the regional 100K-based layer to the higher-resolution (24K) NHD product. WDFW is committed to pursuing an approach that benefits StreamNet data exchange and dissemination.

Manage and Administer Projects

All project members performed routine administrative duties, including supervision, budget management, development of the FY-06 SOW and budget, completion of the Third Quarter Report, and program guidance through participation in the StreamNet Steering Committee. In addition, ODFW filled two long vacant positions.

Specific details of work accomplished by the StreamNet Project in the fourth quarter of fiscal year 2005 are presented below. Individual milestones that did not receive any work during the quarter have been skipped.

Work Element: 159   Submit/Acquire Data

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Work Element Title: 1   Develop anadromous fish distribution data

Document the occurrence, distribution and life history characteristics of anadromous fish species. Efforts will be made to utilize the current mixed scale hydrography for these data, with intent to migrate to 24K when a regionally consistent 24K routed hydrography becomes available. Maintenance of this high priority data set will continue. The state StreamNet sub-projects will maintain the existing data on anadromous fish distribution and habitat use in their respective states. New distribution information will be incorporated as they become available. Updated distribution data will be conveyed ("exchanged") to the regional StreamNet database at PSMFC, where they will be incorporated into the database.

	Milestone Title	Milestone	Accomplishments in the Fourth Quarter
2	ODFW development of anadromous fish distribution data, progress reported quarterly	ODFW, on an Ongoing and opportunistic basis, will update, maintain, correct and exchange anadromous fish distribution and documentation information with the regional StreamNet database in the DEF tied to the current hydgrography scale.	Routine maintenance was performed on Oregon's anadromous fish distribution and documentation information during the quarter. The Data Technician converted lamprey observation location data from degrees-minutes-seconds to decimal degrees, and unrolled native non-game fish observations into individual species-specific data records, creating new lamprey observation records from previously un-usable records. This work will also facilitate compilation of native non-game fish information being planned for FY-2006. Efforts were made to jump start the cross state distribution reconciliation pilot started during the third quarter with Washington StreamNet staff, but it looks like this process will not restart before early October.
3	WDFW development of anadromous fish distribution data, progress reported quarterly	WDFW, on an Ongoing and opportunistic basis, will update, maintain, correct and exchange anadromous fish distribution and documentation information with the regional StreamNet database in the DEF tied to the current hydgrography scale.	The Fish GIS Manager began to transfer generalized fish distribution data for salmon, steelhead and bull trout to the new Washington mixed-scale hydrography layer, based on the new WDFW internal fish distribution data format. A test basin of new hydrography and fish distribution data will be submitted to the StreamNet GIS Manager in late October for review and approval.

Work Element Title: 2   Develop resident fish distribution data (top priority for MFWP, lower priority for others)

Document the occurrence, distribution and life history characteristics of resident fish species, at the most current available hydrography scale. Existing resident fish distribution will be maintained, and project participants will begin expanding data for additional species. This is high priority for Montana, and new data will be developed by the other states as time allows. Updated distribution data will be exchanged to the regional StreamNet database at PSMFC, where they will be incorporated into the database.

	Milestone Title	Milestone	Accomplishments in the Fourth Quarter
2	MFWP first exchange of resident fish distribution data, first quarter	MFWP will complete Distribution and Use Types data sets from data collected from biologists, documents and reports during 2002-2003 using LLID stream routes and Montana's lakes coverage and water code system and exchange them in the DEF with regional StreamNet. They will complete distribution and use type data sets for 2003-2004 and update the entire state. The focus will be on target species during the year if opportunity arises. Exchange the data to the regional database in the approved DEF format. Two exchanges are planned, with the first due 12/01/04.	A decision was made earlier in the year to exchange these data only one time during the year. These data were exchanged to the regional StreamNet database this quarter.
3	MFWP second exchange of resident fish distribution data, fourth quarter	MFWP will complete Distribution and Use Types data sets from data collected from biologists, documents and reports during 2002-2003 using LLID stream routes and Montana's lakes coverage and water code system and exchange them in the DEF with regional StreamNet. They will complete distribution and use type data sets for 2003-2004 and update the entire state. The focus will be on target species during the year if opportunity arises. Exchange the data to the regional database in the approved DEF format. Second exchange is due 9/01/05.	These data were exchanged to the regional StreamNet database this quarter.
4	MFWP collect 2003-4 resident fish distribution data from biologists, progress reported quarterly	MFWP will visit MFWP and other state and federal fisheries biologists to collect 2003-2004 resident fish distribution data and supporting survey data and references and enter them into MFISH .	The contacts to state agencies are complete. Contacts to federal agencies continued in this quarter.

5	MFWP develop fish distribution field collection survey standards, progress reported quarterly	MFWP, in an ongoing effort, will work with FWP Fisheries Division to assist in the development of fisheries field collection survey standards.	No action was taken this quarter; we are waiting for review of the survey from the Fisheries Division staff.
6	MFWP review habitat fields to identify core data sets, progress reported quarterly	MFWP, on an exploratory, ongoing basis, will review commonly used habitat fields collected on streams by agency biologists to see if there is a core set related to fish distribution data.	No action this quarter.
7	ODFW development of resident fish distribution and documentation information, report quarterly	ODFW, on an ongoing basis as time and funding permits, will update, maintain, correct and exchange resident fish distribution and documentation information in the DEF tied to the current hydrography scale..	Routine maintenance was performed on Oregon's resident fish distribution and documentation information during the quarter. The GIS Analyst incorporated draft Redband distribution data into the Distribution database and synchronized it with the Master copy. The Data Technician converted resident native non-game observation location data from degrees-minutes-seconds to decimal degrees, and unrolled existing native non-game observations into individual species-specific data records, creating new, previously un-usable observation records. This work will also facilitate compilation of native non-game fish information being planned for FY-2006.
10	WDFW exchange of resident bull trout distribution data, progress reported quarterly	WDFW will incorporate any Washington bull trout distribution data updates resulting from the regional 5-year bull trout status review into internal files by 11/30/04 and will exchange to regional StreamNet by 3/31/05.	Last quarter, ODFW and WDFW's effort to resolve cross-border distribution conflicts stalled until WDFW could investigate the proof behind their existing distribution descriptions in the Walla Walla basin. The Location Data Manager started linking existing bull trout distribution data with the relevant supporting data. When the linking is complete ODFW and WDFW will continue their discussions (likely in the first quarter of FY-06). Follow-up to resolve purported bull trout spawning activity in certain areas continued, related to the five-year status review. Updates are being posted to the WDFW internal layer, which will be transferred to the new Washington mixed-scale hydrography layer starting in October, and the new layer will be subsequently submitted to regional StreamNet to replace the existing Washington bull trout data.

Work Element Title: 3   Develop data for 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. Updated data will be exchanged with the regional StreamNet database at PSMFC at least once per year.

Milestone Title		Milestone	Accomplishments in the Fourth Quarter
2	CRITFC update adult abundance (spawning survey) data, progress reported quarterly	CRITFC will update available tribal spawning ground survey data and exchange them with regional StreamNet.	No additional work was performed this quarter.
3	IDFG develop adult abundance (redd count) data, progress reported Quarterly	IDFG will compile the 2004 field season spawner survey data from IDFG and submit them in the DEF to regional StreamNet.	Work began to compile the 2005 field season IDFG redd count data.
5	MFWP obtain adult abundance (fish survey) data, progress reported quarterly	MFWP will obtain all 2004 stream and lake fish survey data during scheduled field office visits; data may be one time visits, index streams and/or results from gill nets in lakes and reservoirs. Data will be provided to regional StreamNet in the DEF if it is developed or as independent data sets if not.	This task was completed this quarter.
6	MFWP exchange adult abundance in the wild data, progress reported quarterly	MFWP will input 2003 adult abundance data into MFISH, including trend, count and references, and exchange them with regional StreamNet in the DEF, if it is developed or as an independent data set if not.	Data were provided to regional staff as an independent data set. Data were sent to the Regional Fish Biologist for the development of a draft Sightings DEF.
7	ODFW development of adult abundance in the wild data, progress reported quarterly	ODFW will maintain existing anadromous, resident, and non-game abundance and index trends. Any updates will be the result of QA/QC efforts and easily incorporated trend data, and will be provided in two exchanges, the first by April 4, 2005.	Routine maintenance was performed on Oregon's abundance and index trend information during the quarter, including requesting information from data providers in order to perform trend corrections, and to update StreamNet trends.

A trend submission was made to StreamNet on July 19th. The submission consisted of 672 updated trends (containing 2,696 data records), including 232 new trends. As a result of our comprehensive QA/QC efforts, 808 EscData records and 32 EscData Comments were tagged for deletion, as they were replaced with corrected information. The majority of these corrections were associated with beginning and/or ending dates, not the counts themselves. The 672 trends were broken out into the following data types: Adult Return Dam/Weir counts (26), Adult Return-Estimates of Spawning Population (57), Adult Return-Redd counts (178), Adult Return-Peak/Other Spawning Counts (409), and Harvest-Freshwater/Estuary (2).

| 8 | ODFW development of adult abundance in the wild data, second exchange, reported quarterly | ODFW will maintain existing anadromous, resident, and non-game abundance and index trends. Any updates will be the result of QA/QC efforts and easily incorporated trend data, and will be provided in two exchanges, the second by 9/15/05. | Routine maintenance was performed on Oregon's abundance and index trend information during the quarter, including requesting information from data providers in order to perform trend corrections, and to update StreamNet trends.

Trends were updated based on Steering Committee direction, and necessary corrections that came to light during the July data submission were made. The updated and corrected data were submitted to the Region in early August. The submission included 19 trends (containing 66 data records), broken out into the following data types: Adult Return-Estimates of Spawning Population (1), Adult Return-Redd counts (8), Adult Return-Peak/Other Spawning Counts (10). Work was also started on a stack of corrections for trends that are no longer updated. |
| 9 | WDFW development of adult abundance in the wild data, progress reported quarterly | WDFW will update and enhance the existing natural spawner database (escapement estimates and/or detailed counts) for available species, and will exchange the data in the DEF. | To finalize some old lingering responsibilities, the Location Data Manager prepared existing steelhead Trend and EscData table records per the current DEF. The current DEF expects both CountValue and Count/Mile data to be reflected on the same record instead of on separate records and trends. This effort revealed some interesting complexities about data used in two source publications. The data will be submitted after she confirms any other records from the same publications.

The WDFW Project Manager requested and reviewed Washington EscData on file at the regional StreamNet office to verify eastern Washington datasets that have already been provided by the Yakama Nation through CRITFC, to assist in work planning for eastern Washington next fiscal year. |

There were 30 records added to the Escapement data set in the fourth quarter. We double checked all 2004 data entered into the Escapement data set and changed the table format to meet DEF requirements before sending the data set to be exchanged. We also received feedback as to what changes needed to make for next Escapement data set exchange. The Stream Survey data set is continually being populated with historic and current data to meet the needs of both StreamNet and Washington Department of Fish and Wildlife. There were 1,618 records added in the fourth quarter to the Stream Survey data set. A couple of issues occurred with the Stream Survey data set that are currently being resolved.

Work Element: 159   Submit/Acquire Data

Work Element Title: 4 Develop hatchery release data

The hatchery release data category is currently undergoing revision by the StreamNet project. Release data have in the past been obtained from the Regional Mark Information System (RMIS). However, a significant number of release records in RMIS is aggregated into Pacific Salmon Commission codes, which combine ("roll up") multiple locations and release dates so the data can not be assigned a specific release location. StreamNet is in the process of obtaining hatchery release information based on individual release locations and times. During this year, we will initiate a new system of obtaining release data directly from the management agencies and make them available regionally as soon as possible, although some individual release locations may not be available this year. 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

Milestone Title	Milestone	Accomplishments in the Fourth Quarter
1 FWS development of hatchery release data, progress reported quarterly	FWS, on an ongoing basis, will acquire and process hatchery release information from national fish hatcheries in the region, update the CRiS SR80s file, and exchange the data in DEF with regional StreamNet.	The Project Leader performed the final processing of 2005 fish release information, moving it into the format for RMIS submission. That information was uploaded to RMIS at the end of September.
2 IDFG development of hatchery release data, progress reported quarterly	IDFG, on an ongoing basis, will work with IDFG Fisheries staff to identify hatchery release locations and incorporate hatchery release data into StreamNet. Hatchery release locations and data will be exchanged to regional StreamNet.	IDFG StreamNet met with IDFG Fisheries personnel to begin development of a common hatchery data management system.
3 MFWP development of hatchery release data, progress reported quarterly	MFWP will exchange Montana's hatchery release data after development of a resident DEF and/or modifications to the existing anadromous hatchery release DEF. The number of years and number of waters included will need to be determined.	Data were provided to regional staff as an independent data set for the last 10 years. Regional staff are looking at these data as they consider a resident fish hatchery release DEF.

