



# **StreamNet Project**

**BPA Project No. 198810804**

## **Fiscal Year 2002 Fourth Quarter Progress Report**

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## **Introduction**

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

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

Work priorities for FY 2002 include updating existing long term data sets, managing the data and infrastructure necessary to maintain and deliver data, maintaining the StreamNet Library, providing data services to regional entities associated with the Fish and Wildlife Program, and project administration. This year the distinction between anadromous and resident fish data in the data development objectives was dropped, and the annual statement of work was reorganized to reflect that change in approach. This year, the agencies indicate in each individual job whether the work is directed toward anadromous or resident species for each particular data type. This change is a change in organization, not project direction. The majority of work remains focused on anadromous species due to the sport and economic value of these species and because of associated Endangered Species Act aspects. However, efforts are also underway to develop increased information on resident species distribution, and increased effort is directed toward identifying resident species information that may be developed by other projects funded through the FWP and obtaining those data for archiving so that they are more widely available.

This report documents accomplishments made by the project and its cooperators during the fourth quarter of Fiscal Year (FY) 2002. Since the cooperating agencies work on different jobs throughout the year, and not all agencies address the same jobs in their respective portions of the Work Statement, the work accomplished in this quarter varies by cooperator. Tasks and jobs that did not have any work addressed during the quarter are not included in this report.

Activities in the fourth quarter of FY 2002 included routine development, maintenance and posting of various data sets, as well as routine administrative activities to continue project function. Key highlights of activities by each of the project participants this quarter are presented below:

#### Columbia River Intertribal Fish Commission (CRITFC)

1. Problems with the existing harvest data were identified previously. In the fourth quarter we developed prototype alternative harvest information to replace the existing data sets. These are now being checked and modified.
2. The bulk of fourth quarter activities focused on providing and extending routine Library services. Significant amounts of material were exchanged with other libraries which filled in voids (principally in journals and unpublished technical reports) in the existing collection. Requests for information concerning anadromous fish recovery planning under the ESA and subbasin planning were filled in the fourth quarter. A new lease agreement was completed to obtain additional Library space, which will provide adequate room to incorporate material used for the Council's subbasin planning efforts.
3. Significant time was spent by StreamNet staff (through other funding sources) working with Council and agency staff to organize subbasin planning efforts. These discussions included a number of data management issues and there is growing regional acceptance of the StreamNet system as an integral component of subbasin planning. A draft contract with the NWPPC was prepared to allow the Library to digitize the reference material needed for and developed during subbasin planning. This is both a complement to work accomplished by the project and a challenge to incorporate more regional services in the future.

## U. S. Fish and Wildlife Service (FWS)

The Fish and Wildlife Service, the smallest component of the StreamNet project, accomplished routine tasks, including production of the FWS portion of the Third Quarter Report and participating in the quarterly Steering Committee meeting.

## Idaho Department of Fish and Game (IDFG)

1. After completing a thorough review and update of the entire IDFG hatchery return and age composition database, we submitted 1998 - 2000 hatchery return and hatchery facility data to StreamNet. The data were imported into the StreamNet web site and are available to the public.
2. A thorough review and update of the entire IDFG redd count data set was completed. Errors were corrected and additional data were found and entered. A review of the trend definitions that the data are rolled up into for StreamNet still needs to be done. The 1998 - 2000 data will be submitted based on the current trend definitions and then the definitions will be reviewed for a later complete update.
3. Internal capabilities to build and manage a comprehensive fish information system made a major step forward with the installation and configuration of two new servers and related equipment and upgrading to a Windows 2000 network. The equipment was purchased with IDFG funds, not StreamNet, but will serve as the infrastructure and framework for the Idaho Fish and Wildlife Information System, which will hold the StreamNet databases and tools.
4. GIS data and tools were installed in two more IDFG regional offices. This provides people with the tools and data for standardizing their data on StreamNet compatible codes.

## Montana Fish, Wildlife and Parks (MFWP)

Work on Objective 1 continued smoothly; genetic data and the corresponding distribution data have been updated and the data are current through 2001. Participating in the Montana Westslope Assessment process will greatly update the westslope cutthroat trout and barrier data. StreamNet staff have been closely involved with the development of the products for the assessment. StreamNet staff will participate at each meeting and all data collected will reside in MFISH. The only date not met will be for the barriers data due to the amount of information that will be collected during the Westslope Assessment. A decision was made to contract the 1/2 time fisheries data management duties that were lost when Steve Carson became the data manager for a new wildlife data system for nongame occurrence and habitat survey data. A contract with the Montana Natural Heritage Program will be used with a 1/2 GIS position that they are filling. The position will be located in Helena. A presentation about StreamNet in Montana was given at the NWPPC August meeting and was well received. The project leader attended the August SC meeting and had a follow-up assignment to create a first draft of a DEF Review Process; the draft was completed, review comments received and a second draft will be discussed at the October SC meeting. A considerable amount of time was spent on reviewing the other data management projects prior to the CBFWA review in September.

## Oregon Department of Fish and Wildlife (ODFW)

1. Oregon submitted a great deal of information to StreamNet during the fourth quarter, including distribution, barriers, dams, fish barriers, hatchery facilities, numerous abundance trends, and an independent data set of Oregon's carcass placement efforts.
2. Using funding provided by the Governor's Natural Resources Office and Oregon Watershed Enhancement Board, we continued to update 1:100,000 scale fish habitat distribution data in the entire anadromous zone of Oregon, and also to develop fish habitat distribution data at the 1:24,000 scale for this same area. Conversion of all the hardcopy information into electronic format was completed during this quarter, and led to the improvement of the locational accuracy of many of StreamNet's data sets including barriers, fish barrier information, dams, and distribution. This effort will continue through the end of the calendar year, and should continue to greatly improve the accuracy of many StreamNet data sets from Oregon.
3. Oregon staff spent a considerable amount of time developing Oregon's portion of the ISRP response from StreamNet, including a description of Oregon's QA/QC procedures for redd count data, and a task by task breakout of our budget request for FY-2003. We also reviewed and commented on StreamNet's response to specific ISRP questions.
4. In response to a request from Oregon's CBFWA representative, Oregon collaborated with other StreamNet Steering Committee members to review five of the six data management projects in the Systemwide Province (excluding StreamNet). Staff also represented ODFW during the CBFWA Provincial Review process.
5. Staff participated regularly during the quarter in Oregon Subbasin Planning Group meetings, and provided feedback on data related topics as needed.
6. Two proposed data exchange formats for fish screen and hatchery fraction information were submitted to StreamNet for review and adoption.
7. We accomplished normal project activities, including completion of quarterly reports, attendance and participation in the StreamNet Steering Committee meetings, and responding to direct requests for information.

## Washington Department of Fish and Wildlife (WDFW)

1. Our salmon natural spawner data update was a huge milestone. Before this submittal, our most recent update for this data type occurred in 1998 for steelhead data. Consistent updates were hindered by losing essential knowledgeable staff, the complexities of the data type, the labor in gathering the pieces that are scattered throughout the agency and the press of too many other StreamNet priorities.
2. Our work with ArcView projects and our investments to use GPS tools are enabling us to resolve many of the pressing location related problems.

Pacific States Marine Fisheries Commission (PSMFC, or 'the Region')

Regional efforts centered around routine project operations, including loading and quality assuring data submitted by the cooperators, software upgrades and project administration. Key accomplishments the fourth quarter included:

1. Replacement of the Regional GIS Specialist. The previous GIS Specialist provided enough lead time that we were able to interview and hire a replacement in time to allow a period of overlap to facilitate the new specialist learning how the project functions.
  2. Significant effort was required to respond to reviewers comments as part of the Mainstem and Systemwide project review and approval process being used this year.
  3. A newsletter was distributed to highlight new features and data contained in the StreamNet web site. The newsletter is intended to be an ongoing feature to periodically highlight changes and enhanced services and capabilities. Over 850 people had signed up to receive future update newsletters by the end of the quarter.
  4. In response to user requests we instituted a new capability to retrieve data by Trend Number. This allows users to come back and retrieve updated data without having to repeat the query process. The one caveat is that Trend Numbers are internal tracking numbers and do occasionally change.
  5. StreamNet has participated actively in the Columbia Basin Cooperative Information System (CBCIS) project being conducted for the Power Planning Council by Science Applications International Corporation (SAIC). The project is attempting to conduct a data needs and data availability inventory in preparation for recommending an approach to basin wide data management.
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## Objective 1 Data Development and Updates, Priority Data sets

Support the need for region wide fisheries data for research, monitoring, modeling, and management through acquisition and regional standardization of new information and updates to previous information for priority fishery data types. These priority data types will be addressed by all data providing agencies, or for specific data types by a single cooperating agency on behalf of the entire project. This Objective addresses both anadromous and resident fish species, although priorities may differ.

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Objective 1 Data Development and Updates, Priority Data sets

### Task 1 Distribution and life history (use type)

Document the occurrence, distribution and life history characteristics of native fish species, both resident and anadromous. Project participants have placed a high priority on updating these data during the fiscal year, utilizing newly re-defined use types.

Project Job Planned work elements

Accomplishments, Fourth Quarter 2002

IDFG 1 Compile available IDFG data on fish distribution into the IDFG/StreamNet Fish Information System. These data will come primarily from Collecting Permit reports and IDFG files being digitized via a BLM Challenge Cost Share grant. Both of these data entry efforts are independent of StreamNet. Other data will be collected from incidental observations in other tasks. Convert these data into StreamNet data exchange format and send to PSMFC as they become available.

Data continued to be entered by IDFG staff into the IDFG/StreamNet-developed Fish Information System. Data included collection permit reports and stream survey data. These data will be used to update the StreamNet generalized fish distribution data.

MFWP 1 Complete Distribution and Use Types data set from data collected from biologists, documents and reports during 1999-2000 using LLID stream routes. Exchange the data to the StreamNet database in the approved DEF format.

The edits and additions are ongoing.

MFWP 2 Visit MFWP biologists in 2002 to collect 2000-2001 fish distribution and supporting survey data and references. Obtain data from federal biologists using our developed interface. Input all this information into the MRIS tables.

The edits and additions are ongoing.

ODFW 1 Update, maintain, correct and exchange anadromous and resident fish distribution information (DistUse and DistPresence tables). Efforts will focus particularly in the Upper portion of the basin (NE Region, upstream of the Hood River basin).

1. The GIS Analyst further processed Malheur and Wallowa Whitman N.F. O. mykiss data for potential inclusion into our Distribution database. The 24K Project GIS Coordinator contacted Ralph Browning (Forest Fish Biologist) of the Wallowa-Whitman National Forest to verify whether the data are appropriate to include in our database as documentation. He thought not, and deferred to the opinions of the WWNF District biologists, which we have captured on our hardcopy maps and mylars during our 24K Project effort. The WWNF digital data will NOT be incorporated as documentation, but will remain professional opinion-based distribution.
2. The GIS Analyst identified and resolved additional QA issues within the Distribution database. He then reformatted Oregon's data into StreamNet Generalized Fish Distribution table format and submitted the anadromous species to PSMFC. He also submitted a limited set of distribution data records in the Upper Willamette Basin for resident rainbow trout to StreamNet. In addition, we developed a substantial number of distribution data records for resident rainbow / redband within the Columbia Basin, but are not submitting the data at this time due to the fact that it is not comprehensive in nature.
3. The 24K Project GIS Coordinator finished updating the federal ESA status for all 100K distribution records. Problems associated with identifying gene conservation group boundaries for state designations slowed the process, but it was recommended that we follow the federal boundaries to populate the state item. After receiving feedback from ODFW Fish Division staff regarding the Oregon State ESA listing status, she began populating the OR\_ESA field in the 100K Fish Distribution database.
4. The GIS Analyst appended 916 fish presence survey records to the Full\_Doc Documentation table. He also processed another 1740 records which will have their spatial locations based on coordinates rather than LLIDs and measures since they are associated with streams not found in the 1:100,000 scale streams layer.
5. The GIS Analyst completed DRAFT criteria for adding resident fish data to the Distribution database. He also resolved UseType discrepancies between Idaho and Oregon for Summer Steelhead in the Snake River.
6. Oregon's GIS Analyst synchronized the Distribution design master with existing replicas, and resolved various data conflicts. He also identified and fixed several records that had EndMeas values greater than the total stream length.

ODFW 2 Update (and modify if needed) the Fish Presence Survey database which helps populate the DistPresence table. These data will update the distribution data developed under Task 1.1.

1. The GIS Analyst addressed numerous issues related to fish observation data and how to translate them into linear distribution format. Staff worked together to develop protocols of "translation" that make only the safest assumptions to derive these data. Based on decisions made, we corrected existing resident *O. mykiss* event data to match finalized protocols.
2. The GIS Analyst initiated Documentation Q/A in relation to distribution data and as a result identified hundreds of coho records where documentation falls upstream of the distribution (27 records where the difference was greater than 2 miles). We developed a methodology for resolving these discrepancies in a comprehensive manner.
3. Staff determined minimum and maximum UTM coordinates for setting validation rules within the Fish Presence Survey database, and after cleaning up a few lingering Fish Presence Survey records that still had bad or inconsistent coding, we progressed down the path of creating documentation data based on these survey records.

ODFW 3 Update (and modify if needed) the Incidental Fish Observation database, which captures incidental species observations not routinely reported in agency documents, which helps populate the DistPresence table. These data will update the distribution data developed under Task 1.1.

The Project Leader entered a newly submitted IFO form from Jeff Neal in the John Day. This record adds distribution to a stream that had previously been designated as non-fish bearing. There are several more new forms to be entered that have come in over the past few months.

WDFW 1 Incorporate field updates for Washington fish distribution and use data (when provided) into WDFW's GIS database, with emphasis on bull trout and other sensitive salmonids this year. Update tabular files via export from the GIS database. Convert spatial and tabular data to new StreamNet exchange formats and submit to PSMFC.

1. WDFW is actively collecting new data on fish species distribution by conducting mapping parties in various regions of the state. We provided a custom map of the existing Cutthroat distribution that's already been documented in SW Washington and WDFW StreamNet staff contributed distribution knowledge at the Region 5 mapping party.
2. WDFW StreamNet staff continually conferred on technical issues and needs for WDFW's re-organization of the old and new distribution data.
3. Tabular/ GIS Compiler Gil Lensegrav assisted Fish GIS Manager Martin Hudson by using an ARC/INFO interface to align 100K StreamNet fish distribution end points with the SaSI end points in order to link the new 2002 SaSI attributes to the fish distribution tables. In addition, these adjusted points were "snapped" to WDFW's 24K hydro layer to form the basis of the new (higher resolution) fish distribution layer that is being created this year in WDFW.