4	ODFW development of hatchery release data, progress reported quarterly	ODFW will compile and submit anadromous hatchery releases through 2003, and 2004 where available, in an unrolled format if possible.	Data compilation and submission was delayed by work on the new DEF. Work on the DEF will continue, with the hope of submitting data during the first quarter of FY-06.

Work Element: 159   Submit/Acquire Data

Work Element Title: 5   Develop hatchery return data

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 2003. Development of disposition data is lower priority and would require additional resources. Updated data will be exchanged with the regional StreamNet database at PSMFC at least annually. This is a high priority data set.

Milestone Title	Milestone	Accomplishments in the Fourth Quarter
1 FWS development (conversion) of hatchery return data, progress reported quarterly	FWS will complete work on the new program to convert information from the FWS CRiS format to the new StreamNet hatchery returns format. Deliverable will be a dBASE program to convert to the new data structure.	Because of an emphasis on updating information that had already been transformed to the new DEF, code producing records for the HatchRetDetail table was not completed this fiscal year. This item will be completed in FY-06.
2 IDFG development of hatchery return data, progress reported quarterly	IDFG will compile the 2004 field season hatchery return data from IDFG and submit in DEF to regional StreamNet.	IDFG StreamNet compiled 2004 hatchery return data. Submittal is waiting for completion of a quality review of trends.
3 ODFW development of hatchery return data, progress reported quarterly	ODFW will compile data on returns to ODFW hatchery facilities (updated through 2003 returns where possible) and exchange in DEF to regional StreamNet.	Compilation of Oregon hatchery return data was completed this quarter, and data were submitted in the new format to the Region on July 19th, amounting to 154 hatchery return trends containing 1,481 annual data records. Oregon hatchery return data are now current through 2004.
4 WDFW development of hatchery return (old) data, first quarter	WDFW will complete the conversion of old DEF hatchery returns data to the new DEF for all species and sites, and exchange to regional StreamNet when complete.	A total of 4,300 records were resubmitted in the new data exchange format, following a review of issues identified in last quarter's initial submission. This exchange included all historical data through the 2003 return year. However, some trends were withheld due to accounting problems that will be resolved later. Washington Department of Fish and Wildlife hatchery return data requires ongoing review and correction due to a past lack of adequate internal QA/QC practices.

Work Element Title: 6   Develop dam and fish passage facility data (mid-priority)

Data on dam and fish passage facilities will be maintained and updated as necessary and possible by each of the state StreamNet sub-projects. Updated data will be exchanged with the regional StreamNet database at PSMFC. This is a key data set, but mid priority for update under base level funding.

Milestone Title	Milestone	Accomplishments in the Fourth Quarter
2 MFWP development of dam and fish passage facility data, progress reported quarterly	MFWP will update dam facilities data, in the DEF, as necessary or possible.	The database was updated in the 4th quarter.
3 ODFW development of dam and fish passage facility data, progress reported quarterly	ODFW, on an ongoing basis, will maintain existing dam and fish passage facilities information. Any updates will be the result of QA/QC efforts and easily incorporated dam and fish passage data.	Routine maintenance was performed on Oregon's existing dam and fish passage facilities information during the quarter. Effort this year is focused on improving the quality of existing information rather than updating or adding to the existing data. For details on this quarter's QA/QC efforts, see Work Element 160, Title 3; Milestones 5 and 6.

Work Element Title: 7   Develop hatchery facility data (key dataset, update once per year)

Develop and maintain information on anadromous and resident hatchery facilities, including information on location, design, management and authorization. Information will be updated as necessary and exchanged to the regional database at PSMFC. This is a high priority data set.

Milestone Title	Milestone	Accomplishments in the Fourth Quarter
1 FWS development of hatchery facility data, progress reported quarterly	FWS will collect and add any revised information on National Fish Hatcheries to the CRiS sr80s file.	Personnel changes are imminent at several hatcheries, and will be reflected in next year's data submission.
3 MFWP development of hatchery facility data, progress reported quarterly	MFWP will update the StreamNet hatchery database with Montana's public and private facilities.	The database was updated in the 4th quarter.
4 ODFW development of hatchery facility data, progress reported quarterly	ODFW, on an ongoing basis, will maintain and update hatchery facility information, as needed, based on errors found in the Oregon hatchery facilities information, including facility location information.	Routine database maintenance was performed this quarter.

| 5 | WDFW development of hatchery facility data, progress reported quarterly | WDFW will update the hatchery database, adding records and improving field entries as warranted, including record updates for related tables (i.e. HatcheryXProduction data), and will exchange data. | A few new Hatchery table records were submitted to support the hatchery return data submission. During that effort, we unexpectedly found a source to populate the Hatchery table's AuthorizationID data and plan to submit it when the pending Hatchery DEF proposal is adopted. |

Work Element: 159   Submit/Acquire Data

Work Element Title: 8   Develop harvest data

StreamNet has traditionally posted harvest data from in-river sport fisheries. This will continue in FY-06, but we will also explore the availability of ocean / commercial harvest data as estimated by others and determine whether these data can be realistically obtained and standardized for regional distribution. Higher priority is assigned to anadromous species. Updated data will be exchanged to the regional StreamNet database at PSMFC.

	Milestone Title	Milestone	Accomplishments in the Fourth Quarter
1	CRITFC development of harvest data, progress reported quarterly	CRITFC will update available ocean and mainstem Columbia River harvest numbers through 2004, as possible (dependent on other agencies), and exchange with regional StreamNet.	Harvest data maintained on other web sites were identified and links were provided for listing on the StreamNet website.
2	IDFG development of harvest data, progress reported quarterly	IDFG will compile and exchange the 1997- 2004 freshwater harvest data from IDFG.	IDFG StreamNet obtained Idaho harvest data, but progress has been stalled because of work on quality review of redd count trends.
4	ODFW status review of harvest data, second phase, reported quarterly	ODFW will maintain existing harvest trends. Any updates will be the result of QA/QC efforts, and easily incorporated trend data. Any updated sport harvest trends will be exchanged in two phases, the second by 09/15/05.	Routine maintenance was performed on Oregon's existing harvest information during the quarter. Effort this year was focused on improving the quality of existing information rather than updating or adding to the existing data. For details on this quarter's QA/QC efforts, see WE 160; WE Title No 3; MS No 5. Corrected harvest trends were submitted during the quarter. For details on the harvest data submission, see WE 159; WE Title No 3; MS No 8.

Work Element Title: 9   Develop hydrography data

Maintain the regionally consistent routed hydrography layer at the 1:100,000 (100K) scale for which StreamNet is the official keeper. This LLID based hydrography has been the basis for georeferencing and displaying locations for all other data in the StreamNet database, and as such is an essential data set. In FY-06 we will continue to maintain these data, but emphasis will shift to development and use of a mixed scale hydrography (100K plus 24K streams that have attached fish data) as an intermediate step toward the eventual conversion to 24K when a regionally consistent routed 24K hydrography becomes available from other entities

	Milestone Title	Milestone	Accomplishments in the Fourth Quarter
1	IDFG maintenance of hydrography for Idaho, progress reported Quarterly	IDFG, on an ongoing basis, will maintain and update, as necessary, the 1:100,000 scale hydrography files for Idaho.	IDFG StreamNet made over 300 modifications to the PNW hydrography. The changes will be submitted as soon as IDFG incorporates them internally.
2	MFWP maintenance of hydrography for Montana, progress reported quarterly	MFWP, on an as needed basis, will continue to update the routes using the updated NHD layer, including lakes; quality check the cross-reference between the LLID system and MFWP's water code system, and will pursue any needs developed by the Steering Committee for a 1:24 K product.	No action was taken this quarter. NRIS will convene a MT hydro meeting in the next quarter.
3	ODFW maintenance of hydrography development for Oregon, progress reported quarterly	ODFW, on an ongoing basis, will maintain and update, as necessary, the 1:100,000 scale hydrography files for Oregon.	Routine maintenance was performed on Oregon's 1:100,000 scale hydrography information during the quarter. The GIS Analyst followed up on stream route issues related to Oregon's trend data submission this quarter, and suggested updates/changes to the StreamNet hydrography data.
4	ODFW development of hydrography for Oregon, progress reported quarterly	ODFW, on an ongoing basis, will assist regional staff with the development of a hybrid 100k and 24k hydrography layer that will enable display of all distribution data in a linear format.	The GIS Analyst focused significant attention on Framework/ NHD hydrography data development, including participating in StreamNet Steering Committee discussions related to the inevitable conversion to the NHD model and the quickening pace at which the Framework hydrography data from WA and OR will be converted to this model, and sharing ideas about the challenges and trade-offs of potentially adopting the NHD hydrography data model to serve as the regional streams data template. He also worked with Regional StreamNet staff to summarize StreamNet's objectives and requirements related to a regional hydrography dataset in preparation for the joint Framework /StreamNet hydrography meeting held in mid-September. He attended the meeting, where Rick Jordan from the Forest Service demonstrated their efforts at building the Framework data into the NHD model. Next steps include demonstration of the tools for creating, editing and maintaining event data on the NHD route system and working toward a decision point on the regional hydrography product for StreamNet.

5	WDFW development of hydrography for Washington, first quarter	WDFW will build and submit a "hybrid" layer containing 24K representation of all 100K Washington streams plus only 24K streams containing StreamNet data.	The Fish GIS Manager completed development of the mixed-scale hydrography layer for Washington state, including a complex system of linework and attribute management programs. Late in the development, an intense, statewide review of stream names was undertaken when errors (omission, spelling) were found in the Geographic Names Information System (GNIS) database which had been the basis for the stream names in our GIS layer. USGS maps were used to verify GNIS-supplied names. Upon completion (September), three reference basins were sent to the StreamNet GIS Manager for review and comment. These basins provided examples of the Washington/Oregon Columbia River border, the Idaho/Washington border, and the Washington/Oregon border in NE Oregon.

Our first pass to add the Washington Stream Catalog codes to the hydrography as an attribute at the arc level is almost complete for the Non-Columbia river streams. The Location Data Manager created routines to verify any attribute assignments that were missed and a plan to tackle the omissions. She also tested one Columbia River drainage to assess the feasibility of making this a statewide effort. The Columbia River will require a different process but it is feasible. Stream Catalog codes are used to a lesser extent for sampling location identification in eastern Washington. |

Work Element: 159   Submit/Acquire Data

Work Element Title: 10 Develop data to track habitat restoration / improvement projects

Preliminary work has been completed on developing data related to habitat restoration and improvement projects, but regional priority has not been assigned to StreamNet for developing these data. Even though we have developed an improved DEF for these data, this now is a low priority data type under current base funding. We are ready should a higher priority be assigned by regional entities. We believe that there is not yet a comprehensive compilation of all of this kind of data in the region, and we suggest that a project be tasked with obtaining this information from the many sources of such data, including OWEB, WSRFB, US Forest Service, BLM, tribes, and the PCSRF database, updating it annually, and providing it in a regionally standardized format.

Milestone Title	Milestone	Accomplishments in the Fourth Quarter
1	CRITFC development of habitat projects tracking data, progress reported quarterly	CRITFC will provide tribal PCSRF project information.	Projects approved through 2004 are available in a shapefile and associated databases. The project approval process for 2005 began during the fourth quarter and will continue into the first quarter of FY-06. These projects will be added to the database in the next fiscal year.

2	MFWP development and exchange of habitat projects tracking data, first data exchange second quarter	MFWP will continue to collect, centralize and maintain all stream restoration projects data for Montana using the "Future Fisheries Interface" and exchange the data to regional StreamNet in two exchanges, the first by 03/31/05.	Data editing is ongoing. The data exchange originally planned for the second quarter was actually performed in this quarter.
3	MFWP development and exchange of habitat projects tracking data, first data exchange fourth quarter	MFWP will continue to collect, centralize and maintain all stream restoration projects data for Montana using the "Future Fisheries Interface" and exchange the data to regional StreamNet in two exchanges, the second by 09/30/05.	Work continued on this ongoing task. Data were exchanged in this quarter.
4	MFWP participation with habitat projects tracking data, progress reported quarterly	MFWP, on an ongoing basis if the opportunity arises, will participate in any regional activities related to restoration projects.	No opportunities to capture project information occurred this quarter.
6	WDFW development of habitat projects tracking data, progress reported quarterly	WDFW will complete conversion and exchange of Washington habitat restoration project information extracted from IAC's PRISM system and 2000-2002 NWIFC PCSRF data, but only if a final DEF exists for this data category. They will also scope out additional content from WDFW's LIP initiative and other sources as time permits. Exchange of data to regional StreamNet will occur 60 days after a 24K hydrography layer is available (WE 159, Title 9, Milestone 5).	The Olympia data compiler began compiling and exchanging habitat restoration project data, in late September. A work plan was drafted to orient the compiler to the LIP, PRISM, and PCSRF sources for these data in Washington state, and copies of relevant past work were provided for his study.

Work Element: 159   Submit/Acquire Data

Work Element Title: 11 Develop fish barrier data

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 and exchanged with the regional database at PSMFC. Other sources of barrier data will be explored. Work on juvenile barriers and culverts will 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

Milestone Title		Milestone	Accomplishments in the Fourth Quarter
2	MFWP development of fish barrier data, progress reported quarterly	MFWP will maintain barrier location, species affected and other fields on stream barriers in Montana. Information will be collected on all species regardless of life history. Data will be exchanged to regional StreamNet.	These data were updated in the 4th quarter.

3	ODFW status review of fish barrier data development	ODFW, on an ongoing basis, will update and maintain Oregon's Barrier data and minimal Fish Barrier data development based on new barrier information, including information from non-ODFW sources.	New .pdf barrier maps were created with embedded fonts so that users without GIS related fonts would not experience difficulties interpreting the map symbols. Previous versions of these maps were replaced on the ftp site and several users were informed of the update.
5	WDFW development of fish barrier data, progress reported quarterly	WDFW will scope existing Washington state barriers datasets for a pilot data submission this FY. Data sources will at least include the Salmon and Steelhead Habitat Inventory and Assessment Project (SHIAP) and TAPPS (now renamed as the Fish Passage and Diversion Screening Inventory - FPDSI) databases. Barriers data will be exchanged.	The Olympia data compiler reviewed and evaluated LLIDs in conjunction with the QA/QC process with the Location Data Manager. WDFW barrier locations that did not snap to LLIDs in the QC routines were individually reviewed for the Columbia Basin and all other areas. The research of best strategies to tie barrier data with LLIDs is still on-going and we are still in process of cross-referencing fishway data.

A final selection of 12,265 culvert records for submission to the Regional StreamNet database was made. These records were converted to the new exchange format. The revised format for the WDFW Fish Passage and Diversion Screening Inventory database is still under review by the Information Technology Services division (ITS) and awaits final approval. Part of this process is a QA/QC of the current database records. Because existing errors will be corrected in this process, the conversion and submission of other WDFW barrier records will commence after ITS final approval. A preliminary conversion of the fishway and dam records to the new exchange format is underway.

We completed data exchange format transfer documentation for the Washington culvert barriers dataset and internal conversion process documentation for other barriers data.

The Olympia Data Compiler identified and documented missing or questionable data in the WDFW hydrography layer for further evaluation by the GIS Manager. He also continued cooperation with WDFW Fish Passage and Diversion Screening Inventory personnel regarding barrier conversion issues and worked with them on defining a format for including natural barriers in their barriers database. This data set is being developed in close conjunction with WDFW StreamNet staff |

Work Element Title: 12 Develop juvenile fish data

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.

Milestone Title	Milestone	Accomplishments in the Fourth Quarter
1 CRITFC development of juvenile fish data, progress reported quarterly	CRITFC will provide tribal juvenile abundance and/or outmigration data as time and availability allow.	Juvenile data were provided in the third quarter. No additional work was done this quarter.
2 ODFW maintenance of juvenile fish data, progress reported quarterly	ODFW, on an ongoing basis, will maintain existing juvenile data records. Any updates will be the result of QA/QC efforts and easily incorporated trend data.	Routine maintenance was performed on Oregon's existing juvenile abundance information during the quarter. Effort this year is focused on improving the quality of existing information rather than updating or adding to the existing data. For details on this quarter's QA/QC efforts, see Work Element 160, Title 3, Milestones 5 and 6.
3 WDFW maintenance of juvenile fish data, progress reported quarterly	WDFW will continue maintaining and updating smolt trap databases on all traps in Region 5 (lower Columbia River).	The Vancouver Data Compiler provided data assistance to a technician who was writing the preliminary 2005 report and building tables for local biologists. She also provided 2004 tables of data to Olympia based biological staff members. These reports are used in order to gain funding to continually operate these traps.

Work Element Title: 13 Develop fish age data

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.

Milestone Title	Milestone	Accomplishments in the Fourth Quarter
1 CRITFC development of fish age data, progress reported quarterly	CRITFC will exchange CRITFC age data on sockeye populations and Bonneville Dam sampling.	Data were updated in a previous quarter. No additional work was done this quarter.
2 FWS development of fish age data, progress reported quarterly	FWS will finish work on the new program to transform age information from the CRiS format to the new StreamNet format.	Minor changes in the data transformation program were made, and the resultant Age data conforms to an extent that permits loading by StreamNet.

3	IDFG development of fish age data, first two Quarters	IDFG will compile and submit the 2004 field season age data from IDFG.	IDFG StreamNet compiled 2004 age composition data. Submittal is waiting for completion of a quality review of trends.
4	ODFW maintenance of fish age data, progress reported quarterly	ODFW, on an ongoing basis, will maintain existing age data trends. Any updates will be the result of QA/QC efforts and easily incorporated trend data.	Age data were compiled and evaluated in the most recent draft version of the StreamNet DEF, which includes a new Age Data table. There were issues that came up while using the new Age Data table and we worked with Regional StreamNet staff to resolve them.
5	WDFW development of fish age data, first phase in first quarter	WDFW will update and exchange age data records gleaned from hatchery returns and adult abundance exchanged data. Data will be exchanged twice, with the first exchange by 11/30/04.	The Data Manager created a new Age Table based on the new Data Exchange Format. He reviewed all 4,847 data entries in the Age Table, updating those entries to accommodate new fields recently created for that table. He submitted the Age data set to PSMFC for exchange, and awaits confirmation and initial review of this submission from the StreamNet Regional Data Manager.

Work Element: 159   Submit/Acquire Data

Work Element Title: 14 Develop production factor and run reconstruction data

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.

Milestone Title	Milestone	Accomplishments in the Fourth Quarter

No work was done on this title during the quarter.

Work Element: 159   Submit/Acquire Data

Work Element Title: 15 Develop diversion screening data

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 has been a low priority data set under current base level funding, although NPCC has recently expressed interest in these data..

Milestone Title	Milestone	Accomplishments in the Fourth Quarter
1	MFWP development of diversion screening data, progress reported quarterly	MFWP, if data are available, will collect diversion screening data from the MFWP Habitat Bureau collected as a result of FRIMA activities in Montana and exchange them.	Existing records were maintained. No new records were added.

Work Element Title: 16 Develop 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. Development of other data by StreamNet is a low priority under current base funding.

Milestone Title		Milestone	Accomplishments in the Fourth Quarter
5	MFWP development of other data sets, progress reported quarterly	MFWP will provide updated genetic results information on Montana's species of concern by 08/01/05. They will also explore providing data on Whirling Disease results, fishing pressure data on Montana's lakes and streams, and other data sets if appropriate.	Data entry continued during the quarter.
7	ODFW development of other data sets, progress reported quarterly	ODFW, as requested or available, 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 (opportunistically, and as time allows).	Oregon StreamNet's Data Technician worked on getting existing independent native non-game fish distribution information into one database, in preparation for future inclusion into StreamNet. The Data Analyst reviewed Fishery Management and Evaluation Plan documents from NOAA to identify independent data set opportunities.
9	ODFW development of other data sets, progress reported quarterly	WDFW, on an opportunistic basis, will 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.	WDFW compiled and submitted 2004 data tables and the final report from the Joint Stock Assessment Project for resident fish above Chief Joseph Dam for posting as a StreamNet Independent dataset.

Work Element Title: 17 Archive and deliver Independent Data Sets

On an opportunistic basis, encourage other entities to submit their data, in native format, to StreamNet for posting on the Independent Data Sets page. This relates primarily to data relevant to StreamNet objectives that would be developed by other agencies or projects, but could also include data developed by StreamNet cooperators outside of the DEF. Actual acquisition, standardization, georeferencing and distribution of these data would be dependent on available time and funding, so these data will be posted in native format. The Region will be responsible for receiving and posting Independent Data Sets.

Milestone Title		Milestone	Accomplishments in the Fourth Quarter
1	PSMFC development of independent data sets archiving and delivery, progress reported quarterly	The Region, on an ongoing and opportunistic basis, will coordinate with BPA and BPA contractors, StreamNet cooperators, and others to capture data sets, reports, and other electronic materials for inclusion on the StreamNet Independent Data Sets (IDS) Internet page and post these items as IDS.	We received and posted data sets and reports for 2003 and 2004 for WDFW's "Resident Fish Stock Status Above Chief Joseph and Grand Coulee Dams" project. When a data set is sent for inclusion on the IDS web page, we must enter the information provided into a database to make it available.

Until now we had been doing this by hand, taking substantial time. This quarter a program was written to allow a simple drag and drop operation to add the data set into the database, greatly speeding addition of data sets once obtained.

| 2 | PSMFC develop of independent data set links archiving, progress reported quarterly | The Region will review the StreamNet Links web pages to identify Internet sites that provide on-line data and add those sites to the Independent Data Sets (IDS) page. | The Independent Data Sets page can deliver not only data sets archived by StreamNet, but can also act as a search tool for data sets on other web sites. This quarter PSMFC staff reviewed the StreamNet Links pages to locate data sets of interest that could be linked to from the Independent Data Sets page. Eighteen on-line data sources were identified on the StreamNet links pages. Of these, six were not included on the IDS page because they were judged to be of inadequate value, were too complex for Regional StreamNet staff to characterize, or had ill-functioning web sites. The remaining 12 now have metadata and a link on the StreamNet IDS page so that they may be found by users. As part of this exercise an application was written to automate data transfer from the metadata creation tool to the database, thus saving substantial time for future independent data set submissions. |
| 3 | PSMFC develop input tool to independent data sets archive, progress reported quarterly | The Region, on an ongoing, opportunistic basis, will solicit feedback on the use of the Independent Data Sets submission tool, make changes to the tool and the IDS web page as appropriate, and assist users with the IDS page and the IDS submission tool. | The IDS submission tool was maintained in a functional condition. |

Work Element: 160 Create/Manage/Maintain Database

Work Element: 160   Create/Manage/Maintain Database
Work Element Title: 1   System administration

All StreamNet cooperators will 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. This is a high priority work element that is essential to proper functioning of the project.

Milestone Title	Milestone	Accomplishments in the Fourth Quarter
1	CRITFC computer system administration, progress reported quarterly	CRITFC, on an ongoing basis, will manage, maintain and enhance the computer systems (hardware and software) necessary for supporting the StreamNet Library, including system administration, backup and recovery, hardware and software upgrades, and security.	Backup capacity was added to the Library server and a backup was provided to Regional staff. These backups will occur at regular intervals on an ongoing basis.

The Librarian evaluated available open-source cataloging systems to replace the commercial software presently used. She recommended evaluation of the Koha program for possible use by the Library. The Database Programmer set up a test bed for evaluating the Koha system. |

2	IDFG computer system administration, progress reported quarterly	IDFG, on an ongoing basis, will manage, maintain and enhance the computer systems (hardware and software) necessary for supporting tabular and GIS data systems, including system administration, backup and recovery, hardware and software upgrades, and security.	Work to install and configure new hardware continued on a low priority basis in order to make progress on StreamNet programming and database management needs.
3	MFWP computer system administration, progress reported quarterly	MFWP, on an ongoing basis, will manage, maintain and enhance the computer systems (hardware and software) necessary for supporting tabular and GIS data systems, including system administration, backup and recovery, hardware and software upgrades, and security.	All necessary backups were completed. FWP staff at the Montana State Library are now part of the FWP network rather than the Library. The transition was smooth.
4	ODFW computer system administration, progress reported quarterly	ODFW, on an ongoing basis, will manage, maintain and enhance the computer systems (hardware and software) necessary for supporting tabular and GIS data systems, including system administration, backup and recovery, hardware and software upgrades, and security.	The GIS Analyst developed a DRAFT general purpose ODFW Internet Map Server (IMS) web site. Feedback was sought from select users, and functionality was added based on beta test results, including more location and mapping functions and the implementation of custom symbols for hatchery related features and fish passage barriers. The site will be used to share ODFW spatial information with agency biologists, and to solicit additions and corrections to these data. Eventually, the site will be release for use by all resource managers and the general public.