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Objective 1 Data Development and Updates, Priority Data sets

**Task 2 Adult abundance in the wild**

**Develop and maintain information on adult abundance for native fish species, resident and anadromous, including escapement, redd counts, peak spawner counts, trap counts and dam and weir counts. Also included in this data category are data gathered during spawning ground surveys regarding straying of hatchery fish onto spawning areas, i.e., marked/unmarked ratio. Priority is given to updating these data through 2000.**

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, Fourth Quarter 2002</u>
IDFG	1	Submit 1998, 1999, and 2000 field season redd count data.	<ol style="list-style-type: none"><li>1. We completed our review of the entire IDFG/StreamNet redd count database. This did not include a review of trends.</li><li>2. We started to roll up our redd count data to existing StreamNet trends. This was started right at the end of the fiscal year and we did not complete the submission to PSMFC. Completing this task will be our first job in October and we should submit the 1998 - 2000 data within the first few weeks.</li></ol>
IDFG	2	Compile year 2001 field season redd count data and submit to PSMFC.	2001 redd count data continued to trickle in. We continued to enter the data as they became available.
MFWP	1	Complete input of 1999-2000 data, including trend, count and references; exchange to StreamNet.	Work continued on this ongoing job.
MFWP	2	Collect all 2000-2001 survey data during field office visits.	Work continued on this ongoing job.
MFWP	3	Input 2000-2001 data into MRIS, including trend, count and references. Provide data in data exchange format to regional StreamNet staff if completed.	Work continued on this ongoing job.
ODFW	1	Update existing abundance and indices trends (escapement, redd counts, trap counts, peak/other spawning counts, etc.) where data collection continues for anadromous and resident species through 2000 and modify as needed to adhere to any new data exchange standards. Three data submissions are planned.	<ol style="list-style-type: none"><li>1. The Database Analyst reviewed StreamNet Library documents and 60K trends with the goal of transferring ownership of the information to NRIMP (ODFW Natural Resources Information Management Program, which includes Oregon StreamNet). She found that most "references" are very poor; mainly just sheets of data, and occasionally the data didn't appear to be within the reference at all.</li><li>2. The Database Analyst continued updating Abundance Trends to 2000, completing all the trends from the Columbia Basin. She also continued efforts to examine Hatchery Return 60K trends with the help of the Database Manager. Staff updated location information for many trends based on newly entered EscData.</li></ol>

WDFW 1 Research, compile, convert and submit natural spawner data updates (returns and/or redd counts) through 2000 (and 2001 as available) for available species (Columbia River and Puget Sound).

3. The Database Analyst corrected errors identified during QA/QC activities. She reviewed the Trend Database for null values in the CountPerMile field where the TrendType was any "Count" Per mile variation. She used references to verify if a count was present, and calculated a value if there was none provided. She also compared StreamNet's tables with ODFW's EscData and Trend tables. This included approximately 900 Trend records and 3300 EscData records. Following this work, a Trend data submission was made in late September.

1. The Region 5 WDFW StreamNet Compiler and Data Manager updated and manipulated data preparatory for a StreamNet submission, including but not limited to stock code updates and an assessment of the 60K PSFMC trends. The data was submitted to the WDFW StreamNet Data Manager in aid of a StreamNet submission of salmon natural spawner data that would bring StreamNet data current through 2000 data. After review and further manipulation, the bulk of the data was submitted to StreamNet, yet, some records were rejected for various issues and a strategy for follow-up resolution was drafted. All staff contributed to this important submission with complex location coding needs.

2. Following the StreamNet submission, staff made changes to the database system to improve future submissions, began researching the rejected records, augmented documentation for the QA/QC process and continued to assess 60K PSMFC trends. Staff also received a Entiat River data report and entered the redd count data into the Escapement database.

3. The Region 5 WDFW StreamNet Data Manager spent considerable time in August and September reviewing sampling procedures for stream surveys on the Columbia River. Historical stream surveys on the Columbia River have been recorded on stream survey cards by river, index and date. These cards are in the process of being converted to an electronic format using new technology. GPS locations will be used to catalogue index areas on surveyed rivers and streams. Indexes will then be converted from a named place to reflect from X river mile to Y river mile. River mile was chosen (instead of BegFt, EndFt) since the biologists prefer river mile and the data can easily be converted to StreamNet's format.

4. Separate from the salmon data work and submission, we began work to resolve the 60K steelhead trends.

5. Per request, one staff member assisted on a Green River Chinook salmon mark / recapture field project.

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Objective 1 Data Development and Updates, Priority Data sets

**Task 3 Hatchery releases**

**Develop and maintain information on the release of hatchery reared fish. Priority is given to updating anadromous release records using RMIS data for anadromous species through 2000. Release data for resident species are currently low priority and will require specific resources in the future. Efforts this year will focus on creating cross references between PSC release codes and LLID stream location identifiers. We will explore means of providing data on specific release locations rather than more general PSC codes.**

Project Job Planned work elements

Accomplishments, Fourth Quarter 2002

FWS 1 For anadromous hatchery releases, compile FWS hatchery release data, w/ added CWT information. Transform data to format 032. Submit 2001 hatchery release data to PSMFC via USFWS WWFRO.

The FWS Project Leader did an initial transformation of 2002 release data into the new PSC format 4.0.

ODFW 1 Acquire specific release location information for select releases in the Willamette, Lower Columbia, or Sandy basins as available.

1. The Database Manager started work on implementing Hatchery Release functionality into the query system created last year for Hatchery Return information. He downloaded vocabulary lists for the Fish Liberation and Coded Wire Tag tables from the HMIS system, and worked on creating queries that will relate these two tables, as they are two unrelated entities within the HMIS system.  
2. The Database Manager sent a sample hatchery release data set to the Regional Database Manager to see if the data satisfied regional needs. In the end 17 Trends were created along with 314 detail records; all from one hatchery, for one species, in one brood-year. The Regional Database Manager brought up some issues that were overlooked and so the data were reworked and sent back to PSMFC for further review. In the end, he recompiled the hatchery release data from Stayton Pond. 15 Trends were created along with 285 detail records; all were submitted to StreamNet.

ODFW 2 Investigate if Hatchery Release data can be acquired in an unrolled format prior to it being submitted to RMIS.

The Database Manager/Developer identified 18 distinct water codes and descriptions for the hatchery release test data. Our Database Analyst converted those water codes to LLIDs and BegFt measurements. At that point, actual count numbers for the HatchRel table were created using ratios derived from the RMIS system. This rolled hatchery release test data set was delivered to PSMFC. This data set totaled 17 Trends, with 314 detail records, which was for one hatchery, one species, for one brood-year. The Regional Database Manager brought up some issues that had been overlooked and so the data were reworked and resubmitted to PSMFC.

Region	3	Assist agencies to replace certain Hatchery Release records with records having specific locations and times rather than general "supercodes" originating from the PSC data exchange requirement that all releases of coded-wire tagged fish must be rolled into a single release record per tag code. This task requires that CWT data be resubmitted from agencies in either StreamNet data exchange format or a modified PSC data exchange format. The new formats will avoid pooling releases by tag code; thus allowing more detailed release location and timing information.	The Data Manager received a test record set of about 285 records in Pacific Salmon Commission (PSC) data exchange format prior to being rolled up by coded-wire tags. This sample set will be reviewed and evaluated to determine if this method of loading Hatchery Release data into StreamNet resolves many of the PSC location code to LLID conversion problems.
WDFW	1	For anadromous species, research, compile, convert and submit existing WDFW anadromous release data as detailed, "unrolled" records directly to StreamNet (instead of via RMIS). As warranted, organize procedures to ease future updates.	Hatchery releases continue to be a highly requested data category and until we make a submission to StreamNet we continue to handle any requests that come to our WDFW StreamNet staff.
WDFW	3	WDFW resident data is fractured in several collections by year. Research, compile, convert and submit data for any years we have finalized at a given time, until all collections are submitted. (Progress with this data set relies upon improvements to our Lakes spatial layer first).	We continued to assign StreamNet's location codes (LLIDs, etc) for any records pertinent to a direct data request.

Objective 1 Data Development and Updates, Priority Data sets

**Task 4 Hatchery returns**

**Develop and maintain information on the return, disposition and straying of adult fish returning to hatcheries, including information on coded wire tags. This is an anadromous related task only. Priority will be placed on updating total return and egg take data through 2000. Development of disposition data is lower priority and would require additional resources.**

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, Fourth Quarter 2002</u>
FWS	1	Compile FWS hatchery return data for FWS hatcheries and submit to the regional database	Pastor worked with regional GIS specialist David Graves to produce maps which will facilitate the display of hatchery recovery information.
IDFG	1	Submit 1998, 1999, and 2000 return season hatchery return data.	We delivered the 1998 - 2000 hatchery return data to PSMFC.
IDFG	2	Compile year 2001 return season hatchery return data and submit to PSMFC.	2001 hatchery return data were entered into the database as they become available.

ODFW	1	Compile data on returns to ODFW hatchery facilities (updated through 2000 returns where possible).	<ol style="list-style-type: none"> <li>1. The Database Analyst designed a form to allow easier viewing and reviewing of Hatchery Return data. This new form is being used in our process to transfer historic PSMFC Hatch Return records to Oregon's responsibility.</li> <li>2. The Database Manager/Developer downloaded Hatchery Return information from the HMIS system using the Insyte Query System seeking to identify new records. He also downloaded the Vocabulary lists and sample data to ensure no internal data structures had changed. Following this, he downloaded all the raw hatchery returns data and started processing it to perform comparison checks against last year's data. Fifty-four new trend were created, along with 448 detail records. These data were submitted to StreamNet.</li> </ol>
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Objective 1 Data Development and Updates, Priority Data sets

**Task 5 Dams and Fish Passage Facilities**

**Develop and maintain information on dam facilities. Enhance the existing StreamNet dams data set by updating relevant data from the Pacific Northwest Hydropower Database and Analysis System (NWHS) and the National Inventory of Dams.**

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2002
MFWP	1	Complete the creation of a Montana dams spatial coverage and associated data in the StreamNet exchange format. Layer and data are being created using the NWHS and the National Inventory of Dams. Tasks to date include combining the data from the two sources; manual checking needs to be done before the final product is completed. Exchange the Dams data set to the StreamNet database.	We made minor spatial edits to the Dams and Passage Facilities database.
ODFW	1	Update, maintain, correct and exchange dam information (as part of the Barrier database).	<ol style="list-style-type: none"> <li>1. Staff performed extensive QA/QC on the barrier/dam database, as well as added lat/long coordinates to five 24K dams and removed three other dam records because they were erroneously created during recent system tests.</li> <li>2. The Assistant Database Manager submitted dam data to StreamNet. The data submission included 1,283 dam records, which is 98% of the total number of dam records in the ODFW database, 1,022 DamXDamPurpose records, and 987 DamXDamType records.</li> <li>3. The GIS Analyst created coverages of status level 1 dam data in order to work in the direction of posting these data to the FTP site and make them available publicly. He also documented online files and data processing procedures.</li> </ol>

Region	1	Assist data contributing agencies in development of data, including formatting, coding, data entry, error checking, and submitting to the regional database.	We received a draft DEF for Screening and Fish Passage data from ODFW; this will be reviewed for inclusion into StreamNet during the next project quarter.
WDFW	1	StreamNet currently carries Washington dam information that wasn't officially exchanged by WDFW. We will compare StreamNet's existing Washington dams data with WDFW's internal dam layer and any other dam data resource (i.e. DOE's dams), adjust the WDFW layer accordingly and submit to StreamNet.	Staff continued to research and update the dams data file. We are augmenting the database with data from WDFW's SSHEAR GIS data sets in preparation for future data exchange. We also analyzed a "Power Dam Investigations" publication for additional data to add to dams database & shapefile. More work is pending.

Objective 1 Data Development and Updates, Priority Data sets

**Task 6 Hatchery Facilities**  
**Develop and maintain information on anadromous and resident hatchery facilities, including information on location, design, management and authorization. Information will be updated through 2001 for required fields. We will review the optional (non-required) fields in the DEF.**

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, Fourth Quarter 2002</u>
IDFG	1	Submit hatchery facilities table in data exchange format to PSMFC.	We updated the coordinates for Idaho hatchery locations and submitted the hatchery facility data to PSMFC.
MFWP	1	Update the StreamNet hatchery database with Montana's public and private facilities. Exchange with StreamNet upon completion.	This job has been completed already. The next anticipated update is February, 2003.
ODFW	1	Incorporate temporary facilities that correspond to hatchery return data but are not yet in the data set.	There were no temporary facilities that needed to be added to the Hatchery Facilities data set this year. All hatchery return data we encountered could be linked to a facility already in the data set.
ODFW	2	Maintain hatchery facility records and update location information as available.	<p>1. The Assistant Database Manager reviewed our hatchery facility records and noted a few improvements that could be made to the data entry screen. She also added the seven new hatchery facility records and updated all of the hatchery facility records in the database with the additions/changes suggested by our GIS Analyst. Lastly, she entered new hatchery facility elevation data, which was provided by Mark Lewis from ODFW.</p> <p>2. Oregon submitted 84 updated or new hatchery facility records to StreamNet.</p>

WDFW	1	In an on-going effort, digitize hatchery facility sites and correct existing site locations as more site information is learned. Complete, convert, and submit Washington state hatchery facility data (including federal and tribal facilities as available), focusing on the location related fields per the 2001.1 format and facilities needed to support hatchery release and returns data. As time permits, update other hatchery facility related fields (including the water source table).	<p>1. Eric Lowrance of BPA contacted WDFW staff to get accurate hatchery facility data after consulting the StreamNet's website and finding it lacking in location accuracy and site availability . The WDFW StreamNet Data Manager maintains the agency's most accurate and comprehensive data set and StreamNet has the most current update. She attempted discussion with Eric but they haven't identified the specific issues yet.</p> <p>2. WDFW hired a contractor to develop an ARCIMS application to post on the agency's website. Among other things this application allows visual display of hatchery facility sites. We provided the contractor with hatchery facility data as requested and continue to work with them on their needs.</p>
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Objective 1 Data Development and Updates, Priority Data sets

**Task 7 Harvest**

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

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2002
CRITFC	2	Correct and update ocean and mainstem Columbia River harvest data as agreed to by Steering Committee	Ocean harvest data were assembled from Pacific Salmon Commission and Pacific Marine Fisheries Commission reports. The following sets of reports are being tested: 1) written descriptions and a map of coast-wide catch summary areas, 2) Total chinook and coho catch for 6 standard ocean areas, 3) Aggregate Columbia River mainstem commercial, sport, and ceremonial and subsistence catches for 3 reporting areas, and 4) stock-specific catches for Pacific Salmon Commission Columbia River indicator stocks by catch area.
ODFW	1	Compile and exchange updated and/or new tributary sport harvest data.	The Project Leader acquired sport harvest data through 1999 from Mark Lewis, ODFW Ten harvest records were submitted to StreamNet based on these data. The remainder of the information will be submitted during the first quarter of FY-03.
WDFW	1	As funding and time permits, compile freshwater harvest for key Columbia Basin salmonid stocks for both anadromous and resident data , using existing WDFW data sets (i.e. Angler Fish Database) and other sources. Standardize the data (to stock if possible), convert and submit it to PSMFC.	We spent a couple of weeks in September working on the CWT/Snout sport summary reports for the Columbia River. This data was sent to the WDFW CWT Analyst (Susan Markey) for final processing.