Routine operating system updates and patches were installed during the quarter on all project servers. Staff researched and drafted documentation for computer purchases and submitted it to Regional StreamNet for review and approval. |
| 5 | PSMFC computer system administration | The Region, on an ongoing basis, will maintain and update, as necessary, the hardware and software necessary to accomplish StreamNet's mission, including system administration, system backup and recovery, and security. Specific functions include: 1. Management and maintenance of the GIS system, including ArcView, ArcGIS and other tools, extensions and projects, that constitute the regional Geographic Information System; 2. Maintenance and upgrade of the StreamNet web server and software, including programming, system security, etc., with a target of the web server being on line and operational over 99.5% of the time; | Regional GIS Software was patched with the latest Service Packs and the Internet Map Server received an OS upgrade to Windows 2003 Server. The regional primary web server was upgraded with Apache and Cold Fusion security patches. Service Pack updates were applied to all servers with Windows operating systems. The web query system was upgraded for better stability and handling of web robot Internet traffic. Uptime for the primary web server was near 100% for Q4. |

3. On an ongoing and as time allows basis, assist with development of XML schema based options for both incoming and outgoing data and continued exploration of how XML can enhance data exchange; and,

4. Management and maintenance of the database servers and SQL Server software and databases; installing updates, patches and service packs as they become available, managing logins and permissions, and routine backup of all StreamNet databases.

| 6 | WDFW computer system administration, progress reported quarterly | WDFW, on an ongoing basis, will manage, maintain and enhance the computer systems (hardware and software) necessary for supporting tabular and GIS data systems, including system administration, backup and recovery, hardware and software upgrades, and security. | The WDFW Olympia and Vancouver offices were plagued by widespread communications equipment failures this quarter. Joint work between our two offices was stalled from time to time, slowing progress to some degree this quarter. WDFW Information Systems has hopefully resolved the problems. |

Work Element: 160   Create/Manage/Maintain Database

Work Element Title: 2   Application and interface development

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

Milestone Title	Milestone	Accomplishments in the Fourth Quarter
1 CRITFC development of applications and interfaces	CRITFC, on an ongoing basis, will develop and/or maintain computerized databases, applications and interfaces that facilitate the entry, compilation, management and dissemination of tabular data.	All databases and applications needed to provide the data described in WE 159 were maintained and updated in the fourth quarter, as appropriate.
2 IDFG development of applications and interfaces	IDFG, on an ongoing basis, will develop and/or maintain computerized databases, applications and interfaces that facilitate the entry, compilation, management and dissemination of tabular and GIS data.	The initial user interface and database design for the new Spawning Ground Survey using .Net was completed. A coordination effort with IDFG fishery biologists began to fine tune the application. Work continued on the redesign of the IDFG StreamNet database. This included creating a single master hydrography database and formatting to match the new hatchery returns and age composition data exchange formats. Existing StreamNet data were migrated into the new database, but still requires a review and edits.

3	IDFG develop automated data export for Idaho Supplementation Studies	IDFG, on an ongoing basis, will work with the Idaho Supplementation Studies project to increase the use of the IDFG/StreamNet Spawning Ground Survey and Juvenile Trapping programs by IDFG biologists to create automated export of these data to StreamNet DEF for inclusion in the StreamNet database.	Smolt trapping data from 1990 to 2004 were captured from existing spreadsheets and consolidated into a central database. Web-based reports were developed for querying and reviewing the data. Revisions are being made in coordination with IDFG fishery biologists before posting to the web.
4	MFWP development of applications and interfaces	MFWP, on an ongoing basis, will develop and/or maintain computerized databases, applications and interfaces that facilitate the entry, compilation, management and dissemination of tabular and GIS data.	Support to Fisheries Division staff administering the program and using the system occurred.
5	ODFW development of applications and interfaces	ODFW, on an ongoing basis, will develop and/or maintain computerized databases, applications and interfaces that facilitate the entry, compilation, management and dissemination of tabular and GIS data.	We began designing an agency geo-database to store ODFW spatial datasets, as well as other common base data. In efforts to populate the geo-database, we acquired updated city and watershed datasets. We also loaded the street map dataset to provide detailed street information. Digital Elevation Model (DEM) data were processed in preparation for loading. A separate geo-database was also created which will store data for streams, fish distribution, barriers, observations and other aquatic resources.
6	ODFW development of corporate information system	ODFW, on an ongoing basis, will continue development of a corporate information system, developing functional interfaces as part of a corporate system.	Development of a corporate information system continued this quarter with attention being given to a number of disparate components of the system. Efforts this quarter benefited individual database systems, but collectively contributed to the development of the corporate system.
7	PSMFC maintain and improve LLID/NHD conversion tool	The Region, on an ongoing basis, will maintain and improve the LLID/NHD hydrography conversion tool. The immediate need is to complete error trapping routines and polish the final application.	The LLID/NHD conversion tool is still available by request, but because the NHD crosswalk table has not been kept in synch with changes in the latest version of NHD, the tool has been taken off-line to avoid confusing end users.
8	PSMFC development of online location identifier tool (event mapper)	The Region will create an Online Event Mapper to allow users to create event tables based on 1:100,000 scale hydrography over the Internet.	It appears that the Internet based solutions to this problem are quite expensive as they would require significant upgrades to StreamNet's GIS license (from ArcIMS to ArcGIS Server). In the meantime, the new tools built into the desktop ArcGIS software perform many of the functions of the original Event Mapper tool without its limitations. The GIS Specialist suggests that we consider making pooled licenses for desktop ArcGIS software available through the Internet as a possible solution to meet our needs.

| 9 | PSMFC development of applications and interfaces | The Region, on an ongoing, as needed basis, will develop and/or maintain computerized databases, applications and interfaces that facilitate the entry, compilation, management and dissemination of tabular and GIS data. They will assist cooperating agencies with tool development, as requested. Tools may include input interfaces, error checking, geographic locators, etc. | Work was done on a test linking of water quality data with StreamNet fisheries data via an XML interface developed by Oregon DEQ. |
| 10 | WDFW development of applications and interfaces | WDFW, on an ongoing basis, will develop and/or maintain computerized databases, applications and interfaces that facilitate the entry, compilation, management and dissemination of tabular and GIS data. | The Location Data Manager finalized an ArcGIS model to create a merged file of the hydrography sections that are currently managed in 62 separate chunks (one per basin, or WRIA). The merged file allows us to run a routine once instead of 62 times. |

Work Element: 160   Create/Manage/Maintain Database

Work Element Title: 3   Data (content) management

The StreamNet project will manage data at the regional and subcontracting 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.

Milestone Title	Milestone	Accomplishments in the Fourth Quarter
1	CRITFC data content management, QA/QC	CRITFC, on an ongoing basis, will perform comprehensive QA/QC on all datasets maintained by CRITFC.	The author field in the StreamNet catalog had some discrepancies with the author field in the references database in the overall StreamNet database. These have all been merged and matched so that the author fields are now compatible with the citation display format.
2	FWS data content management, QA/QC	FWS will add data, check quality, transform data to DEF, and exchange data with StreamNet.	The FY-05 data submission was accepted and posted by StreamNet regional staff.
3	IDFG data content management, QA/QC	IDFG will conduct a data quality review of all exiting IDFG redd count, dam/weir counts, freshwater harvest, hatchery returns and age composition data. Where necessary, they will edit these data sets to improve their accuracy and quality.	The review of IDFG's redd count trends for Chinook, sockeye and steelhead was completed. Because of splitting whole stream trends into individual transect based trends the number of IDFG redd count trends increased from 113 to 779. These included for the first time non-index trends. The new trends were cross-referenced with the old trends in order to facilitate migration of the redd count data.
4	MFWP data content management, QA/QC	MFWP, on an ongoing basis, will manage data at the agency level, develop and maintain FGDC compliant metadata for GIS data, and exchange data to PSMFC according to deadlines specified in this work statement.	This ongoing work continued throughout the quarter.

| 5 | ODFW data content management | ODFW, on an ongoing basis, will manage ODFW-NRIMP and StreamNet data, including metadata development/maintenance, QA/QC activities, and work with regional staff as necessary to assure seamless loading of data into the regional database. | Staff responded to questions related to data submissions, and worked with the Region to resolve data exchange and other issues of concern.

The ODFW Facilities GIS dataset was redesigned, as the coding scheme was in dire need of normalization. A separate table to track dataset maintenance was also created. The GIS Analyst developed metadata for the new ODFW Facilities dataset and refined metadata for the Hatchery Facilities dataset.

The Data Analyst researched and responded to an issue regarding supercodes for Spawner Recruit trends that are Oregon's responsibility. |
| 6 | ODFW data content management, QA/QC | ODFW, on an ongoing basis, will perform comprehensive QA/QC on all Oregon Trends, Age, Harvest, Dams, and Barrier datasets. | Staff continued efforts to ensure the data quality of Oregon's existing Trend information by executing quality control queries on the trend database and fixing the resulting trend errors. Trends having non-consecutive Escape Data Begin/End Dates were completely corrected this quarter. This effort is resulting in a number of trend corrections, corrections to stream data being sent to Regional StreamNet, adding new trends for old data not yet in the system, and adding new information to old trends in the system. This also includes adding new trends to the database from data that were not captured previously. |
| 9 | PSMFC tabular data content management, QA/QC | The Region, on an ongoing basis, will manage the content and quality of the data stored at PSMFC through the following actions:
1. They will examine the StreamNet database for errors and report any found to the appropriate entity for correction. They will continue to improve error-checking capabilities;
2. The Regional Database Manager will update and append data as submitted by StreamNet participants. He will maintain logs of data submissions and major database changes, manage logins and permissions, produce downloadable versions of the StreamNet databases to keep in synch with the updated regional databases, create views and stored procedures for use by the web query system and in the data loading process, routinely backup all databases, create and revise database structures and indexes, develop and run QA/QC processes on new and existing data tables to Isolate missing, erroneous or duplicative data, and work with source agencies to correct problems; | Data submissions from agency compilers to StreamNet were numerous this project quarter. The highest percentage increase of new records appended to StreamNet tables included: age (4,847), hatchery returns (5,246 main and 2,479 detail), barriers (13,412 main and 294 fish specific), locations (14,285), escapement data (5101), trend series (467), references (205) and dams (142). Twenty new tables were created, populated with habitat restoration project information from MFWP in Montana. An updated database of major StreamNet tables is available for downloading in either MS Access 97 or 2000 database format. To obtain these data, visit http://www.streamnet.org/online_data.html and click on the "Download the StreamNet database" link.

The StreamNet Library database was imported into StreamNet's Reference table and synchronized. Work was done to debug and update all document URLs for online viewing of documents that have been scanned at the Library. |

3. The Regional Database Manager will assist the StreamNet Librarian to export the library reference database of StreamNet documents for routine inclusion in the StreamNet database for use by the web query system; and,

4. The Region will work with the Steering Committee to complete a document describing the QA/QC processes followed by project cooperators.

| 10 | PSMFC GIS data content management | The Region, on an ongoing basis, will manage GIS data content for the StreamNet project through the following actions:
1. Whenever new tabular data with a spatial component are submitted to the Region (e.g., fish distribution, hatchery facilities, etc.), the GIS Specialist will create regional GIS layers from this information where possible. He will 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. He will post mappable layers to the online query system, the ArcIMS interactive mapping system, and as downloadable layers for StreamNet GIS users;
2. The GIS Specialist will maintain a library of StreamNet GIS layers for internal use and as downloadable data on the web site with complete documentation (metadata);
3. He will obtain and refine layers such as ESUs, ecoregions, or elevations, and create cross tables for use by the query system;
4. He will assist the database manager with the spatial component of data and its implementation online;
5. He will coordinate efforts by the StreamNet partners to maintain and update, as necessary, the 1:100,000 scale hydrography files for the states and the PNW region; | Coordination efforts related to the eventual migration to a standardized 24k hydrography continued. PSMFC hosted a meeting with the PNW Hydrography Framework and StreamNet GIS Specialists to discuss the plans of State and Federal agencies to adopt 24k NHD as the regional standard. The possibility of enhancing NHD to better meet the needs of regional users, including StreamNet, was discussed. |

6. He will coordinate efforts by the StreamNet partners to create a hybrid 1:100,000 / 1:24,000 scale hydrography for the states and the PNW region, and will implement these changes at the Regional office; and,

7. He will integrate the functioning of the GIS system with the StreamNet fisheries and habitat database in support of the query system, and will maintain up-to-date cross tables used via the StreamNet web interface to select information by geographic area.

11	WDFW data content management, QA/QC	WDFW, on an ongoing basis, will :	

WDFW, on an ongoing basis, will :

1. Manage data at the agency level, conduct quality checks, develop and maintain FGDC compliant metadata for GIS data, and exchange data to PSMFC according to deadlines specified in this work statement;

2. Provide and update/geo-reference field data as needed for all StreamNet data submissions. The improved geo-references generally contribute to multiple data categories; and,

3. Create standardized storage formats and protocols for area biologists to use with data collected at various fish collection facilities.

We created internal cross-reference tables and submitted relevant LocMaster and related location table submissions to support the data submissions made this quarter. This included our first effort to convey hatchery return capture locations in addition to the location of the hatchery handling the fish.

We created a geodatabase to store any spatial information relevant to fish that are codified into some part of Washington or Regional law. One table captures the downstream point used to define sport catch fishing boundaries for select rivers. Another captures the Washington and Oregon boundary line. We expect the information in this geodatabase will be used for QA/QC routines.

A geodatabase capturing river miles from the Washington Stream Catalog was started for river mile 0 and 1 for the bigger coastal streams. This information will be used to generally QC the shift between the 100K and 24K stream mouth starting points and research the difficulties in developing a conversion factor between the Stream Catalog river mile index points and river mile measures based on our 24K hydrography.

The WDFW Fish GIS Manager overhauled the internal spatial data format for the files that feed StreamNet's generalized fish distribution data from WDFW. Separate events for the same species-run and location that were once stored on separate records (distribution, use types) are now assimilated into a single record based on a hierarchy (Spawning; then Rearing; then Presence). This organization mirrors the approach we use to support our ArcIMS application SalmonScape and will greatly ease data conversion to the StreamNet exchange format.

Work Element Title: 4   Data exchange standard development

The project will establish and maintain data exchange standards to ensure consistent content and format of data that originate from multiple data sources. We will maintain adopted and develop proposed data exchange formats for data categories described under Work Element 159. 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

	Milestone Title	Milestone	Accomplishments in the Fourth Quarter
1	CRITFC development and maintenance of data exchange standards	CRITFC, on an ongoing basis, will 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 reviewed and evaluated proposed DEFs as they relate to data provided, or likely to be provided in the future, by CRITFC.
3	MFWP development and maintenance of data exchange standards	MFWP, on an ongoing basis, will 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 sent sightings and hatchery release data to regional staff for use in evaluating draft DEFs
4	ODFW development and maintenance of data exchange standards	ODFW, on an ongoing basis, will monitor adopted and proposed data exchange formats and provide comments, feedback, and/or recommended changes as necessary. They will 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. New or modifications to existing DEFs will be submitted as warranted.	Age Data DEF collaboration continued this quarter, as well as discussions related to Hatchery Release data. As needed, specialists within ODFW were engaged to ensure compatibility with data processes used in Oregon.
5	PSMFC development and maintenance of data exchange standards	The Region, on an ongoing, as needed basis, will 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.	We worked with the StreamNet partners to resolve a newly noticed data problem. In some cases, field workers are unable to count the number of fish or the number of redds due to high abundance. This presents a problem for how to capture and display this information. When fish are too abundant to count, field staff note the situation but do not record a count or even an estimate. Leaving this as a '0' or null in the database mischaracterizes the situation. A satisfactory strategy for capturing and presenting this information was agreed to.

A data exchange format for age data was completed this quarter. This will be included in the next version of the StreamNet Data Exchange Format document, which we expect to release in the first half of FY-06.

6	PSMFC development and maintenance of data exchange standards, TypeID	The Region will Investigate the use of the "TypeID" field in StreamNet time series data in relation to other fields, propose fixes if appropriate, and adopt any changes through the DEF modification process.	After brief review, this was determined to be a low priority issue for now.
7	PSMFC development and maintenance of data exchange standards, Fish Sightings	The Region will initiate work on a new DEF for Fish Sightings data. They will review the approach being taken in California and, in coordination with the cooperating projects, adapt it for use in the Columbia Basin.	Work on a "Sightings" data exchange format was renewed. "Sightings" are instances where a species was observed in some fashion and are useful in definitively establishing occurrence at a location. In addition to StreamNet personnel, we have asked for input on this from the Pacific Northwest Mussels Workgroup, because sightings data are not restricted to fishes and this group has much knowledge of how other organisms are handled. We intend to be able to store information for a variety of taxa. This work was not completed this quarter but is expected to be completed in the next fiscal year.
8	WDFW development and maintenance of data exchange standards	WDFW, on an ongoing basis, will 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 continued to periodically push for finalization of the Hatchery DEF proposal.

The Project Manager reviewed progress on Forums with open DEF topics on 8/1/2005. Individual WDFW staff contributed to consensus and closure of open topics under the Age, Count/mile, and Sample Method forums.

Further detailed discussion of issues WDFW has with parts of the current generalized fish distribution DEF will be postponed until December. This will allow the WDFW transfer of existing 24K-based anadromous and resident fish distribution data to the mixed-scale Washington hydrography to help identify any further issues with representing common Washington situations using this DEF. |

Work Element: 161 Disseminate Raw & Summary Data

Work Element Title: 1   Develop and maintain Internet sites for data dissemination

StreamNet will continue to maintain and enhance the StreamNet Internet sites. We will 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 Work Element 159 and providing access to reference materials secured through Work Element 98. The site will also be used to archive data sets developed by FWP participants for data that do not fit within the StreamNet DEF (Independent Data Sets), including

Milestone Title	Milestone	Accomplishments in the Fourth Quarter
4 ODFW assist Internet site maintenance and development	ODFW, on an ongoing basis, will: Provide ongoing review of the StreamNet website (StreamNet's primary data dissemination tool) through routine use of the site, providing feedback to StreamNet staff at PSMFC on any problems, errors or needed improvements, and Manage and maintain Oregon's web-based data integration, communication, and data transfer systems and their links to StreamNet.	Ongoing review of the StreamNet website continued, including commenting on the functionality of the Critical Habitat Mapper. Management of the Corvallis Research Lab website included posting nearly two dozen newly scanned ODFW Information Reports. For the period of April through September 2005, our web server provided an average of 31,801 page views per month to an average of 3,722 unique IP addresses. FTP downloads for the third and fourth quarters, respectively, were: Distinct IP addresses: 783 and 794 Total files served: 6,403 and 8,517 Bandwidth served: 2.86 GB and 5.01 GB StreamNet related Oregon website usage is summarized in Table 1.

Table 1. Use (page views) of the Oregon StreamNet related websites during the third and fourth quarters, FY-2005.

Website	April	May	June	July	Aug.	Sept.
NRIMP (OR StreamNet)	15,002	13,998	11,164	10,001	12,792	10,814
CSMEP Web Application	164	5,522	1,659	2,531	828	1,205

5 PSMFC Internet site maintenance and development	The Region, on an ongoing basis, will maintain and improve the StreamNet Internet site (the primary means of disseminating StreamNet data), through the following actions: 1. Correcting errors, adding or fixing links, improving performance, improving looks and usability, etc.;	The GIS related web pages and Internet map applications were maintained. The Internet Map Server was given an operating system upgrade and configured to enable the use of a new Map Viewer developed by our partner project, CalFish. The GIS Specialist plans to implement this new viewer to improve StreamNet's existing interactive mappers in FY-06.

2. Guide development and enhancement of the StreamNet web query system from the perspective of data users, and review changes to the web query system to ensure they are implemented appropriately and do not create unforeseen problems;
3. Maintain the GIS Data, Map, and PNW Reach File Internet pages;
4. 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;
5. Research integration of 4th, 5th and 6th field HUC boundary layers into a single region-wide dataset and plan improvements to the web-query system and Internet map application as this improved base data becomes available;
6. Deploy, as needed, new query system components and data categories that are approved by the Steering Committee;
7. Maintain logs of web query history and error events, track and report Internet site usage by month, and investigate web query system errors encountered; and,
8. Maintain and enhance the functionality, look and usability of the StreamNet web-based query system.

We worked toward replacing the existing StreamNet Search feature with a new Google based search engine using the investment made by PSMFC. This should be completed in the first few weeks of FY-06.

Work toward upgrading the overall look and navigation of the StreamNet web site and associated applications progressed. The goal is to improve web site and application navigation and give all StreamNet associated web pages and applications a similar look and feel. It is anticipated that the first stage of this project will be rolled out in Q1 of FY-06.

PSMFC is updating their web site and StreamNet staff provided StreamNet information for use on the PSMFC site.

Use of the regional StreamNet website remained strong in Q4 (Table 2)

Table 2. Use of the StreamNet website in the fourth quarter, FY-05.

	July-05	Aug.-05	Sept.-05
Main Web server			
Total static page requests	20,325	25,440	27,424
Number of visits	3,708	3,739	2,624
Unique visitors	2,328	2,527	1,737
Data query page requests	12,897	15,748	42,286*
Unique query sessions	3,656	4,947	33,366*
Unique query sessions / hr.	4.9	7.4	44.8*
Data reports viewed	2,038	2,128	1,906
FTP files downloaded	1,094	729	853
IMS Web Server			
Total IMS page requests	24,588	26,921	28,487
Number of IMS visits	840	973	1,049
Unique IMS visitors	458	495	521
Mean pages / IMS visit	29	28	27

* One time anomalous results due to search robot hits being included in total.

| 6 | PSMFC Internet site maintenance and development, review query system | The Region will conduct a thorough review of the web query system by 03/31/05 to identify and address errors and omissions in data delivery and to improve help files. | Corrections and improvements were made to data and web query programming, including updated handling of library reference data.

The web query system was updated to use the new hatchery returns data format. This new format provides more detailed data and in a more usable format than previously existed. We now deliver (as available) the total number of fish coming to a hatchery, the capture sites for these fish, by-sex spawning information, and the final disposition of the fish bodies. |

7	PSMFC Internet site maintenance and development, rearrange links pages	The Region will review and rearrange the links pages on the StreamNet web site.	The links were reviewed and those leading to useful data were added into the Independent Data Sets page so they would be searchable. Reorganization of the links page will take place at a convenient time next fiscal year.

Work Element: 161   Disseminate Raw & Summary Data

Work Element Title: 2   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.

Milestone Title		Milestone	Accomplishments in the Fourth Quarter
1	CRITFC respond to data/information requests	CRITFC, on an ongoing basis, will 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 Library responded to 127 document requests (Tables 3, 4, 5). Other details are reported in WE 98, WE Title 3, MS no.1.
3	IDFG respond to data/information requests	IDFG, on an ongoing basis, will 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 filled 48 requests for data during the fourth quarter (Tables 3, 4, 5).
4	MFWP respond to data/information requests	MFWP, on an ongoing basis, will 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 filled 13 requests during the quarter (Tables 3, 4, 5). We enhanced the FWP electronic fisheries library by adding the RepositoryID to our collector's permits.
5	ODFW respond to data/information requests	ODFW, on an ongoing basis, will 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 GIS Analyst developed a draft Work Request Form / GIS Dataset Development Request Appendix and distributed it to other NRIMP GIS staff for comments. Staff responded to 26 information requests this quarter (Tables 3, 4, 5).
6	PSMFC respond to data/information requests	The Region, on an ongoing basis, will respond within one business day to requests for data, information or help, and will log and report responses to all requests received.	Regional StreamNet staff responded in a timely manner to all information requests received during the fourth quarter. Information requests are summarized in Tables 3, 4, and 5.

7   PSMFC track responses to data/information requests

The Region will 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.