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## Objective 2 Data Development and Updates, Other Data sets

Support the need for region wide fisheries data for research, monitoring, modeling and management through acquisition of new information and updates to previous information for data sets of medium or lower priority as time and funding allow. This objective includes anadromous and resident species.

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Objective 2 Data Development and Updates, Other Data sets

### Task 1 Habitat Restoration/Improvement Projects

Acquire data sets related to habitat restoration / improvement projects from the multiple agencies, tribes and organizations within the Columbia Basin and compile and maintain them in standardized, consistent formats. This data category is still being organized, but interest in this information is growing. Existing data sets will be maintained and enhanced as practical. Additional sources of this information will be explored.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2002
MFWP	1	Continue to collect, centralize and maintain all stream restoration projects for Montana using the "Future Fisheries Interface" which StreamNet staff maintains and the Fisheries Division inputs data. Exchange data to the Region twice during the year.	Work continued on this ongoing job.
ODFW	1	Maintain, correct and exchange existing restoration project information.	There were no requests to update or correct existing records this quarter.

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Objective 2 Data Development and Updates, Other Data sets

### Task 2 Barriers and diversion/screening

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

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2002
MFWP	1	Continue to collect barrier location, species affected and other fields on stream barriers in Montana. Information will be collected on all species regardless of life history. Exchange Barriers data with the StreamNet database.	The data exchange was delayed because new barriers data is forthcoming as a result of the statewide westslope cutthroat trout assessment meetings concluding on October 24, 2002. Data exchange will occur in the first quarter of 2003.

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ODFW	1	Update, maintain, correct and exchange adult migration barrier information.	<ol style="list-style-type: none"> <li>1. The GIS Analyst created coverages of status level 1 barrier data in order to work in the direction of posting these data to the FTP site and make them available publicly. He also documented online files and data processing procedures.</li> <li>2. The Asst. Database Manager added latitude and longitude fields to the barrier table, and made extensive changes to all of the forms in the barrier/dam database.</li> <li>3. Oregon submitted barrier data to StreamNet. The data submission included 2,101 barrier records, which is 96% of the total number of barrier records in the ODFW database.</li> </ol>
ODFW	2	Update, maintain, correct and exchange anadromous and resident fish barrier data.	The GIS Analyst completed QA efforts in relation to the Fish Barrier table, and Oregon submitted 1,210 additional fish barrier data records to StreamNet.
WDFW	1	If funding and time permits, review existing Washington state barriers (in GIS format) and identify additions and corrections needed and plan for future exchanges. Any barrier work plan will depend first on establishing a WDFW Dams spatial layer (see Objective 1, Task 5, Job 1).	Upon learning that ODFW would soon come out with a Screens DEF proposal, the WDFW StreamNet Data Manager started assessing the likeliest WDFW contacts for this type of data. She reviewed WDFW web sites and contacted the Yakima Screen Shop, requesting their data.

Objective 2 Data Development and Updates, Other Data sets

**Task 3 Juvenile data, abundance and outmigration**

**Develop and maintain information on smolt production (as determined from smolt traps), juvenile abundance (as determined through snorkel, electrofishing, and other surveys), and smolt density model estimates. Primary emphasis will be on maintaining the existing smolt density model data. The rest of this data category is still under development and may require additional resources to accomplish.**

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2002
CRITFC	1	Seek to obtain tribal data on smolt abundance. Inform Steering Committee on data availability	No work this quarter. These data types will be explicitly addressed in the prototype data system developed and tested with Yakama Nation data next year.
IDFG	1	Begin design and collection of juvenile trapping component in IDFG/StreamNet Fish Information System. At current funding levels this task will be of lower priority than Objective 1 data components and progress will depend on completion of Objective 1 tasks. This task is also dependent on collaboration with non-StreamNet projects in IDFG.	IDFG biologists used the IDFG/StreamNet Juvenile Trapping program to conduct quality control on data collected last year. They have found the program valuable for managing their data and for conducting queries.

IDFG	2	Incorporate the General Parr Monitoring database into the IDFG/StreamNet Fish Information System and submit to PSMFC.	We obtained the general parr monitoring database, formatted as a single large flat file. After creating metadata, we will submit these data to PSMFC to post as an independent data set on the StreamNet web site.
WDFW	1	As funding and time permits, collect and scope existing juvenile data to plan future conversion and submission efforts.	Our Region 5 Compiler continued to keep the Cedar Creek adult and smolt trap databases current by adding collected data weekly, running error checking routines and general database maintenance. A master table for the 2002 smolt trap data was generated to be incorporated into reports being prepared by Shane Hawkins and Dan Rawding of WDFW. Several queries were performed on the master Cedar Creek database to fulfill data requests.

Objective 2 Data Development and Updates, Other Data sets

**Task 4 Age**

**Develop and maintain information on age/sex composition of returning adults, primarily for anadromous species. This is a medium priority, with the primary focus on developing data for a test location for each cooperating agency this year as a means of testing data organization/format and utility.**

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, Fourth Quarter 2002</u>
CRITFC	1	Survey member tribal fishery programs to determine availability and format of salmon age data. Inform Steering Committee on data availability	No work this quarter. These data types will be explicitly addressed in the prototype data system developed and tested with Yakama Nation data next year.
IDFG	1	Compile year 2001 Age/Sex Composition data.	2001 age composition data continued to become available in conjunction with hatchery returns, and entry of these data continued.
MFWP	1	During the field office visits in 2002, the availability of age data will be determined. Information will be gathered on what is being collected, in what format and for what geographic areas. Data will be acquired, if available, and reviewed with the Steering Committee.	Work continued on this ongoing job.
ODFW	1	Compile age frequency data for an as-yet undetermined basin or hatchery in the Oregon portion of the Columbia Basin as a prototype for organizing age data.	The Database Analyst requested and received a newly updated Age table to use for adding to and submitting ODFW's age data.
Region	1	Assist data contributing agencies in development of data, including formatting, coding, data entry, error checking, and submitting to the regional database.	We loaded a small test record set of 102 records of Age data from IDFG.



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Objective 2 Data Development and Updates, Other Data sets

**Task 8 Information generated during Subbasin Planning**

**Work with Subbasin Planners to acquire information that is developed for Subbasin Plans and make it available basin wide in a standardized format. Data that fits existing DEF will be incorporated in the queryable database. Otherwise, data will be posted 'as is' and made available on the StreamNet website. Actual data development beyond the existing DEF would require additional resources.**

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, Fourth Quarter 2002</u>
CRITFC	1	Work with Oregon Technical Support Team (when funded and formed by NWPPC) to obtain existing data in electronic format	Subbasin planning was delayed until FY03 in Oregon.
CRITFC	2	Work with Oregon Technical Support Team (when funded and formed by NWPPC) to develop applications to capture additional data generated during subbasin planning	Subbasin planning was delayed until FY03.
MFWP	1	Will communicate with Montana's CBFWA representative to better understand where they are in the planning process. Currently we receive all survey data generated from BPA contracts in Montana. Will discuss other products that may become available.	We have not heard anything more about the website posting of subbasin planning documents for the Flathead and Kootenai subbasins. We will follow up with our CBFWA representative. Several data management projects were reviewed with our CBFWA representatives prior to providing comment during the CBFWA project review in September.

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Objective 2 Data Development and Updates, Other Data sets

**Task 9 Supplemental data sets**

**Obtain data sets that are important to regional monitoring and management but that do not fit the existing DEF for posting 'as is' on the StreamNet web site. Primary emphasis will be toward resident fish data developed by BPA funded fish and wildlife projects, data developed by cooperating agencies on other funding, and data developed by the FWP.**

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, Fourth Quarter 2002</u>
ODFW	1	Pursue supplemental data sets on an opportunistic basis consistent with StreamNet direction.	Staff continued to correspond and coordinate with partners in the Oregon Fish Finder Project, which will add species location information to the StreamNet data system. The Oregon Fish Finder database currently has over 1400 independent species occurrences in more than 400 water bodies.

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Objective 2 Data Development and Updates, Other Data sets

### **Task 10 Carcass placement**

**Work with management agencies to capture information on placement of salmon carcasses and results from carcass placement projects. This is currently a low priority and will require additional resources to take on as a primary data type. Existing data may be acquired for posting 'as is'.**

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, Fourth Quarter 2002</u>
ODFW	1	Exchange carcass placement report 'as is' for 1999 placement efforts.	<ol style="list-style-type: none"><li>1. The Webmaster reconstructed the html version of the 2001-2002 Carcass Placement Report, and posted the new version on our NRIMP site. The reconstruction was necessary because the previous html version was having intermittent display problems.</li><li>2. The Project Leader provided a link to ODFW's Carcass Placement Report to regional StreamNet staff. This meets our requirement to provide this information as an independent data set.</li></ol>

Objective 2 Data Development and Updates, Other Data sets

### **Task 11 Populations - status and delineation**

**Develop a data set to describe population status as determined by other agencies. This is currently a low priority, and efforts will be exploratory in nature during FY2002. Links to existing data may be posted on the StreamNet web site.**

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, Fourth Quarter 2002</u>
MFWP	1	Species of Special Concern are currently identified on the MRIS website; when the Montana Natural Heritage Program website includes status information on these species, we will create a link between our site and theirs. Will also look into linking to USFWS website if information is available on Threatened and Endangered Species. Will link to MFWP new native species web page when that becomes available.	The project leader continues to work with FWP Fisheries Division on Native Species Management areas.

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Objective 2 Data Development and Updates, Other Data sets

**Task 12 Develop other data sets**

**On an opportunistic basis, develop data that relate to other existing data sets in the StreamNet database or would be useful for regional planning, monitoring or management efforts. This is a low priority, but some efforts may be expended if the data appear useful and they can be obtained within current resources.**

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, Fourth Quarter 2002</u>
ODFW	2	Compile and exchange marked-to-unmarked ratio data ( relative to dam, weir, spawning ground, etc. counts) for an undetermined location in the Oregon portion of the Columbia basin as a prototype for these data.	The Project Leader contacted Phil Roger at CRITFC, as well as other StreamNet partners in order to determine regional needs related to mark-to-unmarked ratio data. We wanted to make sure we were working on the right things. Based on the response, it is clear more discussion needs to occur at the Steering Committee level to ensure we all know the direction for this data category. Consequently, Oregon's efforts will be halted until the project direction is solidified.
ODFW	3	Compile and exchange hatchery-wild fraction data for an undetermined location in the Oregon portion of the Columbia basin as a prototype for these data. It is not clear if these data are still available since the dissolution of PATH, and the data developed by PATH, which are not in StreamNet, need to be captured so that they are not lost. We intend to attempt to locate and obtain the data in some fashion.	<ol style="list-style-type: none"><li>1. The Database Analyst resubmitted our Hatchery Fraction Data to StreamNet in an Access 2000 database. The tables were redesigned similar to the Age table. There is a FracID field used to correspond to the Trend table, similar to the AgeID field, and then fields that ODFW would like to see in the table for capturing hatchery fraction data.</li><li>2. Staff met to discuss our Hatchery Fraction data and the need for a DEF for this particular data type.</li></ol>
Region	1	Advise and assist data developers with other data sets not currently in the StreamNet system. Low priority and within current resources only.	<ol style="list-style-type: none"><li>1. We acquired ESU boundary layers from NMFS. The GIS Data Specialist aligned boundaries to match current 100k hydrography.</li><li>2. We acquired 5th/6th field HUC boundaries from REO. These layers will be used in the next project year to allow query of data by 5th or 6th field HUCs.</li></ol>

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## Objective 3 Data Management and Delivery

Provide high quality data management services, with specific emphasis on creation of regionally consistent data sets and the timely delivery of data to users in formats that meets their policy, planning, and management needs

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Objective 3 Data Management and Delivery

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

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

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2002
IDFG	1	Maintain and enhance hardware and software for the IDFG/StreamNet Fish Information System. This tasks includes general system maintenance, addition of new servers and workstations where possible, providing necessary system administration and disaster recovery, and maintaining software licenses.	<ol style="list-style-type: none"><li>1. We provided routine system administration to the servers and workstations in IDFG/StreamNet.</li><li>2. Our applications and services from our older NT4.0 server were migrated to our new Windows 2000 servers.</li><li>3. We configured a subdomain on the IDFG domain so that we can provide adequate security and access to our new resources.</li><li>4. A backup and recovery system was implemented on the new servers.</li><li>5. We installed IIS (Internet Mapping Services) as our web-server and prepared for the installation of ArcSDE and ArcIMS.</li><li>6. We installed additional development software including the .Net framework and security patches on our servers.</li><li>7. We installed and configured additional hardware, including a scanner, R/W CD drive and two new managed switches.</li><li>8. We installed uninterruptable power supplies and related software on all of our servers and workstations.</li><li>9. Detailed system documentation, security plan, and disaster recovery plans were started.</li><li>10. Our programmer analyst began work on building XML documents and templates for eventual use in transferring data to PSMFC. This included starting a technical white paper proposing data exchange using XML.</li></ol>
MFWP	1	Provide a high-quality, state-level data management system, emphasizing coordination with StreamNet regional staff, MFWP and other state and federal natural resource agencies to encourage the use of consistent data attributes and data sets among all agencies.	We have been closely involved with the development of Montana Fish, Wildlife and Parks' IT plan which has included looking at various goals to help standardize data collection and further integrate StreamNet data structures into the state and federal fisheries agencies.

ODFW 1 Provide state-level StreamNet database management, administration, and development. Enhance StreamNet and ODFW database structures, interfaces, tools, and capabilities as needed. Maintain hardware and software.

1. The Database Manager created a utility that takes a database and creates C++ header and implementation source files from selected tables. These files will allow applications to instantiate objects of whatever type (a Trend object, for example). These objects will then be the interaction point for users, instead of the data set itself. This is the beginning of separating our logical and conceptual models away from our physical model, which are currently one and the same. This will allow our data to become self-aware and let them think for themselves, ensuring that our business rules are followed along the way. This will be a big step in QA for our information, as these objects will not allow themselves to be put into an inconsistent state.
2. Staff worked together to begin the creation of an ODFW specific Trend object. This object will encapsulate all the information we require to document a Trend and will be able to convert itself into a StreamNet Trend following any rules set forth by the DEF.
3. Staff met to develop a standardized approach for creating metadata for our "tabular" databases. We agreed upon a common set of elements to use in our Overview (Tier I) level metadata. We also agreed upon a preliminary approach for our Tier II, or more detailed metadata that is still likely to be refined as we put it into practice.
4. The Assistant Database Manager made further improvements to the dam, barrier, fish barrier, and hatchery facility data entry forms.
5. Staff investigated hatchery releases made in Idaho but listed as originating from Oregon Hatcheries. So far, no solution has been found. There may actually be no known solution because neither agency's institutional memory can confirm or refute whether Oregon released or transferred fish into Idaho.
6. The Database Manager started the process of gathering and compiling new hatchery return data to update the data sets by going through the application he created last year for automating the data retrieval process. He is streamlining some areas of the system based on a better understanding of the data.
7. The Assistant Database Manager added latitude and longitude fields to the barrier table, and made extensive changes to all of the forms in the barrier/dam database. She reviewed all of the queries in the database and removed replication from those that were no longer useful.

Region 2 Maintain and upgrade StreamNet database servers and software. Administer SQL Servers. Advise on office software acquisition. Maintain and optimize database structure and function .

Routine maintenance and administration of SQL Server databases and servers continued. SQL Server 7.0 was upgraded on the test database/ArcSDE server to SQL Server 2000.

WDFW	1	Coordinate activities to maintain all new and existing WDFW internal tabular databases, code and cross-code assignment files related to StreamNet tabular and spatial submissions for data sets defined in Objectives 1 and 2. Submit any tabular databases as warranted to coordinate with spatial layer exchanges. Maintain the hardware and software necessary to the database system.	<p>1. We used the natural spawner data submitted this quarter as a test for Bob Woodard (the Region 5 Database Manager )to take over direct data submittals to StreamNet henceforth for natural spawner and hatchery returns. This strategy will improve one of our data bottlenecks. Although it didn't work as planned and Leslie Sikora (the general StreamNet Data Manager) did a lot of manipulation and review for the submission, the effort identified and resolved general issues that will allow Bob to solo on the next submissions.</p> <p>2. After StreamNet issued an updated database (MS Access mdb) in August, staff incorporated the newer files into their process, especially assessing StreamNet's snapshot of WDFW and Washington data and 60K PSMFC trends.</p>
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Objective 3 Data Management and Delivery

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

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2002
IDFG	1	Maintain and enhance hardware and software for the IDFG/StreamNet GIS and Fish Information System. This task includes general system maintenance, addition of new servers and workstations where possible, providing necessary system administration and disaster recovery, and maintaining software licenses. We will also be evaluating the impact and cost of moving from ArcInfo 7.2.1 and ArcView 3.2 to ArcGIS 8.1. Depending on that outcome, we may make this major software migration this year, including necessary hardware reconfigurations.	<p>1. We provided routine system administration to the servers and workstations in IDFG/StreamNet.</p> <p>2. We installed IIS (Internet Mapping Services) as our web-server and prepared for the installation of ArcSDE and ArcIMS.</p>
IDFG	2	Provide GIS support and data infrastructure to the IDFG/StreamNet Fish Information System. The IDFG/StreamNet Fish Information System is built upon a foundation of GIS data and we will continue to provide that base. Products from this task will play a key role in integrating GIS with traditional tabular data models, specifically SQL Server and Microsoft Access.	<p>1. Using non-StreamNet funds we installed GIS data including coverages, scanned topos, and digital elevation models in several IDFG offices, including the Eagle Fish Research Lab and the Nampa Regional IDFG office. We also installed a set of ArcView tools, including a geographic information locator, an Idaho projector tool, and a set of fish tools for attaching data to StreamNet hydrography and assigning LLIDs and measures to fish data.</p>

		<ol style="list-style-type: none"> <li>2. Using non-StreamNet funds, we modified our Geographic Information Locator (GIL) ArcView tool to use image catalogs for the scanned topographic maps and orthophotoquads. This simplified maintenance of the program. We also added the Geographic Names Information System to GIL.</li> <li>3. We coordinated with the IDFG Clearwater Region office about getting them set up with our GIS data and tools.</li> </ol>	
MFWP	1	<p>Maintain, update and enhance MFWP GIS data layers, provide these data as distributed files, on the web or as part of map requests. Integrate the use of GIS into management decision making processes.(Most of this work is conducted outside the StreamNet contract with MFWP dollars). Maintain the MFWP StreamNet GIS system.</p>	<p>We are currently updating the Bighorn Sheep, Mountain Goat and Black Bear layers (funded outside StreamNet); we just completed antelope and will update westslope cutthroat trout following then Federal Assessment process.</p>
MFWP	2	<p>Work with Natural Resource Information System staff and StreamNet GIS staff to maintain the 1:100 K NHD hydrography for Montana. Data layer will be enhanced with lakes and reservoirs and include stream level LLID routes.</p>	<p>The maintenance of the hydrography data layer is ongoing; a training on the NHD for Montana will occur in October. StreamNet staff will assist with development of the training program.</p>
ODFW	1	<p>Develop and maintain a fully functioning GIS system and the database structures that help improve spatial data management and transfer with ODFW staff and the regional StreamNet system.. Maintain the hardware and software systems necessary for the GIS.</p>	<ol style="list-style-type: none"> <li>1. The 24K Project GIS Coordinator spent some time trying to identify "duplicate arcs" in the converted 100K distribution. She found that any event that translates to an arc with greater than 500 vertices gets split into two (or more) arcs, all with identical attribute information (e.g. BEGMEAS and ENDMEAS). After researching options to adjust the BEGMEAS and ENDMEAS values on the arcs, much discussion with our GIS Analyst, and performing a brief survey of a few data users, we concluded to drop the BEGMEAS and ENDMEAS items from the arcs. Users will still have access to that information via the event tables--our main concern was that users would use the BEGMEAS and ENDMEAS items to calculate length for summary purposes, and get erroneous values.</li> <li>2. The GIS Analyst completed metadata for Oregon's dams coverage. He also documented online files and data processing procedures. Lastly, he created coverages of status level 1 barrier and dam data in order to work in the direction of posting these data to the FTP site and make them available publicly.</li> </ol>
Region	1	<p>Assist the database manager, as needed, with the spatial component of data and its implementation online.</p>	<p>The GIS Specialist assisted in the spatial location of features within the database.</p>

Region	3	Maintain functioning GIS software at regional office (two seats) + server products, including installing new software and making upgrades to old software, fulfilling contract obligations to ESRI (software vendor), and keeping abreast of GIS software developments that could be beneficial to the project.	The GIS Specialist updated our GIS software to ArcGIS8.2, and ArcIMS 4.0
Region	4	Maintain a library of StreamNet GIS layers for internal use and as downloadable data on the web site with complete documentation (metadata).	The GIS Data Specialist converted several data layers' metadata from text based format to FGDC compliant format.
Region	5	Maintain a regionally consistent 1:100,000 hydrography layer (the PNW Reach File) for internal use and public access through consultation with the state stewards of the hydrography.	The 1:100,000 hydrography layer was maintained.
WDFW	1	Coordinate activities to maintain all new and existing WDFW internal spatial layers related to StreamNet tabular and spatial submissions including but not limited to 100K hydro (streams and lakes), marine areas, distribution, production (hatchery and dam), and release site layers. Manage regionally standard location codes (LLIDs). Submit any spatial layer as warranted to coordinate with tabular exchanges. Maintain the hardware and software necessary for system function.	<ol style="list-style-type: none"> <li>1. WDFW StreamNet tabular staff continue to be key players in creating the infrastructure to spatially enable tabular data and educate everyone about the issues. Gil Lensegrav (StreamNet Tabular/GIS Compiler) provided WDFW's Sara LaBorde (Special Assistant to the Director) with a PowerPoint presentation, outlining the steps to georeference study sites with existing GIS tools. In general, Sara is leading the effort to induce WDFW to fund more GIS projects.</li> <li>2. We developed a process and ArcView project to digitize points relevant to natural spawner salmon data for a portion of a 100K stream or to represent a 24K stream on the 100K hydro layer. These points are essentially to visually convey the data and subsequently determine the BegFt and EndFt measures. We will use this ArcView project and layer to add points as needed for other data types (i.e. steelhead natural spawner, etc).</li> <li>3. A compiler traveled to Ellensburg to confer with Gabriel Temple about the applicability and follow-up work needed on the database and spatial files he delivered last quarter.</li> <li>4. We refined more of our previous work on the spatial layer that defines the boundaries of the Salmon Management and Catch Reporting Area and are delivering it to requestors (like NMFS) as warranted.</li> <li>5. The Region 5 WDFW StreamNet Data Manager began setting up a process and workstations for GPS/GIS manipulations. The greatest GIS experience has evolved out of our Olympia office so an Olympia-based compiler traveled to Vancouver to assist with setting up the PCs as needed.</li> <li>6. WDFW's GIS Data Manager re-programmed his system to make the hatchery facility and lake layers accessible after a major system/platform change to the Network Attached Storage (NAS) system.</li> </ol>

7. WDFW presented potential issues related to future data sharing with StreamNet related to WDFW's move to linking fish and habitat data to the WDFW routed 24K hydro layer built for Washington state. WDFW agreed to draft a written summary of these issues and circulate the draft prior to the next Steering Committee meeting to keep the discussion alive.

Objective 3 Data Management and Delivery

**Task 3 Data management and coordination**

**This task includes data management after they have been developed. Once data are submitted to the regional database, assure they fit established formats, perform appropriate error checks, and load the data into the StreamNet database and perform routine management of the data. The regions and contributing agencies will collaborate to fix problems and assure seamless loading of data into the database.**

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2002
IDFG	2	Review and update entire redd count data set, in order to ensure the proper past assignment of trend definitions, location identifiers, and accurate counts.	IDFG/StreamNet completed its review of existing redd count data. This did not include a review of trend definitions, but the data from the actual field Surveys
IDFG	3	Add additional stream routes and assign LLIDs to 1:100,000 scale hydrography. New routes will be added as required to support locational data in the IDFG/StreamNet Fish Information System. All new routes will be submitted to PSMFC.	We continued to collect a list of modifications to make in the 100K hydrography.
ODFW	1	Work with regional staff as necessary to assure seamless loading of data into the regional database.	<ol style="list-style-type: none"> <li>1. The Database Manager developed a tool to compare Trend data at StreamNet to data in Oregon's Trend database, providing the ability to assure data are consistent between databases. Reference, EscData, and Trend tables that highlighted differences between the StreamNet version and the ODFW version were provided to Oregon's Database Analyst. She reviewed 1,057 of the Trend differences. This was very helpful in finding some coding errors. She requested and received the notes the Regional Database Manager made while updating the StreamNet database with an ODFW Trend submission. Field values were changed where necessary to match StreamNet's (i.e. HistoricID changed from null and "0", to 99; Unknown). A missing reference was located, and correct data were verified.</li> <li>2. The Database Analyst talked to the Regional Database Manager about the process for submitting age and mark recapture data, and followed up on her hatchery fraction data submission</li> <li>3. Staff contacted Regional Database Manager to understand the purpose and direction of the HatcheryxProduction Table forum discussion.</li> <li>4. The Project Leader contacted Regional Database Manager regarding the format StreamNet would like to see 'unrolled' hatchery release data submitted in.</li> </ol>

		<ol style="list-style-type: none"> <li>5. The Assistant Database Manager responded to an inquiry from Regional Database Manager regarding Oregon's hatchery infrastructure capabilities.</li> <li>6. The GIS Analyst followed up with issues related to the recent distribution data submission to StreamNet. Only 8 records needed further evaluation, 3 of which had to do with reconciling records with WDFW and IDFG for the Columbia and Snake rivers. He contacted the district biologist to confirm our use-type designations for summer steelhead in the Snake River. We're down to a single record remaining to be reconciled that IDFG is now researching.</li> </ol>	
Region	1	<p>Whenever new tabular data with a spatial component are submitted to the project (e.g., fish distribution, hatchery facilities, etc.), create regional GIS layer(s) from this information where possible. Verify correct format, accuracy and logical consistency of spatial data sets and attributes through coordination with state GIS contacts and then load data to the regional database in coordination with the database manager. Post mappable layer(s) for the online query system and as downloadable layer(s) for StreamNet GIS users.</p>	<p>The GIS Specialist received, formatted Oregon anadromous fish distribution as a GIS layer.</p>
Region	3	<p>Update and append data as submitted by StreamNet participants. Isolate erroneous or duplicative data and work with source agencies to correct problems. Produce downloadable versions of StreamNet databases. Maintain logs of data submissions and major database changes.</p>	<ol style="list-style-type: none"> <li>1. Trends in the 60,000 series, originally entered by PSMFC, were replaced by WDFW, ODFW, IDFG and CDFG.</li> <li>2. Trend &amp; Escapement data were loaded from WDFW (statewide natural spawner data through 2000) and CDFG; these data types were received from ODFW and will be loaded next quarter.</li> <li>3. Hatchery Facility records were updated from IDFG and CDFG, and were received from ODFW.</li> <li>4. Hatchery Returns data were loaded from IDFG and CDFG, and were received from ODFW.</li> <li>5. Dam Facilities information was loaded from a FERC spreadsheet and from CDFG, and was received from ODFW.</li> <li>6. Spawner Recruit data (1129 records) from ODFW were loaded.</li> <li>7. A test set of Hatchery Release data was received from ODFW in PSC exchange format prior to being rolled-up by coded-wire tag code.</li> <li>8. A test Hatchery Fraction (artificial vs. natural production ratios) record set was received from ODFW for evaluation as a new data category.</li> <li>9. Barriers updates were received from ODFW.</li> </ol>
Region	4	<p>Examine the StreamNet database for errors and report any found to the appropriate entity for correction.</p>	<p>Work continued on this ongoing task.</p>

WDFW	1	Work with regional staff as necessary to assure seamless loading of data into the regional database. Explore new ways to simplify the instructions to the Regional Manager on how to post our data submission and purge any old records that are now irrelevant to avoid follow-up issues.	<ol style="list-style-type: none"> <li>1. The WDFW StreamNet Data Manager met in Portland with StreamNet's Regional Data Manager to discuss a variety of current issues.</li> <li>2. After notification that some location-related field data was missing in the August Natural Spawner Salmon data submission, we submitted corrections in September to provide complete location-related data.</li> </ol>
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Objective 3 Data Management and Delivery

### Task 4 Data Exchange Standards

**Establish and maintain data exchange standards to ensure consistent content and format of data that originate from multiple data sources. Track adopted and proposed data exchange formats and location coding (including metadata) for data categories described under Objectives 1 and 2. At the regional level, this task will provide coordination and technical assistance regarding interpretation of database structures and codes. At the agency level, this task will provide similar coordination and technical assistance to activities applicable to StreamNet.**

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2002
CRITFC	1	Review and comment on DEF issues brought to the Steering Committee	Proposed DEF changes were reviewed and commented on as appropriate.
CRITFC	2	Propose a draft DEF for genetics data to the Steering Committee, based on the application and comments received under Objective 2, Task 7, job 1. Work with MFWP on development of the draft.	A draft DEF was completed earlier in this contract year. There is no agreement among the state agencies on what genetic information to share through StreamNet, so the Steering Committee should place a low priority on further development of genetic data. Individual state approaches are encouraged to test various options.
FWS	1	Review and comment on DEF issues brought to the Steering Committee	Pastor continued checking on the progress in development of a new Hatchery Returns DEF.
IDFG	1	Working with the StreamNet Steering Committee, maintain and enhance the data exchange standards as needed.	<ol style="list-style-type: none"> <li>1. The Steering Committee started an effort to develop a protocol for making new or changes to data exchange formats. We provided input to the first draft.</li> <li>2. All IDFG/StreamNet staff participated in the development of new and existing data exchange formats.</li> </ol>
MFWP	1	MFWP StreamNet will participate in the design, development and maintenance of standard codes and data exchange formats. This will occur through involvement on the Steering Committee and technical work groups.	The project manager developed a first draft of a DEF process for review by the Steering Committee. Discussions will occur at the October meeting.
MFWP	2	Work with CRITFC to develop a draft DEF for genetics data for adoption by the Steering committee	The broader effort to develop a genetics DEF did not progress as planned this quarter. Montana will continue to utilize its existing DEF, and will participate in development of the broader DEF in conjunction with the CRITFC staff.
MFWP	3	Work with Regional StreamNet staff and Steering Committee to create a Data Exchange Format for Distribution and Use Type.	Montana has adopted the DEF and has no requested modifications.