Responses to all data/information requests by project partners were logged in the standardized database. Results are reported for the fourth quarter for all partners in Tables 3, 4, and 5.

8   WDFW respond to data/information requests

WDFW, on an ongoing basis, will 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 Olympia data compiler developed a MS Access database interface for WDFW StreamNet staff to document data requests using the StreamNet standardized format.

WDFW StreamNet staff responded to 18 major data requests directly during the fourth quarter (Tables 3, 4, 5). Details can be found in the WDFW Q4 StreamNet Data Requests database records (at PSMFC). In addition, fish and hydrography GIS layers built and maintained by StreamNet staff were used by WDFW's Priority Habitats and Species group to respond to over 350 data requests, involving 1,080 maps and 70 digital datasets.

Table 3. Summary of responses to data/information request by StreamNet members during the fourth quarter, by type of request.

Type of request	CRITFC	IDFG	MFWP	ODFW	PSMFC	WDFW	Total
Data request		37	6	10	3	6	62
General fish information					2	1	3
GIS data / map		9	7	4	8	11	39
Hardware / software technical support		1		2			3
Help finding information					3		3
Help with data interpretation / analysis							0
Library / Documents	127	1		5	1		134
Other				5	4		9
Report error or problem					1		1
Total	**127**	**48**	**13**	**26**	**22**	**18**	**254**

Table 4. Summary of responses to data/information requests, fourth quarter, by source of request.

Source of request	CRITFC	IDFG	MFWP	ODFW	PSMFC	WDFW	Total
College / university		2		2	1	1	6
General public / other	28[1]			1	5		34
Government, county / local							0
Government, federal	21	6		3	3	2	35
Government, state	3	18	13	11	6	10	61
Government, tribal	32			2	2	2	38
Nonprofit organization		1		3	3	1	8
Private consultant	43	21		4	2	1	71
Regional entity							0
Unknown						1	1
Watershed council / group							0
Total	**127**	**48**	**13**	**26**	**22**	**18**	**254**

[1] Includes other libraries

Table 5. Summary of responses to data/information requests during the fourth quarter, by outcome.

Outcome of request	CRITFC	IDFG	MFWP	ODFW	PSMFC	WDFW	Total
Request fully satisfied	127	48	13	8	15	17	228
Request partially satisfied				5	3		8
Referred to other sources				8	3	1	12
Could not help at all				5	1		6
Total	**127**	**48**	**13**	**26**	**22**	**18**	**254**

Work Element: 161   Disseminate Raw & Summary Data

Work Element Title: 3   Provide data and maps to support Fish and Wildlife Program activities

Provide data and maps and related services 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.

Milestone Title	Milestone	Accomplishments in the Fourth Quarter
1 CRITFC support F&W Program Activities [with data and maps]	CRITFC, on an ongoing basis, will support Fish and Wildlife Program activities such as R, M & E, subbasin assessment, etc., by providing data and maps and technical information management advice or assistance as requested, within available time and budget under base level funding.	The Project Leader is a member of the PNAMP and NED steering committees. He co-chairs the NED Subbasin Data Workgroup. The activities of these groups are available through other web sites.

3	MFWP support F&W Program Activities [with data and maps]	MFWP, on an ongoing basis, will 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.	We provided high resolution color aerial photographs and a layer containing updated plat maps of the Flathead and Kootenai River watersheds (the main river corridors are top priority) to be used for a 3-way MOA (MFWP-BPA-CSKT) for land acquisitions and conservation easements to protect critical fisheries habitat in the two watersheds for BPA mitigation staff in northwest Montana. The maps will be used to define criteria for parcel selection in order to identify 10 properties to review and rank based on the criteria. Funding for these lands projects will be from BPA's capital investment ledger (estimated at about $20 million for this phase) and habitats acquired for this purpose will be credited against approved fisheries loss statements for the construction of Hungry Horse and Libby Dams. Losses due to dam construction are finite, so BPA could "pay off" their obligation for mitigation with credits against the loss statement.
4	ODFW support F&W Program Activities [with data and maps]	ODFW, on an ongoing basis, will support Fish and Wildlife Program activities such as R, M & E, sub-basin 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 requests were received or fulfilled during this quarter. The draft NOAA RM&E data inventory proposal was reviewed this quarter, and comments were prepared.
6	PSMFC support of F&W Program Activities [with guidance and assistance]	The Region, on request, will participate in and assist regional Monitoring and Evaluation efforts to provide data management guidance, provide any relevant SN data, and to initiate work to obtain new data types 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.	As part of cooperation with the Collaborative Systemwide Monitoring and Evaluation Project (CSMEP) of CBFWA, we wrote an overview paper describing the data management considerations that need to be addressed in any large scale monitoring project and provided it to CSMEP participants.

Work Element Title: 4   Maintain and post Protected Areas data

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.

Milestone Title	Milestone	Accomplishments in the Fourth Quarter
1 PSMFC maintain and post Protected Areas	The Region, on an ongoing basis, will maintain the Protected Areas database and provide access to the Protected Areas data through the online query system and through the interactive map application. As time allows, work to resolve the remaining unresolved location issues from conversion of the data from 1:250,000 to the 1:100,000 regional hydrography.	The Protected Areas data were maintained, with access provided on line through the tabular data query system and through the interactive map interface.

Work Element: 98   Other (Library Services)

Work Element Title: 1   Library collection development

The StreamNet Library, with input from the other project participants, will develop a collection of materials applicable to the mission of StreamNet. We will 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. The project participants will submit reference documents for all data contained in the StreamNet database to the StreamNet Library.

Milestone Title	Milestone	Accomplishments in the Fourth Quarter
1 CRITFC StreamNet Library collection development	CRITFC, on an ongoing basis, will: 1. 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. 2. Coordinate, receive and incorporate source material submissions for data compiled by participants. 3. Maintain and develop a collection of journals related to fisheries and aquatic sciences as well as other related scientific topics. 4. Maintain memberships in appropriate library and subject-related associations. Ex. IAMSLIC, NRIC, OFWIM, etc.	The backlog of StreamNet documents has been reduced and we continue to catch up on entry of new records now that ongoing quality control for StreamNet References has been completed. The StreamNet Library has also been working on collection development via duplicate exchange resources. We have donated 24 large boxes of materials to other developing libraries. We acquired over 100 titles from other libraries for the cost of postage. These materials fill in gaps in our periodicals and also provide research materials for the book/document collections.

5	MFWP provide references to data	MFWP, on an ongoing basis, will obtain reference documents for all data developed under WE 159 and submit them to the StreamNet Library for inclusion in the collection and catalog.	This task is ongoing. The Fishery Division's staff has started to enter records into the library database following a physical move of the library.
6	ODFW provide references to data	ODFW, on an ongoing basis, will obtain reference documents for all data developed under WE 159 and submit them to the StreamNet Library for inclusion in the collection and catalog.	The Data Analyst submitted 32 references to the StreamNet library. Three were new and the remaining were either updates or references that were submitted to the StreamNet Library, but were not in ODFW's main library reference table.
7	ODFW organize ODFW Library documents	ODFW, on an ongoing basis, will continue organization of ODFW Library documents and update the library bibliography with new titles as they are identified.	Organization of the ODFW Library continued this quarter. The ODFW Library Technician has now entered a total of 4,489 publication references into ODFW's Library bibliography. Documents related to the Columbia, Willamette, Deschutes, and Clackamas Rivers specifically have been included in the bibliography. Many existing records were also updated as needed. Publications have been (at least topically or geographically) organized onto shelves, labeled, mapped and indexed. Because the Library will be unattended for at least the next 3 months, arrangements were made to protect the physical library from temperature extremes over the winter.
8	WDFW provide references to data	WDFW, on an ongoing basis, will obtain reference documents for all data developed under WE 159 and submit them to the StreamNet Library for inclusion in the collection and catalog.	We submitted copies of all relevant reference information during exchange of hatchery returns, barriers, and age data this quarter.

Work Element: 98   Other (Library Services)

Work Element Title: 2   Provide access to the library collection

The StreamNet Library will provide user access to the materials described in the collection development work element 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. They will network 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. Participate in planning, development and/or coordination meetings with regional entities to provide advice 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

Milestone Title	Milestone	Accomplishments in the Fourth Quarter
1	CRITFC provide access to the StreamNet Library collection	CRITFC, on an ongoing basis, will: 1. Provide and maintain appropriate facilities for the storage and public use of the SN Library collections;	The StreamNet Library operated without interruption during normal business hours during the fourth quarter.

2. Catalog and organize the materials for ease of use by clients and staff;
3. Provide access to the catalog of materials via the Internet and update the catalog at least monthly;
4. Maintain and implement a plan to place electronic documents in the catalog and on the library website;
5. Develop and keep a schedule of open times and reference desk staff hours; and
6. Provide data regarding library materials to the regional Data Manager on a monthly basis.

Library staff and interns cataloged approximately 600 titles during the fourth quarter. Approximately 3,300 records were updated for quality control purposes or additional information was added to increase searchability.

We are currently exploring the best way to add metadata to electronic documents already in place automatically so they are searchable by regular Internet search engines rather than only having access to the titles via the Library catalog. This additional information and searchability would increase traffic through the Library website.

Work Element: 98   Other (Library Services)

Work Element Title: 3   Provide library services for patrons
The StreamNet Library will provide library services to the StreamNet user community, the Council's Fish and Wildlife Program, and the general public.

Milestone Title	Milestone	Accomplishments in the Fourth Quarter
1 CRITFC provide library services to patrons	CRITFC, on an ongoing basis, will: 1. Provide information and reference services to library patrons. 2. Identify changes and new features that will improve delivery of library services. 3. Provide interlibrary borrowing services for library patrons to access materials not yet owned by the StreamNet Library. 4. Provide interlibrary lending services for other libraries to access the library's unique collection. 5. Provide consultations for groups and other agencies on library organization and services. 6. Coordinate with other StreamNet libraries, library clients and other libraries to improve service to clients and limit duplication of effort.	The Vancouver Lake Watershed Partnership has concluded the research phase of their process. However, they are interested in developing further documentation and working with the Library to allow access to the collection developed in support of their mission for the next phase of data inventory and current status inventory. The Library is now hosting a database for the Johnson Creek Watershed Council Resource Room. Initially, they were developing a database to post to the web, but those plans fell through and we have provided electronic access to their collections. We hope that this example will convince other local watershed councils to also provide access to their materials so that we might facilitate information sharing between watershed councils. 127 Interlibrary loans were made in the fourth quarter (Tables 3, 4, 5).

Work Element: **118 Coordination**

Work Element Title: **1   Support Fish and Wildlife Program development activities**

Participate in planning, development and/or coordination meetings with regional entities to provide advice 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

Milestone Title	Milestone	Accomplishments in the Fourth Quarter
1 CRITFC support F&W Program development activities	CRITFC, on an ongoing basis, will participate in various NPCC planning and management work groups to improve and coordinate regional information management programs.	The Regional Librarian completed the education, outreach and communication paper for the NED Project. She is now participating on the website design team. The Project Leader is an ex-officio member of the ISAB and serves on the steering committees of the PNAMP and NED. As co-chair of the NED Subbasin Data Workgroup, he is leading an effort to capture the core subbasin assessment data developed during subbasin planning. These data will be placed on StreamNet as independent data sets.
5 ODFW support F&W Program development activities	ODFW, on an ongoing basis, will work with regional entities to contribute data management expertise toward development of activities within the scope of the Fish and Wildlife Program, and serve as a data management resource to the FWP.	Ongoing maintenance of the CSMEP web application continued. The CSMEP web application was modified to add the name and contact information for the data source or steward to the query option as requested by Washington CSMEP staff. Currently there are 1,450 records in the CSMEP web application, 174 added this quarter. The Project Leader participated in three CSMEP meetings via phone and provided an update on the status of the online CSMEP Inventory Database. Meeting notes from meetings not attended were regularly reviewed for pertinent comments and/or assignments. CSMEP/ StreamNet coordination meetings were attended on August 23 and 26. Oregon StreamNet staff participated in the NED/PNAMP Data Management Meetings on August 3rd and September 7th. The Data Analyst and Data Technician trained with ODFW staff in Clackamas to prepare to assume responsibility for data entry into the CSMEP online database in the next fiscal year. Other preparatory work, including gathering and reviewing background on the project, was accomplished. The draft NOAA RM&E data inventory proposal was reviewed.

| 6 | PSMFC support F&W Program development activities | The Region, on an opportunistic basis, will work with regional entities to contribute data management expertise toward development of activities within the scope of the Fish and Wildlife Program, and serve as a data management resource to the FWP. Specific activities will include:

1. Continued participation on the Program Team for the Council's project to develop a Northwest Environmental Data-network to convey recommendations based on experience in the development of a regional approach to data dissemination;

2. Continued participation in the Pacific Northwest Aquatic Monitoring Partnership for watershed and fishery data coordination, and other R, M & E groups, including the Action Agencies, Federal Caucus and CBFWA, to provide support and data management expertise;

3. Continued participate with CBFWA in support of data management efforts, including work with the Collaborative Systemwide Monitoring and Evaluation Project; and,

4. Provide support (expertise and guidance) to other FWP related programs and projects as requested and as possible under existing resources. | The StreamNet Program Manager (steering committees) and Regional Fisheries Biologist (effectiveness monitoring) continued participation in the Northwest Environmental Data-network (NED) and Pacific Northwest Aquatic Monitoring Partnership (PNAMP) efforts. One key focus was assisting a PNAMP group investigating the need to conduct an inventory of monitoring activities. |
| 7 | WDFW support F&W Program development activities | WDFW, on an opportunistic basis, will, work with regional entities to contribute data management expertise toward development of activities within the scope of the Fish and Wildlife Program, and serve as a data management resource to the FWP. | The StreamNet Project Leader met with WDFW and CRITFC staff in Vancouver on 8/9/2005 to discuss CRITFC involvement in a project to compile and store Washington EDT spatial data for the Columbia River Basin in a repository that would hold all Basin EDT data. Peculiarities of the Washington data were discussed with the CRITFC project staff, who presented a generalized work plan and study approach to the group for review and comment.