ODFW	1	Participate in the design, development and maintenance of standard codes and data exchange formats. This will occur through involvement on the Steering Committee and technical work groups. There is no set schedule for this task, because it is highly dependent on issues facing the Steering Committee.	The Database Analyst developed and submitted a DEF for Hatchery Fraction data and participated in forum discussions related to this proposed DEF.
ODFW	2	Develop and propose a DEF for screening data.	The Assistant Database Manager worked on preparing the fish screening and passage data exchange format for submission to StreamNet. She completed the first draft of the Fish Screening and Passage Data Exchange Format (DEF) and submitted it to Oregon staff for review. A second draft was then completed, reviewed, and submitted to StreamNet as a draft data exchange format. A StreamNet forum discussion to allow folks to comment on the DEF was also initiated.
Region	3	Enhance the StreamNet data reference system by repairing or establishing procedures for updating and reconciling data-related references between the StreamNet database at PSMFC and the StreamNet Library database housed at CRITFC.	Data References were appended from ODFW, WDFW & IDFG.
Region	4	Maintain and update the StreamNet Data Exchange Format as necessary to incorporate additions and modifications agreed to by the Steering Committee. Record accepted revisions in the DEF document. At least one update of the DEF document will be made during the year.	<ol style="list-style-type: none"> <li>1. WDFW and PSMFC worked with personnel from California Fish and Game on proposed changes to the structure of the habitat restoration projects data exchange format. These proposals will be brought to the Steering Committee during the first quarter of FY-03.</li> <li>2. Regional personnel reviewed a proposal from ODFW for adding a hatchery fraction data category to the StreamNet DEF. This proposal will be brought before the full Steering Committee during the first quarter of FY-03.</li> </ol>
Region	6	Create a white paper examining the implications for a major simplification of the StreamNet Data Exchange Format. A simplified DEF, using much flatter tables, could greatly ease data submittal for StreamNet participants and potentially speed data flow to the regional database. It may also permit much easier data capture from people outside of the StreamNet project. However, potential complications of such an approach could include data integrity problems, unacceptable workload shifting, and a variety of other issues. Explore these issues and create a report on the potential benefits and detriments of a simplified DEF.	A first draft of the DEF simplification paper was completed this quarter and sent to several people for comments. At the end of the quarter this work component was approximately 2/3 complete.
Region	7	Assist with development of XML schema based data exchange option for both incoming and outgoing data.	We acquired XMLSpy software, but had little time to investigate it's value in accomplishing this work component.

WDFW	1	Engage in data exchange format (DEF) discussions. Lead new efforts to amend the format as warranted when WDFW's data cannot be accurately converted. Provide metadata for tabular and spatial data sets according to guidelines adopted by the Steering Committee.	<ol style="list-style-type: none"> <li>1. We continued to provide feedback on the latest proposals to change the Habitat Restoration data exchange format (DEF).</li> <li>2. WDFW staff provided feedback to Montana's proposal for formalizing the DEF creation/adoption process.</li> <li>3. At the August Steering Committee meeting, WDFW staff approved the proposal to replace various location related fields with a new LocationID field in several of the exchange formats (proposal was adopted). WDFW staff also engaged in discussions on null values in Count Value, the usefulness of computed mean values, and the appropriateness of Regional staff deriving missing values in state data. These last discussions were left for future follow up actions.</li> </ol>
WDFW	2	Develop a revised DEF for Hatchery Return data and propose to the Steering Committee	<p>We spent some time reviewing WDFW's 2001 hatchery returns data to assess it's fit for the latest StreamNet DEF proposal and general issues. We also reviewed IDFG's counter DEF proposal. Our final act was to post the most recent draft DEF, a summary of reasons for the changes, and a proposed path forward to the Forum for follow up discussion and resolution by the Steering Committee (under the proposed guidance of PSMFC staff). We summarized this posting at the August 2002 SC meeting, emphasizing our view that the Regional staff should begin leading the effort to find resolution with a final DEF. The Region has greater clout to bring the discussion to quicker resolution.</p>

Objective 3 Data Management and Delivery

**Task 5 StreamNet Internet Site**

**Continue to maintain and enhance the existing client-server system to provide access to StreamNet data products through the Internet. The StreamNet home page will continue to be recognized as the project's primary data delivery vehicle. Priority will be given to incorporating data developed through Objectives 1 and 2 and providing access to reference materials secured through Objective 4. Appropriate training on the use of the system will be provided through a combination of on-line help and in-person training sessions.**

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, Fourth Quarter 2002</u>
ODFW	1	Recommend and/or take part in review of new products and features. Provide feedback on content, suitability, navigability and data currency issues.	The Assistant Database Analyst reviewed and commented on StreamNet's new dam facilities mapping feature, at the request of David Graves.

ODFW	2	Work with Regional StreamNet staff to link the StreamNet website to available Columbia River fisheries information (including Columbia R. Compact Action Notices, In-Season Updates, Joint Columbia River Management Staff Reports and possibly in-season catch estimates), along with informational text to describe each link	No input was submitted from CRM by the deadline for this task.
ODFW	3	Finalize a summary of real-time data services that can be provided, as well as a description of how these services differ from current data services provided in the Basin.	No input was submitted from CRM by the deadline for this task.
ODFW	4	Manage and maintain the ODFW Natural Resources Information Management Program website and it's links to StreamNet.	<p>1. The Webmaster responded to numerous information requests from web site visitors. She also added a link to StreamNet's Interactive Mapping Applications page to all of our NRIMP maps pages. She posted Monthly Features for July, August, and September, and updated and posted the Monthly Feature index page and the What's New page. Lastly, she updated numerous other pages including the Contacts, 24K Contacts, State Agency Links, and FAQ pages.</p> <p>2. Oregon's 2001 Carcass Placement Summary Report was posted on the NRIMP website, as was information pertaining to Oregon's Fish Screen Database.</p>
Region	1	Maintain the GIS Data, Map, and PNW Reach File Internet pages.	The GIS Specialist continued to maintain the GIS Data, Map and PNW Reach File Internet pages.
Region	2	Add an internet mapping component to the StreamNet site to allow users to access StreamNet data through an interactive map interface. Internet mapping component will utilize spatial database engine (SDE) technology to improve speed and performance, and will utilize ArcIMS software for application design and delivery. Internet mapping component will serve at least 2 purposes: (1) to provide users with a vehicle to display and query StreamNet data in a spatial format; and, (2) to provide an alternate means of entry to access information in the current StreamNet query system.	The programmer monitored and ensured that the mapping applications were always available during transition to the new GIS Specialist.

Region	3	Maintain and enhance the look and usability of the current web-based query system.	<ol style="list-style-type: none"> <li>1. We added enhanced error reporting functionality to help us determine the exact URL where web site users are when they report an error.</li> <li>2. We began updating the query system screen and download report output from Output Review.</li> <li>3. We updated the output report for Redd Counts to reflect requested changes by the Steering Committee.</li> <li>4. The hatchery category output reports were enhanced to show hatchery Use Types.</li> </ol>
Region	4	Develop and test a new and enhanced web-based query system based on a more open and flexible programming environment (Cold Fusion).	<ol style="list-style-type: none"> <li>1. We implemented the latest ColdFusion version (MX) on the test query system.</li> <li>2. We began testing and planning for using then new ColdFusion version to add functionality to the Tabular Query System.</li> </ol>
Region	5	Deploy features of the new flexible query system as components are approved by the Steering Committee	<ol style="list-style-type: none"> <li>1. With modernized georeferencing of the Protected Areas database completed, the web query system was modified to use these updated methods. This allowed more complete integration of this data type into the query system, which reduced some query system programming complexities and also allows users to query for these data using the standard geographic criteria available for the other data categories.</li> <li>2. Several requests have been made over the past few years to permit searching for specific time series via the TrendID number. A concern with implementing this feature has been that TrendID numbers are not static, though they change infrequently. During this quarter, it was decided to implement this ability in the web query system, but to do so with a warning disclaimer regarding the possibility that TrendIDs may have changed. This feature was implemented during the quarter.</li> <li>3. A number of query system enhancements that had been completed were checked for functionality and removed from the list of enhancements to perform.</li> </ol>
Region	6	Maintain logs of web query history and error events. Track and report internet site usage by month and investigate web query system errors encountered. Assist programmer in debugging web query system problems that may be data related. Maintain and upgrade StreamNet web server and software.	<p>Apache log format changed at the beginning of August which accidentally broke our usage analysis tool's ability to parse the logs. We are now in the process of converting logs for August and September to get usage and error numbers.</p>

Region	7	Guide development and enhancement of the StreamNet web query system from the perspective of data users. Review changes to the web query system to ensure they are implemented appropriately and do not create unforeseen bugs.	The regional fisheries biologist (PSMFC) and the assistant librarian (CRITFC) reviewed the output of the web query system for all data categories. They evaluated the completeness, accuracy, and format of the information in the on-screen output and the ASCII files produced by the query system. This overall examination was needed to ensure that changes to the database that had been implemented in the past due to changes in the data exchange format were being included in the output to users. It was found that quite a few items were not being provided for the users. These items were identified and a list was given to the programmer, who began the process of modifying the web query system to include the missing items and correct the few errors found.
WDFW	1	As time permits, review new products and features of the StreamNet Internet site. Provide feedback on content, suitability, navigability and data currency issues, especially issues related to providing static or dynamic map capabilities.	We reviewed StreamNet's ArcIMS application as it relates Dam related data and provided more feedback.

Objective 3 Data Management and Delivery

**Task 6 Tool development and maintenance**

**Provide programming services to project participants to support efficient data entry and transfer. Tools may be developed at the regional or agency levels. Even when developed for within agency use, tools should be shared among all project participants.**

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2002
CRITFC	1	Provide support services to CRITFC staff working on interagency information issues, as needed	Advice and suggestions were provided to staff working on inter-agency M&E and subbasin planning issues. These efforts, however, are only in the planning stage.
IDFG	1	Continue to develop the IDFG/StreamNet Fish Information System (FIS). The FIS provides data entry and management tools to IDFG biologists. It also provides for an electronic flow of data from the field to StreamNet. It ensures data integrity, data and coding standards, and an efficient transfer of data from the field to StreamNet.	<ol style="list-style-type: none"> <li>1. The interfaces and databases for our hatchery facilities and hatchery returns data were updated to reflect recent changes in the data exchange formats.</li> <li>2. We began development of an interface and analysis module for defining and updating StreamNet trends. This module is intended primarily to address an immediate need to review trend definitions of redd count data, but will be utilized for maintaining the trend definitions for all data categories.</li> </ol>
MFWP	1	Maintain and enhance the edit/entry interface for fisheries survey data distributed to individuals with a MFWP Collector's permit, including federal land management agencies.	Work continued on this ongoing job. We worked with several National Forests on data formats.
MFWP	2	Explore creating a complete user interface for MFWP biologists, preferably a web based system; standardize look-up tables across the state.	Work continued on this ongoing job.

MFWP	3	Maintain the U of M system for genetics analysis input, Future Fisheries for restoration project data entry, and other interfaces upon request if they relate to StreamNet workplan.	Work continued on this ongoing job. We received a another database dump from the Genetics lab and checked it against the MFISH database.
WDFW	1	Review and give feedback on StreamNet's tools. Also build internal tabular and GIS tools and procedures to efficiently manipulate data , including the conversion of WDFW's Paradox data to MS Access.	The WDFW StreamNet Data Manager provided feedback to the Regional StreamNet Fish Biologist to discuss issues pertinent to his white paper on flattening the DEF before the Region submits the paper for global discussion.

Objective 3 Data Management and Delivery

**Task 7 Data / Information Requests**

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

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2002
IDFG	1	Respond to requests for data and queries of the IDFG/StreamNet Fish Information System. These requests come from a variety of sources, federal agencies, state agencies, and private consultants. All data requests will be logged for reporting.	We filled 47 requests for data or assistance that came directly to our office. The requests consisted of 20 project specific species lists, 8 GIS data sets, 5 fishery data sets, 9 requests for assistance or technical problems, and 5 GIS maps.
MFWP	1	Receive and respond to requests for data, source materials, and custom products. Respond to requests within the limits of available resources, with priority given to information requests having direct relevance to the F&WP.	The staff filled 20 GIS request during the quarter including 12 fisheries related GIS requests.
ODFW	1	As requested, consistent with other deliverables in this contract, receive and respond to requests for data, source materials, technical training, and custom products.	A total of 10 data, 7 document, 6 map, and 23 'other' requests were answered during this quarter. A detailed list by requester and request type can be made available upon request. Also, 2,747 data downloads were made from the ODFW FTP site during this quarter. The list of requests below is provided as an example of the range of requests we respond to. These requests include: 1. A query of our database to provide all the information we had on ODFW Oregon Plan-related projects. This was not an easy task, as we do not code our projects by agency or program. We were able to provide a complete list of projects whose reference data comes from an ODFW contact. Additionally, we provided a long list of trends where the agency was not identified, giving the requester the opportunity to sort through the titles to determine if the project was of interest to her.

2. A request from the StreamNet web page (via Bruce Schmidt) to assist a user with projection information.
3. A request from the Nehalem Watershed council regarding where to find ODF Forest Practices Act fish bearing stream information in GIS format.
4. Questions from the new Clackamas STEP biologist about GIS software and data. She is hoping to get set up with ArcView and as much relevant data as possible in order to provide support for her work.
5. FTP tech support to an EBA (ODFW temporary technician position) assisting with the Chinook Monitoring Project.
6. A request for source information for a Protected Areas data set.
7. A requested for metadata for our Wildlife Management Units GIS coverage.
8. A request for a Klamath Water Rights map for Jill Zarnowitz, ODFW.
9. A request to convert a postscript file to pdf format. The requester was also told about freeware (Ghostscript and GSView) available for converting postscript to pdf.
10. Questions from a user about projection information as well as current vs. historic distribution. This request lead to clarifications in the metadata related to this issue.

Region 1 Respond within one day whenever possible to users who request information or assistance. Requests may be for help in navigating the StreamNet web site to find desired information, help in learning to use the on-line data query system, help in finding information not contained in StreamNet, assistance finding GIS layers, providing unique or customized data, or a variety of other types of requests.

WDFW 1 Generate maps, data reports, and electronic copies of data sets as requested. Provide PRIORITY data support for subbasin assessments and other new elements of the NWPPC Fish & Wildlife Program, within existing resources.

Regional staff responded to 58 requests for information or help during the quarter. Twenty nine of these requests were GIS or map related.

Staff responded to requests for thirty data requests and documented them in a detailed database available on request. Our clients continue to be interested in all data types, including requests for assistance on how to manipulate their own data or use available software.

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## Objective4 Library / Reference Services

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

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Objective 4 Library / Reference Services

### Task 1 Collection Development

**Develop a collection of materials applicable to the mission of StreamNet. Collect, catalog and organize materials to document data sources, Fish and Wildlife Program activities and reports, and other gray literature for access by regional scientists, agencies, interested parties, and other libraries.**

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2002
CRITFC	1	Coordinate source material submissions for data compiled by Participant	1. The Library received and cataloged materials from California and Washington. 2. The Library received approximately 50 boxes of materials from a closed library in Canada and from a document supplier in Idaho (Inez Hopkins). Some of these documents may be useful in the StreamNet collection as materials that were never received or possibly are missing.
CRITFC	2	Develop collection of materials related to the Columbia Basin, including reports from other Fish and Wildlife Program projects, other agency documents as they relate to the Basin, and other published and unpublished materials as requested by clients.	The library added approximately 325 new items to the library catalog. As mentioned previously, many more items were received than could be cataloged. In addition, many records were updated to add more information about the documents.
CRITFC	3	Maintain and develop a collection of journals related to fisheries and aquatic sciences as well as other related scientific topics.	The Library reviewed all the current subscriptions and have chosen to continue most and add a few new titles that will be of use to patrons. We received approximately 200 loose issues of journals we do not have subscriptions to and have filled in back years of current subscriptions.
CRITFC	4	Format the library reference table of StreamNet documents for inclusion in the StreamNet database. New updates will be sent to the regional database monthly after that.	The Librarian continued working with the Regional Data Manager to integrate the library reference information into the StreamNet SQL database so that the data may be linked directly with the documentation.
MFWP	1	Update the StreamNet library with references and publications from the Fisheries Division Library on an annual basis.	We will update when it is requested.
MFWP	2	Collect and catalog supporting references to document the sources of the distribution information and other data types developed under Objectives 1 and 2, and to connect the data to references. Submit updated references to the StreamNet Library	Work continued on this ongoing job.

ODFW	2	Provide originals/copies of all documents and reports referenced in the compilation of new StreamNet data holdings, but not already housed in the StreamNet Library.	The Database Analyst compared tables made between StreamNet's and ODFW's Reference table. She reviewed approximately 1,600 of the Reference records for discrepancies. Following this, she prepared the Reference table for submission. The reference submission was made to StreamNet, our first with more electronic documents than paper ones. In addition, she incorporated new references from staff, which were added to the table but not submitted yet. To improve management of the reference data set, she created a table called Whose_Reference, to track who provided the reference initially.
ODFW	3	Organize and submit to the StreamNet library all references related to the data developed under Objectives 1 and 2.	This job is essentially a sub-component of Objective 4, Task 1, job 1. Therefore no information is provided here.
WDFW	1	Engage in discussions to finalize procedures to submit spatial data references. Continue to collect documents used as source materials for any data in Objectives 1 and 2. Documents will be assigned reference numbers and forwarded to the StreamNet library as per established SN guidelines.	Staff continued to process references for any data compiled for StreamNet and submit them to the library in concert with data submitted to StreamNet. This quarter, to expedite data submissions we started using a temporary reference code if we had data ready for a submission but the reference data wasn't completely ready. The temporary reference code will be replaced in subsequent submissions and the physical reference documents, etc will be then be submitted to the library. Although the reference issues are usually minor, this is the most efficient process to minimize the circulation of incomplete physical references.

Objective 4 Library / Reference Services

**Task 2 Provide Access to Collection**

**Provide user access to the materials described in Task 4.1 by providing facilities for storage of paper and electronic copies of documents, an online catalog of all documents in collections, and staff to answer location questions and respond to requests.**

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, Fourth Quarter 2002</u>
CRITFC	1	Provide and maintain an appropriate facility for the storage and public use of the StreamNet Library collections.	The CRITFC and Ashforth Pacific signed the lease for the increased space for the Library, effective November 1, 2002. We have drawn up preliminary floor plans and have purchased shelving to store materials.
CRITFC	2	Catalog and organize the materials for ease of use by clients and staff.	The Librarian completed re-cataloging approximately 50 StreamNet references. In addition, several reference documents were identified for filing in the numerical filing system and moved to filing cabinets for easier storage. These documents will be on the priority list for digitization.

CRITFC	3	Provide access to the catalog of materials via the Internet and update the online catalog on at least a monthly basis.	The Library began using Dreamweaver to update the library catalog on a regular basis. This process can now be accomplished in a matter of minutes rather than the hour it took previously. We have also begun looking at how we may make the library website more interactive for users to find what they want more quickly. Several more patron web pages have been added for people to access documents they have requested.
CRITFC	4	Develop and execute a plan to place electronic documents in the catalog and on the library website.	The library continued to digitize documents by patron request. We have also completed the process of adding a duplexing printer to the library so that we can make hard copies of documents that are currently only electronic. As these documents age, many agencies rotate them out of public view on their web sites, making them difficult to retrieve. Electronic copies also tend to degrade with use and will eventually be unreadable. We are attempting to preserve this large body of work.
CRITFC	5	Develop and keep schedule of open times and reference desk staff hours.	The library has remained open during posted hours.

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Objective 4 Library / Reference Services

**Task 3 Library Services**  
**Manage the StreamNet Library and provide library services to the StreamNet user community, Fish and Wildlife Program, and the general public.**

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, Fourth Quarter 2002</u>
CRITFC	1	Provide information and reference services to library clients	The library staff answered over 343 requests. At least 34 were from federal agencies, 170 were from outside consultants, 97 from CRITFC and tribal employees and 42 did not disclose their affiliation.
CRITFC	2	Provide information about services and hours to library clients via print and Internet	The library web pages were kept up to date for holidays and open hours. Staff only print the library brochure in small runs to make sure the information stays as current as possible.
CRITFC	3	Provide interlibrary borrowing services for library patrons to access materials not yet owned by the StreamNet Library.	Statistics on interlibrary loaning are now wrapped into the reference requests, as invariably reference requests eventually turn into interlibrary requests.
CRITFC	4	Provide access to hardcopy and electronic files of draft and final documents related to subbasin planning and the NPPC amendment process.	We continued the evaluation of bibliographies from the 1990 individual subbasin plans so these documents may be added to the subbasin pages.

ODFW	1	Enhance, maintain, and update ODFW Library software and procedures to ensure adequate tracking of information requests, key word searches, and easy comparison to the StreamNet Library holdings.	<ol style="list-style-type: none"> <li>1. ODFW's Library was closed during this quarter due to budget constraints. Our goal is to reopen the Library between October 2002 and January 2003.</li> <li>2. We acquired a copy of "Field Identification of Coastal Juvenile Salmonids" by W.R. Pollard, B.F. Hartman, C. Groot, and Phil Edgel from Jeff Rodgers to fill a library wish list request that was posted on the NRIMP web site. Our web site was modified to reflect that this request had been fulfilled.</li> </ol>
ODFW	2	Respond to requests for ODFW documents and other source materials through the ODFW Library.	ODFW's Library was closed during this quarter due to budget constraints. Our goal is to reopen the Library between October 2002 and January 2003.

Objective 4 Library / Reference Services

### Task 4 Inter-library Coordination

**Engage in networking activities with other agency and regional library service providers to provide better access to other collections that will enhance the StreamNet Library and to avoid unnecessary duplication of effort and materials**

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2002
CRITFC	1	Provide interlibrary lending services for other libraries to access the library's unique collection	We provided over 60 items to other libraries.
CRITFC	2	Maintenance of memberships in appropriate library and subject-related associations. Ex. IAMSLIC, NRIC, OFWIM, etc.	<ol style="list-style-type: none"> <li>1. The Assistant Librarian participated in the tribal focus group as part of the regional data inventory project being conducted by SAIC for the Council.</li> <li>2. The Librarian attended the NRIC annual conference.</li> <li>3. The CRITFC StreamNet staff participated in the Science booth at the Wy-Kan-Ush-Pum festival.</li> <li>4. The Library hosted the Downtown Portland Librarian's group in September.</li> </ol>
CRITFC	3	Provide consultations for groups and other agencies on library organization and services.	Library staff answered questions from S. P. Cramer & Associates on setting up a library.
CRITFC	5	Work with subbasin planning groups and TRTs to identify modifications and new uses to make information related to these processes easier to retrieve	There were no contacts from the TRTs or subbasin planning groups this quarter. The Council's subbasin planning activities have largely been delayed until FY03.
ODFW	1	Provide an index of Oregon Fish Commission, Oregon Game Commission, and Oregon Wildlife Commission processed reports to the StreamNet Library for the purpose of identifying documents that are not currently within library holdings.	ODFW's Library was closed during this quarter due to budget constraints. Our goal is to reopen the Library between October 2002 and January 2003.
ODFW	2	Coordinate with the Oregon State Library system to enhance access to published periodicals, journals, and other documents for StreamNet users.	ODFW's Library was closed during this quarter due to budget constraints. Our goal is to reopen the Library between October 2002 and January 2003.

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## Objective 5 Services to Fish and Wildlife Program Activities

Provide technical data services to Fish and Wildlife Program decision-makers and appropriate Fish and Wildlife Program projects

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Objective 5 Services to Fish and Wildlife Program Activities

### Task 1 Data and services to support the Subbasin Planning effort

Within existing data categories and staffing levels and as workloads permit, assist Subbasin Planning efforts by 1) providing data in formats that fit planner needs, 2) working with planners to locate data within the StreamNet database and contributing projects' databases, and 3) advising and assisting planners on data management issues.

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2002
CRITFC	1	Provide described services to CRITFC staff working on subbasin planning and NMFS' TRT groups	Subbasin planning activities in most areas have been delayed until FY03.
MFWP	1	Work with Montana's CBFWA representative involved with subbasin planning and provide data, map products and assistance as needed.	There were no requests for data received during the quarter.
ODFW	1	Participate in Subbasin Planning meetings and provide data, advice, and related assistance to subbasin planning efforts in Oregon (within existing resources and as workloads permit)	<ol style="list-style-type: none"><li>1. The Project Leader participated via conference call in the Oregon Subbasin Planning Coordination meeting.</li><li>2. The Project Leader participated in the TOAST (Technical Outreach Assessment Support Team) Oversight Group meeting on Sept. 20th, where we discussed TOAST's role in filling data needs for Subbasin Planners, the data-related services subbasin Planners can expect from TOAST, and the upcoming TOAST Gorge Workshop focus/agenda which is scheduled for Oct. 7 &amp; 8.</li><li>3. The Project Leader was asked by Ron Boyce (ODFW CBFWA Rep.) to review five of the six Systemwide data management projects during the CBFWA Mainstem and Systemwide Project Review process. The sixth project is StreamNet, so for obvious reasons, he didn't get to review StreamNet. A great deal of time was spent on this effort, as most of the proposals required more than 50 pages to be reviewed. Other Steering Committee members were asked to aid in this effort, and comments received were incorporated into the reviews where appropriate. The final reviews and comments were shared with the other Steering Committee members.</li><li>4. The Project Leader attended the initial session of the CBFWA Project Review meeting to get a sense of what the review process is like and what needed to be prepared to adequately participate in the process. Later in the week, he attended the Data Management Project review session and provided input on the 5 of the 6 data management projects on behalf of ODFW.</li></ol>

Region	1	Generate customized maps and information for subbasin planners from StreamNet data or other data provided by the planners, as long as this work can be accomplished within existing resources.	The GIS specialist created a series of subbasin maps for use by CRITFC.
WDFW	1	Participate in Subbasin planning meetings and provide data and advice as needed.	WDFW have pegged specific staff as Species Specialists to better respond to data requests and special data initiatives like Subbasin Planning. Region 5 WDFW StreamNet staff met with Sara LaBorde of the Salmon Recovery Board and the WDFW salmon specialists. A request for detailed return information on the Lower Columbia River tributaries was presented to the group. Following the meeting, our WDFW StreamNet staff manipulated their natural spawn escapement and age data per request. Final approval to release this data to the contractor (Cramer and Associates) will come from WDFW officials in October 2002.

Objective 5 Services to Fish and Wildlife Program Activities

**Task 2 Support monitoring and evaluation efforts**

**Assist in the development of products that contribute to the monitoring and evaluating (M&E) of Fish and Wildlife Program effectiveness. Specific areas of involvement will include: participation in Program-related monitoring and evaluation work groups; periodic re-evaluation of the StreamNet data plan to ensure consistency with M&E needs; and design of databases and formats to house and disseminate M&E information to the degree possible under the existing contract.**

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2002
CRITFC	1	Work with NMFS, NWPPC and subbasin planning groups to identify M&E needs and plans	The project leader has assisted other resource management agencies to develop an M&E project proposal for the Columbia Basin and has participated in several interagency meetings concerning this issue. Subbasin planning activities in most areas have been delayed until FY03.