The Vancouver data compiler entered and posted several more CSMEP dataset inventory records reflecting sport harvest data recently received from the Wenatchee, Methow and Okanogan basins. |

Work Element Title: 2   Support subbasin planning efforts

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. We will work with the TOAST group to capture subbasin planning data from Oregon, and in FY-06 will work with others in an attempt to capture similar data in the other

Milestone Title	Milestone	Accomplishments in the Fourth Quarter
2 MFWP support subbasin planning efforts	MFWP will work with subbasin planners to determine the type of data within the Montana subbasin plans and opportunities for incorporating those data into StreamNet and providing data on the FWP website.	Data requested by CRITFC was sent.
3 ODFW support subbasin planning efforts	ODFW, as needed, and within existing resources, will work with subbasin planners to capture data developed as part of the subbasin planning process and develop data sets outside Oregon StreamNet's base efforts if requested by subbasin planners.	No subbasin planning assistance was requested, so this time was redirected to supporting Recovery Planning efforts as a result of the shift in agency focus. See Work Element 118, Title 3; Milestone 4 for a description Recovery Planning support that was provided.

Work Element Title: 3   Coordinate with related activities outside of 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. On request or as possible, 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.

Milestone Title	Milestone	Accomplishments in the Fourth Quarter
3 MFWP coordinate with related activities outside of the FWP	MFWP, on an opportunistic basis, will 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 regional staff met with various USGS and state representatives concerning the future of regional hydrography. Steve Carson provided input and follow-up discussion. Discussion on this topic is slated for the October 2005 steering Committee meeting.
4 ODFW coordinate with related activities outside of the FWP	ODFW, on an opportunistic basis, will 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.	Oregon StreamNet coordinated with Regional StreamNet and BLM staff in Roseburg to explore the possibility of assisting with the creation, archiving, and regional sharing of freshwater mussels data in support of the Northwest Freshwater Mussel database.

A lower level of support to the Oregon Plan Assessment continued via data compilation of Oregon Watershed Council datasets, data management, and database and web site development. |

Oregon's GIS Analyst met with Oregon State Parks and Dept of Transportation GIS Coordinators to learn their experiences with agency wide GIS initiatives, examine their structures, and review successes in organization-wide coordination and spatial information management.

Much collaboration and support took place with the Oregon Plan Monitoring Team (OPMT), including attending their July 14th and August 18th meetings to describe the data management support we provided to the Coastal Coho Assessment and discuss how that support relates to the data management needs of the Monitoring Team. The Project Leader attended portions of the Oregon Plan Monitoring Conference to better understand data management needs of Oregon's monitoring. We also submitted three funding proposals to provide data and database management support to the OPMT, including: 1) updating Oregon's distribution datasets including reconciling ODFW's various coho distribution datasets with one another, 2) creating an IMS site for Oregon Plan datasets, and 3) compiling watershed council data, and developing data standards and database templates for these data.

In response to a shift in agency priority from Subbasin Planning to Recovery Planning, Oregon StreamNet spent time designing, creating, tuning, and fine-tuning a new Recovery Planning Data Library web application. Initially, this involved duplicating the basic infrastructure of the Coastal Coho Assessment web application, then modifying to accommodate the specific needs of Recovery Planners such as a file upload/download component that allows users to store recovery planning working files according to their team location. As the complexity increased, we focused on creating an updated application based on SQL server and will provide enhancements including better file management capabilities, more granular security, and increased search capability of the system. We completed the application and sent out user account information for all Mid-Columbia team members, which is where Oregon's effort will begin. Staff also modified existing Data Library records to include planning area designations in support of the Recovery Planning Data Library search features.

The Project Leader worked with the ODFW Monitoring Coordinator on the needs of the upcoming State of the Salmon Consortium (a joint program of Ecotrust and the Wild Salmon Center) data inventory, which is being conducted by outside consultants, and strategize how to support this effort in such a way as to realize benefits to the agency as well. Our efforts toward this inventory will likely increase during the next quarter as the consultants engage ODFW biological staff.

| 5 | ODFW coordinate with internal ODFW staff to improve internal data compiling | ODFW, on an ongoing basis, will coordinate and work with internal ODFW staff to improve the agency data collection efforts to allow more efficient compiling into internal intermediate NRIMP-Oregon StreamNet databases and/or StreamNet databases at the regional scale. | We coordinated with ODFW Information Systems Division (ISD) staff on metadata requirements, comparing our data management-related requirements to those ISD requires as part of their database reporting requirements. We hope to get some or all of our requirements included in theirs. Balancing the need for more detailed information in metadata records with the need for the highest compliance rate possible from ODFW staff will be a major factor in the final decision. |

GIS users at the Corvallis Research Lab met to discuss GIS use by lab staff, to improve coordination between the lab and others using GIS throughout the agency, and to educate ODFW's Chief Information Officer on the scope of GIS usage at the lab. About a dozen GIS users from the Lab attended. The CIO shared the agency's motivation for wanting to better coordinate GIS in ODFW, while the GIS users described how GIS is used at the Lab, and what their concerns are about statewide coordination. The primary concern expressed centered on maintaining the flexibility to use GIS tools, even non-standard tools, to do their job, and that coordination not become a hindrance. Both the CIO and Lab staff expressed that NRIMP (Oregon StreamNet) is the natural place to base the agency's GIS coordination.

We helped initiate a GIS Coordination Group in ODFW, which met twice to validate the need for agency collaboration to obtain the full value, understanding, and support of GIS at ODFW. We worked with Regional StreamNet staff to develop a ODFW GIS Forum to facilitate the capture of discussion threads related to the group's topics. Staff also established an on-line survey to ascertain GIS usage by agency employees. The survey will remain open until October 21st, but responses to date provide an overview of existing GIS use across the agency and also captured a variety of issues associated with deriving maximum benefits from this technology. To allow Group members to review survey results, a summary page has also been created.

| 7 | WDFW coordinate with related activities outside of the FWP | WDFW, on an opportunistic basis, will 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. | WDFW sent four representatives to a 9/15/2005 meeting between StreamNet participants and the Pacific Northwest Hydrography Framework Working Group to discuss issues with the coming NHD hydrography linework and format standards, including migration from the regional 100K-based layer to the higher-resolution (24K) NHD product. Key issues for Washington include dealing with the existing Washington Framework approach, which includes conventions and agreements that run contrary to what the national NHD standards can support. WDFW is committed to pursuing an approach that benefits StreamNet data exchange and dissemination. |

Work Element: 99   Outreach and Education

Work Element Title: 1   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.

Milestone Title	Milestone	Accomplishments in the Fourth Quarter
1 CRITFC support professional and public involvement	CRITFC, on an ongoing basis and as requested, will 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 Regional Librarian attended the Natural Resources Information Council to discuss open source catalog software and provide information on the Library's electronic collections.
3 MFWP support professional and public involvement	MFWP, as requested, will 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.	A presentation for the OFWIM meeting is being prepared on Montana's Comprehensive Fish and Wildlife Conservation Strategy activities. StreamNet was used exclusively for the aquatic portion of the strategy.
4 ODFW support professional and public involvement	ODFW, on an ongoing basis, will produce public informational documents on StreamNet data activities for natural resource oriented publications, give oral presentations to relevant user groups, and participate in various meetings and forums in support of project goals.	The visiting Restoration and Enhancement (R&E) Board was given a tour of the Corvallis Research Lab where they were introduced to the various projects and people. A brief introduction of the R&E Web application was presented to the Board on July 29th, where we were able to respond to the Board's specific questions. The Board was pleased with the progress made so far. As an added bonus, several ODFW staff in the audience expressed strong interest in the IMS component of the application following the presentation. We drafted and submitted a StreamNet Newsletter item on the work we're doing with ODFW's Marine Resources Program. Our Project Leader attended the Fish Biologist Meeting on August 10 and 11 and represented the agency at the Oregon State Fair on Sept. 2. We arranged to have Dan Haug (GIS Manager - Confederated Tribes of the Umatilla Indian Reservation) come to Corvallis and give a presentation on the Tribe's GIS and data management system. Attendees were encouraged and inspired to pursue a similar system for the Lab, and possibly the agency.

5	PSMFC support professional and public involvement, publish newsletter	The Region will 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., with target dates of at least 12/31/04 and 07/1/05.	Publication of the second newsletter for the year was postponed until the next quarter.
6	PSMFC support professional and public involvement, professional presentations	The Region, on an opportunistic basis, will participate in and prepare and deliver presentations to scientific and professional meetings to demonstrate project capabilities and accomplishments, advertise StreamNet services, and to solicit additional data and coordination.	The Program Manager participated in a workshop hosted by CSMEP on regional scale monitoring. He brought up issues related to the need for data management consideration in developing a monitoring program and discussed how StreamNet could assist.
7	PSMFC support professional and public involvement, produce public materials	The Region, as needed, will develop and distribute materials to support the project and improve public materials such as the StreamNet brochure, data inventories, etc. as needed. They will maintain and update explanatory materials such as the Query System User Guide and documents explaining data categories and data structures, as necessary.	Existing materials were maintained and remain available on the StreamNet website. No new materials were prepared this year
8	WDFW support professional and public involvement	WDFW, as needed or requested, will 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 Data Manager assisted other regional office staff by working the WDFW information booth at the Clark County Fair.

Work Element: 119 Manage and Administer Projects

Work Element Title: 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 / budget preparation and implementation, coordination among participating agencies, and project guidance through active participation in steering committee work.

Milestone Title	Milestone	Accomplishments in the Fourth Quarter
1 Project oversight and guidance: Project management and Steering Committee	All StreamNet cooperators will perform project oversight and guidance (at both cooperator and Regional levels) and will participate cooperatively in the StreamNet Steering Committee to guide the direction of the project, coordinate among agencies and resolve policy and technical issues for the	All cooperators conducted routine project management activities during the quarter. Project guidance was preformed by all members by participating in the quarterly Steering Committee meeting, held July 26-27 at PSMFC. The primary focus of the meeting was long term plans for the project in light of the upcoming solicitation for FY 07-09. That lead to discussion of a long term vision for the project. Other Steering Committee topics included work with CSMEP, mixed scale hydrography, work on Data Exchange Formats, how to display hatchery return data, and how to deal with missing data when surveys were conducted but samplers were unable to make counts due to too many individuals. Following the Steering Committee discussion, a formal StreamNet Vision document was drafted, with completion planned prior to submission of the next project proposal. Project participants reviewed the draft and provided input, and further development is planned for the next Steering Committee meeting in FY-06. Project members also provided input and guidance for a white paper written to outline data management needs for monitoring programs, which was prepared to assist the CSMEP project.
2 Project oversight and guidance: Supervision	All StreamNet cooperators will, except for FWS, supervise project staff and provide guidance and staff development.	All cooperators, except for FWS, conducted routine staff supervision, including performance evaluations and staff guidance. ODFW filled its Software Developer/Assistant Database Manager position, and recruitment began for two related positions on other funding. One staff member attended required Advanced Driver Training. The GIS Analyst completed all 4 modules of ESRI's free Virtual Campus geo-database course, and the Data Analyst completed another lesson of module 3 of the web based Learning ArcGIS 8 Virtual Campus course.