Objective 5 Services to Fish and Wildlife Program Activities

**Task 3 Support for and participation in regional data management initiatives**

**Work with regional entities to promote and implement sound data management programs that ensure efficient organization, management and delivery of pertinent fish and wildlife related information within the Columbia Basin. Efforts may include determination of regional data needs, identification of obstacles and challenges to effective regional data management, and development of recommendations and will take place in a collaborative atmosphere.**

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2002
CRITFC	1	Participate on Regional Data Management Committee and other groups to improve data management in the region	The project leader is a member of the NWPPC/NMFS Columbia Basin Collaborative Information System project team, the data inventory project being conducted by SAIC. Work this quarter focused on completing the user survey and preliminary analysis of partial results.

ODFW	1	Participate in discussions and offer solutions related to Columbia River Basin database management and information distribution issues, as needed.	<ol style="list-style-type: none"> <li>1. Staff participated in the Columbia Basin Cooperative Information System focus group meeting held at PSMFC in Gladstone. The meeting was facilitated by SAIC.</li> <li>2. Staff held a brief conference call to clear up some issues related to the SAIC Columbia Basin Coordinated Information System Data Inventory and Needs Assessment process that we participated in some time ago. The feedback we submitted was totally mixed in with feedback from others and was credited to others. In addition, the format SAIC provided (PDF) could not be modified. We provided a response to SAIC requesting an editable copy.</li> </ol>
Region	1	Participate with regional entities in the development of effective regional data management programs and approaches. Provide input based on years of StreamNet experience with management of data sets on a regional basis, along with insights into challenges, obstacles and costs. Support effective regional data management and delivery at reasonable cost with avoidance of duplication of effort. Support and encourage regional data needs assessments.	<ol style="list-style-type: none"> <li>1. StreamNet continued its participation in the regional data needs and data inventory project (CBCIS). The Program Manager participated as a member of the Project Team for the project, and also set up a focus group meeting with StreamNet and the other data management projects under PSMFC. Input on the data held in StreamNet was provided to SAIC.</li> <li>2. Regional staff reviewed a California Fish and Game proposal for managing migration barrier data. Our review helped to improve their (and ultimately our) system, and also allowed for better coordination between the two efforts.</li> </ol>

Objective 5 Services to Fish and Wildlife Program Activities

**Task 4 Archive function for regional data sets, as requested**

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

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2002
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MFWP	1	Be available to Montana entities as a source of information and assistance for capturing F&WP-related data, as needed.	There were no requests received during the quarter.
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Objective 5 Services to Fish and Wildlife Program Activities

**Task 5 Data and services as requested by other FWP participants**

**In consultation with CBFWA, the Council, and BPA, StreamNet will provide technical assistance and data services to Program projects as requested, to the degree possible under the current contract.**

Project	Job	Planned work elements	Accomplishments, Fourth Quarter 2002
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CRITFC	1	Assist in providing services as requested and as time and budgets allow	The role of StreamNet in managing data and literature developed during subbasin planning was discussed with regional and Oregon planners and coordinators. A preliminary budget was developed for, in part, data management services for Oregon subbasin planners.
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IDFG	1	Provide technical assistance to fisheries projects in IDFG. Under current funding from both the F&WP program and IDFG, we are very limited in our ability to provide this assistance. Assistance will generally be focused where there is some mutual benefit to both StreamNet and the other project.	<ol style="list-style-type: none"> <li>1. The project manager for the Salmon region Steelhead project contacted us to discuss coordination. He is requesting support with data management and analysis similar to what we provide to Idaho Supplementation Studies. Such support would expand our ability to provide steelhead data to StreamNet. Specifically, we will provide technical assistance for data requirements for Steelhead Creel Survey and review of the Coded Wire Tag data formats to extract steelhead release, capture and return summaries.</li> <li>2. We met with the new project manager for Idaho Supplementation Studies and the IDFG Nampa Fish Research Office to coordinate our activities and to discuss technical support.</li> <li>3. We provided assistance to fish research staff to troubleshoot genetic sampling data that didn't appear in the correct location on GIS.</li> <li>4. We updated the maps in the IDFG fishing regulations for two IDFG regions.</li> <li>5. The Idaho Conservation Data Center asked for our assistance in sorting out a problem where one of their clients apparently had a different set of fifth field watersheds than we use.</li> </ol>
MFWP	1	Data services will be provided by Montana StreamNet staff on request.	The project leader gave a PowerPoint presentation at the August NWPPC meeting on the StreamNet program in Montana. The program was well received and generated questions and discussion.
ODFW	1	In consultation with CBFWA, the Council, and BPA, Oregon StreamNet staff will provide technical assistance and data services to Program projects as requested, to the degree possible under the current contract.	<ol style="list-style-type: none"> <li>1. The Project Leader received an email request for help with fixing problems in the Wildlife Habitat Conservation and Management program database. Fortunately, the requestor is flexible on time and has money to pay for the service. Specific details of the problem were requested so we could better evaluate our ability to help.</li> <li>2. The GIS Analyst met with the Clackamas STEP biologist to discuss available GIS data and the potential for building GIS capacity at the Clackamas office.</li> </ol>
Region	1	Respond to requests to the StreamNet project from F&WP participants for data, maps, or GIS products or general assistance. Provide assistance, including custom map work where feasible. Direct users to other resources if requests exceed project capabilities.	<ol style="list-style-type: none"> <li>1. StreamNet staff met with Council staff and contractor in response to their request for data to support the Artificial Production Review and Evaluation effort. Data availability was demonstrated, and advice was provided on how to obtain the needed information. A link to related data from the Fish Passage Center was added to the StreamNet website to assist in the effort.</li> <li>2. At the request of CBFWA members, StreamNet staff from all agencies assisted with review of project proposals for the CBFWA project review process.</li> </ol>

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Objective 5 Services to Fish and Wildlife Program Activities

**Task 6 Protected Areas**

**StreamNet will a) maintain and provide access to the Council's Protected Areas data set, b) archive the official version as a historic record, and c) in consultation with the Council, respond to requests for information concerning Protected Areas**

Project Job Planned work elements

Accomplishments, Fourth Quarter 2002

Region 1 Maintain the Protected Areas database within the StreamNet database

The Protected Areas database and the new interactive Internet mapper for these data were maintained throughout the quarter.

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## Objective 6 Project Management / Coordination

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

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Objective 6 Project Management / Coordination

**Task 1 Manage project activities**

**Administer all aspects of the project at the regional and sub-contractor levels, including oversight of budget, personnel, work statement preparation and implementation, coordination among participating agencies, active participation in steering committee work, and project reporting.**

Project Job Planned work elements

Accomplishments, Fourth Quarter 2002

CRITFC 1 Attend and participate in Steering Committee meetings

The CRITFC StreamNet Project Leader participated in all steering committee discussions and meetings.

CRITFC 2 Effectively administer the CRITFC StreamNet project

Normal project and personnel management was provided. Work was very routine this quarter.

FWS 1 Represent FWS in Steering Committee meetings. Produce quarterly reports w/in 30 days of quarter end. Produce FWS component of FY2001 final report. Create FWS StreamNet budget & statement of work for FY2003. Contribute FWS portion of Project Renewal documents.

Pastor participated in the August Steering Committee meeting and produced the Q3 Accomplishment Report.

IDFG 1 Prepare budgets, work statements, and progress reports

1. We completed and delivered the FY2002 third quarter report.
2. We developed an expanded budget proposal in response to the ISRP review of StreamNet.
3. We helped develop the response to the ISRP review of the StreamNet proposal.
4. We developed and submitted the FY03 Statement of Work and budget.

IDFG	2	Provide project management and staff supervision for IDFG StreamNet.	<ol style="list-style-type: none"> <li>1. The IDFG/StreamNet project manager completed annual performance evaluations for several staff.</li> <li>2. The IDFG/StreamNet project manager compiled comments from Steering Committee members about the StreamNet Project Manager's annual performance evaluation. The information was compiled into a report to the project manager's supervisor at PSMFC for use in preparation of his evaluation.</li> <li>3. In order to provide faster development of quarterly reports, we instituted a new weekly work diary process. While somewhat informal, it provides immediate access to staff progress reports at the end of each quarter.</li> <li>4. We currently have two empty FTE positions. After developing a way to fund these, the project leader started the paper work to fill them. This will give us an additional programmer analyst and GIS analyst that, while not on StreamNet funds, will contribute to StreamNet through coordination of work.</li> </ol>
IDFG	3	Participate in Steering Committee activities, including Steering Committee meetings, project direction, and data exchange format development.	The IDFG/StreamNet project coordinator participated in this quarter's steering committee meeting.
IDFG	4	Participate in and provide for IDFG StreamNet staff appropriate professional and technical development. This includes technical training and participation in professional organizations and conferences.	<ol style="list-style-type: none"> <li>1. The IDFG/StreamNet programmer analyst attended a 3-day "XML Applications with SQL Server 2000" class.</li> <li>2. He also attended a free 2-day Microsoft seminar for .Net developers.</li> <li>3. Our entire staff attended a 3-day Project Management class. The class spent half the time on theory and the other half on using Microsoft Project. While not everyone on our staff will utilize the software, it was valuable to have them learn the theory and how the software works so that they can meaningfully contribute to planning and managing our StreamNet work.</li> <li>4. The IDFG/StreamNet project coordinator attended the Northwest ESRI Users Conference. As this year's president the project coordinator ran the annual board meeting and the general business meeting.</li> </ol>
MFWP	1	Provide normal supervision of Montana StreamNet staff and project. Produce quarterly reports within 1 month after the end of each quarter. Produce final report within 2 months of the end of the contract period. Participate in Steering Committee meetings. Collaborate on developing a final detailed Statement of Work for FY02.	<ol style="list-style-type: none"> <li>1. The partial position left by Steve Carson when his position was put on 1/2 time wildlife funding will be filled via a contract for next fiscal year due to job freezing in Montana.</li> <li>2. The project leader provided a Montana Statement of Work and budget to StreamNet regional staff in September.</li> </ol>

ODFW	1	Administer all aspects of the project for Oregon, including budget oversight, personnel, work statement preparation, staff work plan preparation, project implementation and coordination, reporting, and participation with the Steering Committee and technical issue working groups.	<ol style="list-style-type: none"> <li>1. Meetings: Oregon's Project Leader attended the Aug. 6-7 StreamNet Steering Committee meeting in Gladstone.</li> <li>2. Reports and SOW: Oregon staff completed and submitted Oregon's 2002 2nd and 3rd Quarterly Reports. The Project Leader reviewed the final drafts of StreamNet's Q-2 and 3 reports, and provided comments to PSMFC.</li> <li>3. Provincial Review Process Activities: The Project Leader attended StreamNet's Provincial Review Proposal presentation to the ISRP in Portland, where Bruce Schmidt (PSMFC) gave the presentation. The Project Leader read the ISRP review of StreamNet's 3-year proposal and communicated with Ron Boyce (through an attempt to communicate with Tony Nigro) seeking direction and input from ODFW. He reviewed and provided input on StreamNet's response to the RM&amp;E panel's comments on StreamNet's Systemwide Provincial Review proposal. He spent a good amount of time developing Oregon's portion of the ISRP response from StreamNet, including a description of Oregon's QA/QC procedures for redd count data, and a task by task breakout of our budget request for FY-2003. He also reviewed and commented on StreamNet's response to specific ISRP questions, which was primarily written by Bruce Schmidt.</li> </ol>
Region	1	Project Administration: Perform ongoing administration of the StreamNet project, to include budget development and tracking, contract monitoring, personnel functions, inventory control, etc.	<ol style="list-style-type: none"> <li>1. The regional GIS data manager position became vacant during the quarter. A replacement was recruited, applicants were screened and interviewed, and a new person was hired for the position. Sufficient overlap between the old and new GIS data managers was possible so that significant training of the new person occurred.</li> <li>2. Significant time was spent in the project renewal process. The project proposal was presented to and reviewed by the ISRP. Review comments from the ISRP and the RM&amp;E Workgroup were prepared and submitted. The project proposal was presented to and reviewed by CBFWA.</li> <li>3. Discussions were held with the BPA COTR on the need for bridge funding, since the project year ends well before the current review process is expected to have funding recommendations completed. A level budget (no increase from FY 2002 despite actually realized and known future salary cost increases) was prepared along with a base level Statement of Work and submitted to BPA.</li> <li>4. Performance appraisals were conducted for all regional staff members.</li> </ol>
Region	2	Reporting: Submit quarterly progress reports to BPA within one month of the end of each quarter and submit an annual report within two months of the end of the fiscal year.	The Quarter 2 and Quarter 3 progress reports were completed and submitted to BPA. These report submittals permitted the project to catch up with all reporting requirements.

Region	3	Maintain effective relationship with the StreamNet Steering Committee. Organize and conduct quarterly Steering Committee meetings to facilitate project oversight and setting direction/goals. Coordinate regional project activities with Steering Committee involvement and direction.	The summer steering committee meeting was hosted by PSMFC on August 6 and 7.
WDFW	1	The WDFW StreamNet state coordinator will participate in all Steering Committee and StreamNet Project management activities, including meetings and follow-up work assignments (progress reports, Statements of Work, budgets). work", in coordination with other StreamNet participants.	<ol style="list-style-type: none"> <li>1. WDFW staff finalized work proposals, budgets, and FTE information for FY2003 for both "bridge period" funding and the Final FY2003 (base) version. In addition, staff generated out-year budget estimates for FY2004 and FY2005, as well as supplemental budget and work proposals for two FTEs worth of "new</li> <li>2. The WDFW FY2002 Third Quarter report was finalized and submitted, along with Selected Highlights and Related Work contributions.</li> <li>3. The Project Manager attended the August 6-7, 2002 Steering Committee meeting and gave progress reports on data submissions (written by the Data Manager), data development work, exchange formats work, and other related initiatives. At this meeting, the Steering Committee reviewed current work and issues placed on the agenda, then spent most of our time discussing the ISRP and RM&amp;E Workgroup comments to the StreamNet 3-year proposal and generating responses.</li> <li>4. We helped organize and attended an information gathering session in Olympia sponsored by SAIC for the Columbia Basin Cooperative Information System project. Staff provided written input during and after the session.</li> <li>5. WDFW staff also prepared documentation of current QA/QC procedures for StreamNet data compilation. This document covers only generic procedures and we began collecting more documentation for specific procedures. Project Manager O'Connor agreed to serve on a Team (including Phil Roger, Bill Kinney, and Greg Wilke) charged with generating an overall framework and subsequent details of a formal StreamNet QA/QC Process. The Team did not meet its deadline of September 30 to circulate initial thoughts; this will be discussed further in October.</li> <li>6. WDFW provided updates to the Regional Data Manager's list of Agency Data Contacts and provided feedback to CRITFC StreamNet Representative (Phil Roger) on the CRITFC Genetics Data Exchange proposal.</li> <li>7. The WDFW StreamNet Project Manager provided input and review of the annual evaluation for the StreamNet Regional Project Manager.</li> </ol>
WDFW	2	The state coordinator and the state data manager will jointly manage all aspects of StreamNet in WDFW, including budget, personnel, work scheduling, and product delivery.	<ol style="list-style-type: none"> <li>1. All supervisors and staff completed annual performance evaluations.</li> <li>2. Supervisors re-wrote Michelle Smith's (the Region 5 WDFW StreamNet Compiler) job description and submitted appropriate paperwork to upgrade her position to a Fish &amp; Wildlife Biologist 2 position per the responsibilities of her past and future work.</li> </ol>

Objective	6	Project Management / Coordination	
<b>Task</b>	<b>2</b>	<b>Participate in Fish and Wildlife Program development activities</b>	
		<b>Work with regional entities to assist in the area of data management as requested to support development of Fish and Wildlife Program projects and programs. Organize, facilitate, and/or participate in appropriate coordination meetings with BPA, CBFWA, the Council, ESA officials, ISAB/ISRP, and/or staff and management of participating organizations to identify ways StreamNet can effectively contribute to the Fish and Wildlife Program (FWP) and facilitate capture and dissemination of data. Participate in advisory groups, task forces, and other groups whose purpose is enhancing the effectiveness of the Fish and Wildlife Program and its data development activities.</b>	
<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, Fourth Quarter 2002</u>
MFWP	1	Provide services as requested	The project leader helped review all the data management projects prior to the CBFWA review; duties were split among the 4 state coordinators to ease workload.
Region	1	Work with regional entities to contribute data management expertise with development of activities within the scope of the Fish and Wildlife Program.	The regional fisheries biologist participated in a field trip to observe the stream and riparian habitat monitoring methods used under the Northwest Forest Plan. Specifics of the sampling design were discussed relative to other monitoring efforts.

Objective	6	Project Management / Coordination	
<b>Task</b>	<b>3</b>	<b>Coordinate with other related activities</b>	
		<b>Maintain communications between StreamNet and other applicable regional and state-level fish and wildlife activities beyond the Council's Fish and Wildlife Program to identify means for collaborative data collection, storage, and dissemination. Collaborative data activities will include tribal fishery programs within the Columbia Basin, federal land managers' fishery programs, state fish and wildlife agencies, and, with respect to water use and stream development, state water resource management and environmental quality agencies. Collaboration with coast-wide and private data collection/compilation efforts will be pursued when this supports overall project goals.</b>	
<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, Fourth Quarter 2002</u>
CRITFC	1	Work with NMFS and non F&WP agency staffs to improve and provide data management services to the region	<ol style="list-style-type: none"> <li>1. The Project Leader is a member of the NWPPC/NMFS CBCIS project team to assess Columbia Basin information needs and options. The fourth quarter effort was spent developing an information needs survey.</li> <li>2. The Project Leader worked regularly with tribal, state, and federal staffs to coordinate recovery planning and subbasin planning efforts.</li> </ol>
IDFG	1	Coordinate and collaborate with other organizations, including federal, tribal, state, and local governments and private organizations. Such coordination and collaboration will be selected and conducted in such a manner as to provide benefit to IDFG and StreamNet database systems or to distribute StreamNet data.	<ol style="list-style-type: none"> <li>1. The IDFG Wildlife Bureau contacted us for technical assistance related to database design for their Female Mountain Lion Quota program. This is a potentially important link for us to make, given the range of information that may be needed in upcoming subbasin assessments and plans.</li> </ol>

MFWP 1 Maintain communication between state and regional entities

The fisheries data manager has helped organize and participated in the Westslope Assessment process in Montana. StreamNet staff will provide technical staffing at the meetings that will occur in Great Falls, Bozeman, Missoula and Kalispell. The MFISH data structure and data have been used for all the assessment and mapping. All data collected from the assessments will be put into MFISH.

ODFW 1 Establish / maintain working relationships with data collection projects within and outside ODFW to promote efficient and beneficial data sharing.

1. The Project Leader attended a meeting at OSU to assess the status, location, and condition of the historic habitat survey archive and it's possible transfer to the OSU Digital Library. These habitat surveys contain a great deal of historic fish sightings, and may be very useful for developing or updating future historic habitat distribution data.
2. Staff met with Janine Salwasser and Doug Terra from OWEB to get a better understanding of what they are trying to accomplish and to see where ODFW and StreamNet fit in.
3. The Project Leader spoke with Bobbi Riggers (OWEB) about the restoration data delivery system developed by NOAA-Fisheries. Bobbi currently doesn't have access to it, but describes it as the best representation of their data she's seen so far. This system is maintained on NOAA-Fisheries internal system, so no one can access it without permission. When I contacted NOAA Fisheries to get a look, I was told they are still trying to give OWEB access and they'll work with me once they've solved the issues with OWEB.
4. The Project Leader attended the Hydro Framework Meeting in Portland and updated everyone on the status of our 24K Fish Distribution Project. He also learned that the 24K Hydro development is behind schedule and they intend to ask OWEB for an extension (without addition money). The BLM-State effort is running smoothly, but BLM and the Forest Service are still not in agreement on who should do what areas or how it should be done.
5. The Project Leader met with Jeff Dambacher, ODFW Fish Research, to officially transfer the Oregon fish museum collections data set to NRIMP. The data set is complete with metadata, is in .e00 format, and may be useful for developing a historic distribution layer for some species. Jeff would like us to find a way to publicize the data set and make it more widely available.
6. The Project Leader contacted Peter Lofy (BPA) regarding carcass placement projects for which he is the COTR. Peter's projects are located in Idaho, Washington, and Oregon, and all projects deal with much more than just carcass placement efforts. He agreed to provide the names of the project leaders, and we agreed to coordinate with StreamNet counterparts in the other states to address as many of these projects' data needs as possible.

Region	1	<p>In order to broaden the scope and utility of the StreamNet database, develop appropriate proposals for data development activities that would compliment the main StreamNet data holdings. Ensure proposed work is not currently conducted by other entities. (Examples may include traditional StreamNet data types outside of the Columbia River basin, macroinvertebrates, water temperature, and habitat restoration.) Conduct of such work will be dependent on availability of additional resources. Once awarded, efforts will conform to the approved contract. Such work will be coordinated with this work plan so that activities under this task do not impede accomplishment of the remainder of the work plan. This task is necessitated by the fact that project staff have time available that is not covered by the BPA contract.</p>	<ol style="list-style-type: none"> <li>1. A presentation on StreamNet and it's data contents and data services was given to BPA staff with the intent to improve communication and coordination.</li> <li>2. The program manager and regional fisheries biologist met with personnel from the Oregon Watershed Enhancement Board to discuss possible overlap among the two projects, and how to best support each other.</li> </ol>
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Objective 6 Project Management / Coordination

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

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

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, Fourth Quarter 2002</u>
CRITFC	1	Prepare and present demonstrations and descriptions of the library services available through StreamNet	We gave a presentation on electronic document projects at the Natural Resource Information Council.
MFWP	1	Determine if Montana needs any publications, documents and produce them if needed. Review regional products when necessary.	An information sheet was provided during the presentation at the NWPPC August meeting in Helena prior to the presentation done by the Montana StreamNet project leader.
ODFW	1	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.	The Database Analyst worked on collecting information to re-work the Incidental Fish Observation write-up for publication in Inside Tracks magazine. She requested and received reviews from NRIMP staff and incorporated the changes into a final draft along with a copy of the ArcView map she updated with the number of forms submitted by HUC.

Region 2 Develop materials to support the project. Improve public materials such as the StreamNet brochure, data inventories, etc. as needed. Maintain and update explanatory materials such as the Query System User Guide and documents that explain data categories and structures.

1. After correcting the software error that had prevented delivery last quarter, on July 10 the first StreamNet Newsletter was sent via email to the 7034 unique email addresses we had collected. It was anticipated that many of these would be old addresses or addresses that were parsed incorrectly from web pages. As per our expectation, 2994 messages failed and were returned, meaning 4040 messages were received by the target audience. In addition to these direct mailings, we sent the newsletter to the following email discussion groups (listserves): Fish and Wildlife Information Managers; American Fisheries Society; and Watch Over Washington. We also had prearranged for two recipients of the newsletter to forward it to the Oregon Watershed Enhancement Board's email discussion group, and the Northwest Biomonitoring Workgroup's email discussion group. In addition, the Newsletter, along with the URL to sign up for future newsletters, was submitted and published in the Western Division of the American Fisheries Society's newsletter, "The Tributary." One week after sending the newsletter via email, 646 people (16% of recipients) were signed up to receive future newsletters. Their affiliations were as follows: angler or environmental group=29; BPA=10; Canada=8; CBFWA=2; consultants=33; EPA=8; federal land manager=26; industry=11; local government=32; NMFS=44; NRCS=4; NWPPC=8; PSMFC=14; PUD=7; state fish and wildlife agency=95; other state government=63; state legislature/governor's offices=4; tribal=43; university=30; US House or Representatives=4; USACOE/BOR=26; USFWS=31; USGS=17; watershed councils=16; other=18; unknown=63. We plan to send a StreamNet newsletter about 3 times per year, as new information is available on the web site. People continued to sign up through the quarter, and at the end of the quarter there were 854 people signed up for the newsletter.

2. The first draft of the white paper completed last quarter describing the data available in the Habitat Restoration Projects portion of the StreamNet database was updated based on edits received and then presented to the SC for further review before acceptance.

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## Supplemental Information

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### Work accomplished outside the specific work elements in the FY 2002 Statement of Work

**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. Such work contributes to the overall mission of the StreamNet Project, but in some cases was opportunistic in nature, and in other cases was conducted by staff related to StreamNet but on other funding sources, made possible by the fact that a number of StreamNet staff are supported by the StreamNet Project contract for only a portion of the year.**

Project Accomplishments, Fourth Quarter 2002

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- CRITFC The Project Leader, as chair of the technical team for the Council's subbasin planning efforts in Oregon, had numerous discussions and meetings scoping and developing watershed assessment methods and defining other technical tasks required to complete subbasin plans. These activities, as well as participation in the Council's CBCIS project and discussions concerning M&E needs and initiatives, are done at no expense to the StreamNet project but can significantly affect support for StreamNet and affect future needs and activities.
- IDFG Using non-StreamNet funds, we continued our work to attach the Idaho fishing regulations to the StreamNet hydrography. We now have about 95% of the lakes and 50% of the streams completed.
- MFWP The MFISH query system continues to receive about 4,000 visitors each month; further enhancements have been made and the new system has been well received. The FWP GIS data is now downloadable from the agency's website at [fwp.state.mt.us](http://fwp.state.mt.us); the system is entirely database driven so anytime data are updated or a new layer is available, it is automatically loaded to the downloadable system; in the first month the data were available, the page had 1400 visitors. Work continues smoothly on the agency's IT plan; final comments have been provided to the state IT Division; next steps include putting together focus groups for the first 3 goals to deal with staff infrastructure and data standards and centralization. The new MWILD (Montana Wildlife Inventory Database) is off to a good start; coordinating with the Montana Natural Heritage Program closely; will be able to hire 2 data entry technicians in December through the agency's SWG Comprehensive Planning Process so all existing occurrence and habitat survey data can be entered into the system. We are also developing individual DMS for bald eagle. We are also creating a field guide for all species in Montana that will be part of the FWP website. We are currently updating FWP black bear, bighorn sheep and mountain goat GIS layers. Using ArcIMS for providing upland game bird data on the web and will convert our Hunt Planner over to ArcIMS this fall.
- ODFW
1. The 24K GIS Coordinator participated in a series of interviews to find a new GIS specialist for the StreamNet project.
  2. Our GIS Analyst implemented FTP security tightening measures. Under the new structure, anonymous users will only be allowed to write to a single /pub/Incoming directory and will not be able to see the files there. Primary users will have password protected access which enables them to upload data to their directories, plus download data from the Incoming directory, which will facilitate transfer of files to staff from outside agency staff of the public..
  3. Oregon's Project Leader talked with Rich Carmichael (ODFW Research, LaGrande) about expanding our VSP effort to support the Upper Columbia TRT efforts. Rich is seeking 6 months of funding from NMFS and will request 6 additional months from the NWPPC. He's focused primarily on Steelhead distribution (which we have), age, length, and other life history information. Once we know more about how much money we have, we'll talk more about how best to administer the project.

4. The GIS Analyst responded to a disk failure on Eagle, our ArcInfo license server. He performed troubleshooting to identify the problem disk and proceeded to physically disconnect it from the SCSI chain. The file systems on the disk included Milt's old directory, a Unix answer book and our ArcInfo install including the license server functions. ArcInfo was reinstalled and the license server functions were re-established on a different file system and disk. He also modified various system tables to handle the new configuration. Fortunately nothing was lost except for nearly a day of time.
5. Oregon's Database Analyst removed and stored Juvenile data records from the Oregon Trend data set until a DEF is provided by StreamNet
6. The Assistant Database Developer communicated with ODFW staff to spread the word about Map features on our web site. ODFW office receives numerous requests for maps from local hunters, and the Map Links page will provide the office staff with an online resource to direct the hunters to.

Region During the quarter, a number of materials from StreamNet and its two predecessor projects, CIS and NED, were found in filing cabinets. These items were examined for current utility or historical significance. Items of interest were provided to the StreamNet Library for archival. Others, such as old versions of the DEF, were converted into .pdf format by the Library staff and will be added to the StreamNet web site as historical documentation of the evolution and development of the StreamNet database structure.

WDFW

1. WDFW staff played a key role in six meetings of the state's Data Development Group, which is advising state agencies on the data standards and procedures for planning, collecting, and managing Monitoring data in support of salmon and watershed recovery.
2. The WDFW StreamNet Project Manager worked with JSAP project participants and a consultant to review data system designs and schemas for the "Universal Fish and Habitat Database", intended to store data collected in support of resident fish stock assessments in Northeast Washington (above Grand Coulee Dam). This data store will be designed to support extraction and conversion of data for exchange with StreamNet as required.
3. WDFW staff began the year-long process of incorporating fish distribution data from StreamNet, Limiting Factors Analysis, Bull Trout 2000 statewide review, and the SaSI stock status data set into a single statewide spatially enabled fish database that is linked to WDFW's 24K routed hydro layer. Standard definitions for presence and use categories were negotiated, and these definitions factored into StreamNet discussions that resulted in adoption of the StreamNet GeneralizedFishDistribution format. This new database will allow much simpler exchange of data with StreamNet, once issues surrounding the differences between the 24K and the 100K hydro layers have been dealt with.

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