For WDFW a new Human Resources initiative brought significant change to all aspects of personnel management, including collective bargaining, union representation for most employees, and adoption of less flexibility in work scheduling by WDFW management. Serious challenges to morale and productivity were dealt with as employees struggled to adjust to rapid, serious change without adequate preparation time or means with which to meet the new requirements.

| 3 | Project oversight and guidance: Budget control | All StreamNet cooperators will manage expenditures to accomplish the jobs in the Statement of Work within the approved budget. | All cooperators performed routine budget tracking, with particular attention paid to monitoring end of fiscal year spending. The FY-06 budgets were distributed to cooperators and entered into their systems.

WDFW and PSMFC completed a contract amendment to reflect work done by a PSMFC employee for WDFW StreamNet.

ODFW and PSMFC completed a contract amendment to reflect adjustments to accomplish project goals despite an unexpected staff vacancy. |
5	FY-05 accrual reports, second	PSMFC, with input from the cooperating projects, will produce interim accrual reports (June and August) and provide them to BPA.	PSMFC submitted the required accrual estimates in August.
6	FY-06 draft SOW/budget package, PSMFC	PSMFC, with input from all project cooperators, will prepare and submit a Statement of Work and budget to BPA 90 days prior to the end of the FY-05 contract period.	The FY-06 work statement and budget, which had already been entered in Pisces, were adjusted to account for changes in internal PSMFC charges and to reflect commitment to supporting the CSMEP project. Minor adjustments by project cooperators were accommodated.
6	FY-06 draft SOW/budget package, cooperators	Project cooperators will provide their respective input to the FY-06 Statement of Work and budget to PSMFC 105 days prior to the end of the FY-05 contract period.	All cooperators provided final review and comments for the FY-06 SOW and budget. An effort to coordinate updates for annually updated data types led to some adjustments in the schedule. The ODFW Project Leader drafted a detailed description of the native non-game fish distribution effort being planned for FY-06.

Work Element: 141 Produce Status Report

Work Element: 141   Produce Status Report

Work Element Title: 1   Quarterly reports

Produce quarterly performance reports on project activities and submit them to BPA within 15 days of the end of each quarter. Once PISCES is fully functional, submit quarterly status reports through PISCES.

Milestone Title	Milestone	Accomplishments in the Fourth Quarter
4 April - June 2005 Status Report submitted to BPA via PISCES	The StreamNet contractors will report accomplishment of the work outlined in the revised FY-05 Statement of Work by Work Element, third quarter, to PSMFC.	All cooperators submitted input to the Third Quarter Performance Report to PSMFC. They also provided review and comments for the draft report prior to its being submitted to BPA. ODFW also reviewed And provided comments on its agency's corporate quarter report.
4 April - June 2005 Status Report submitted to BPA via PISCES	The Region will report accomplishment of the work outlined in the revised FY-05 Statement of Work by Work Element, third quarter, through a status report submitted via the online PISCES system to BPA by July 15, 2005. PSMFC will also prepare its standard format quarterly report for the third quarter, but organized around the Work Elements rather than the Objectives as in past reports.	With input from all member projects, the Third Quarter Progress Report was prepared and submitted to BPA. At the end of the quarter, project members were instructed to begin work on the Fourth Quarter Progress Report in order to meet the short deadline in the next fiscal year. The Pisces performance report was not done because the Pisces report system was not ready.

Work Element: 132 Produce Annual Report

Work Element: 132   Produce Annual Report

Work Element Title: 1   Annual report

Produce an annual report for FY-05 project activities within 30 days of the end of the fiscal year.

Milestone Title	Milestone	Accomplishments in the Fourth Quarter
1 PSMFC 2004 annual report submitted to BPA	The Region will submit the FY-04 annual progress report to BPA. The format will be abbreviated due to the level of detail conveyed in the quarterly reports, with the final report also published as a brochure.	While the formal Annual Report for FY-05 is part of the FY-06 Statement of Work, BPA added a requirement not specifically included in the FY-05 SOW to require an annual performance report for FY-05 be input in Pisces by the end of the year. Attempts to enter this report were prevented by internal problems with Pisces not allowing access to the system. The report will be entered in the first quarter of FY-06.

Work Element: **115 Produce Inventory or Assessment**

Work Element: 115   Produce Inventory or Assessment

Work Element Title: 1   Inventory of data for the CSMEP Project

Milestone Title	Milestone	Accomplishments in the Fourth Quarter
1 IDFG conduct data inventory for the CSMEP Project	IDFG will conduct an inventory of existing fish related data in support of the Coordinated Systemwide Monitoring and Evaluation Project (CSMEP).	The CSMEP data inventories for the upper Salmon and Middle Fork Salmon basins were completed.

Supplemental Information

Work accomplished outside the specific work elements in the SOW

This section describes specific accomplishments during the fourth quarter that did not relate specifically to any of the Tasks / Work Elements in the annual Statement of Work. These activities either were performed on StreamNet contract funding but related to topics that were not specifically covered by a milestone in the Statement of Work (SOW) or they were performed by staff of the various StreamNet projects but on other funding. Work is often done by StreamNet staff on other funding because the StreamNet contract is not always sufficient to support all staff time. Such work is reported here when it relates specifically to StreamNet objectives or is ultimately of benefit to the project.

Project   Accomplishments, Fourth Quarter 2005

CRITFC   The CRITFC is committing substantial additional effort and funding in activities that directly and indirectly support StreamNet objectives. Using its own funding, CRITFC funds all or most of the Project Leader and two GIS Specialist positions. Most of the Project Leader's involvement in StreamNet is paid for with CRITFC funds.

The Project Leader is also very active in support of related regional and NPCC program activities. Specifically, he is an ex-officio member of the ISAB, serves on the steering committees of the PNAMP and NED, and is co-chair of the NED Subbasin Data Workgroup. Additionally, The Project Leader is a member of the CBFWA AFAC and MAG groups. Across these groups and activities, he provides a consistent voice and advocacy for improving information management and sharing.

The GIS Specialists are developing new tools and geo databases to provide data sharing and analyses to support four major fish management processes: the U.S. v Oregon court case, Pacific Salmon Treaty, recovery planning under the ESA, and the NPCC Fish and Wildlife Program. The GIS Specialists are leading an effort to capture and archive data used for recently developed subbasin plans in a GIS format. This effort is supported by Power Council/BPA funding.

These three individuals, plus a Database Programmer and the CRITFC Network Administrator, are using EPA funds to develop a collaborative tribal environmental information sharing network. As it is tested and implemented this network will improve access to large and growing tribal environmental and fish databases. During development of this system we will explore methods to share tribal data with other regional information systems, including StreamNet.

MFWP   Montana's draft Fish and Wildlife Conservation Strategy was reviewed, including Information Management Unit's (IMU) role in the monitoring of the species and the survey and inventory areas of the Strategy. The Unit continued to play a key role in the State Wildlife Grant Technical Committee including developing options for implementation of the Strategy. A presentation will be given at the annual OFWIM meeting on aspects of Montana's strategy and staff have been involved with organizing a CFWCS session including discussion topics.

A major application to track Game Damage and Wildlife Incidents was developed for FWP; the application will be deployed on the FWP internal website and will be focused on game damage, bear and lion incident and urban wildlife. The application will be deployed in November. The agency has determined that an Information Services Division needs to be created that will centralized all IT/IM functions into one division - the division will include Network Support, Application Development, Operations Support and the Information Management Unit. The proposal is to the governor and if approved, a division administrator will be hired by the end of the year.

The IMU staff moved into a new office area within the Montana State Library; 6 other FWP staff also moved into the area. Steve Carson will represent FWP on the Hydrography I-Team.

ODFW   Efforts continued towards researching, designing, and developing a database to track Restoration and Enhancement funding applications that interacts with ArcIMS. This is the first significant ArcIMS effort for ODFW, and along with Wildlife Division needs, is one of the primary reasons the necessary hardware and software was successfully acquired. The application was released for beta testing during the quarter, and feedback was incorporated on a routine basis.

We continued to provide data management, access, dissemination, and web development support to ODFW's Marine Resources Program (MRP). Specifically, we maintained the online groundfish harvest status tracking system, and updated the fishery quota status website through August.

Staff continued to support the Oregon Plan Review (Metadata Warehouse) site and provide technical support to numerous users of the site. Data compilation of Oregon Watershed Council datasets continued at a lower level in support of the Oregon Plan Assessment this quarter. This included posting statewide documents to the NRIMP Data Clearinghouse website, and creating a metadata record for each.

Oregon StreamNet staff support of the Statewide Wildlife Conservation Strategy continued throughout the quarter, mainly focused on providing GIS and analytical support. Efforts to incorporate public feedback and streamline the final document included using fish distribution data to add specific salmon species present in each Conservation Opportunity Area to the profiles. An ArcIMS web application (called the COA Explorer) to view the Conservation Opportunity Areas (COAs) from the Strategy along with other relevant layers is also under development.

Support of the Institute for Natural Resources' North Coast and Willamette Web Portals continued by modifying the Open Architecture Initiative (OAI) repository service to enable the filtering of datasets by locations using keywords during data harvesting procedures by the Portals. Because INR would like to duplicate this functionality on their system, we provided them with the source code to implement OAI repository server functionality in .NET.

Our GIS Cartographer completed a series of maps depicting cougar complaints per cougar quota hunt zone. This included preparing the data for input into GIS and further geocoding to provide point data on a map per hunt zone. Other hunt management mapping efforts were also completed this quarter.

WDFW   The Data Manager completed a first aid training course, including defibrillator training, and worked on the Combined Fund Drive as the Region 5 Local Coordinator, putting together fundraisers and calling local companies to seek donations as prizes.

The Project Manager spent significant time organizing and conducting 9 of 12 planned meetings across the state to review EPA's current draft designations for water quality with WDFW and tribal regional fish biologists. EPA used WDFW salmon, steelhead, and bull trout fish distribution and use data along with WDFW's SaSI stock-based spawning timing data and USFWS "key reaches" for bull trout in order to improve the original draft water temperature guidance issued by the Washington Department of Ecology. The goal is to let fish use guide surface water temperature regulations for Washington state, and our input was required to help EPA use our data in proper context. The remaining meetings will occur in October, at which time questions and recommendations from these meetings will be submitted to EPA for proposed adoption in their final set of regulations.

The Project Manager organized a meeting involving the leads of several key WDFW field sampling programs to discuss improving data capture, flow, and standardization for salmonid age data. We hope to greatly improve the age data repository we currently struggle to maintain in several databases covering different areas in Washington state.

The Project Manager's newest developer built data capture and QA/QC routines for Chinook telemetry studies in the Upper Columbia and adult returns and research data capture for WDFW's Snake River Lab in Dayton, Washington. In both cases, biologists were using primitive Excel spreadsheets and macros to try to manage their data, analyses, and reports. The systems we build here will serve as templates for other areas doing similar data collection and reporting work, which will simplify our access to standardized data from our distant regional offices in the future.

Our new developer also completed a comprehensive Access-based data system for the Blocked Area Resident Fish Stock Assessment (JSAP) Project WDFW jointly participates in with the Kalispell, Colville, and Spokane Tribes. This new system, which greatly improves the simple Excel-and-Access system currently used to manage the stream habitat and fish sampling data currently collected by WDFW on this project, will be tested on 2005 sampling data beginning in October.

PSMFC   The GIS Specialist spent most of the fourth quarter working on the Pacific Coast Marine Habitat Data Project on other funding. This was possible because the StreamNet contract only covers ¾ of the specialist's time. A website and Internet map application was created to present data developed as a part of the Pacific Coast Groundfish Essential Fish Habitat Draft EIS. Lessons learned during the course of this project will benefit StreamNet and the potential exists for synergy between these and other GIS efforts at PSMFC. The web site will be accessible through the PSMFC website http://www.psmfc.org/ after final review and editing.