

Response to ISRP Comments for the StreamNet Project

BPA Project # 198810804

Bruce Schmidt
StreamNet Program Manager
Pacific States Marine Fisheries Commission

Contributors:

Phil Roger, Columbia River Intertribal Fish Commission
Bart Butterfield, Idaho Department of Fish and Game
Janet Hess-Herbert, Montana Fish, Wildlife and Parks
Cedric Cooney, Oregon Department of Fish and Wildlife
Dick O'Connor, Washington Department of Fish and Wildlife
Steve Pastor, US Fish and Wildlife Service

August 23, 2002

The StreamNet Project is pleased to offer the following response to the questions and issues raised by the ISRP review of our FY 03-05 funding proposal. We will address the questions in the order they were raised in the review, but would like to begin by presenting several overview points that should help clarify a number of the issues.

First, we sympathize with the ISRP in trying to understand the project breakdown and budgeting. We found the proposal template quite limiting and poorly suited to explaining a complicated request such as this. In this response we will attempt to present the entire project and budget in a different format that we hope will make it easier to understand both what we have been doing and what we are proposing as new work. However, we simply will not have time to prepare completely new proposals for several of the new work elements, and because of the short timeframe and some adjustments the project cooperators would like to make, we have a few minor allocation differences between this budget and the original proposal. We do think that we can describe the new components more clearly in this response, and we plan to work during the CBFWA review process to gain regional input and consensus on which specific new work is desired, and will modify the overall proposal to reflect that consensus. We were advised to prepare this large request specifically to stimulate such a regional discussion on priorities for this project.

Second, we would like to clarify the relationship between the StreamNet Project and the agencies it works with. The ISRP review, including the RME comments, in several places makes reference to the fish management agencies we have contractual arrangements with using active terms such as "agencies contributing data," and that data are "submitted to it (the StreamNet Project)." In fact, the role of the management

agencies is largely passive. We have established subcontracts with the agencies to facilitate location and acquisition of data, but the agency staff are primarily guided by the StreamNet contract and work to get the data, rather than simply having it submitted to them. This point relates to the reason behind the project in the first place. That is, each management agency collects fish data to meet its own mission and needs, using a wide variety of funding sources (license fees, permit fees, Federal Aid in Sport Fish Restoration, NWPPC Fish and Wildlife Program, LSRCP, etc.) to do so. There are few specific requirements or needs for these agencies to expend limited resources to manage and distribute these data for wider use, for other purposes, outside their agency, or sometimes even within it. StreamNet steps in to fulfill that role. The agencies do provide administration and in kind contributions, and do ultimately provide the data, but their focus is more toward managing the resource than it is toward managing the data (although the emphasis on data management differs among the different agencies). We do not “pass through” funds to the agencies, but rather fund specific work activities administratively located within the agencies. Annual work plans for the StreamNet Project staff in the agencies are contained in the StreamNet Project annual statement of work, which is attached to this response for your convenience.

Third, the ISRP and the RM&E Workgroup recommended that his project develop standard data collection protocols. While we recognize this need, we as data managers are not the appropriate body to establish or recommend field data collection methods. Field methods must be determined between the management and research biologists based on study and management needs, and then they must be adopted by the individual agencies. StreamNet can, and is very willing, to assist with data organization and management issues and development of standardized data definitions and formats, things that should be considered up front when establishing protocols, but we can not provide meaningful input to the issue of field methodology. Other efforts, such as proposal #35033, involve the management biologists in the agencies and are much better positioned and qualified to address the issue of field sampling protocols. StreamNet will contribute to such efforts specifically in terms of the data management aspects that unfortunately are sometimes not considered when protocols are being evaluated.

Following are responses to the specific issues raised in the ISRP Preliminary Review. Paragraph numbers relate to paragraphs within the StreamNet review.

- 1. Pg. 100, Par. 1. “The ISRP recommends that the response more clearly separate the tasks and budget for long-term storage and distribution of data in StreamNet and the tasks and funding passed through to the states and tribes for preparation of data (so that the data are more comparable among the agencies and tribes).”**

Table 1 contains a reorganized summary of the components of the StreamNet Project request, showing in one place the roles of the agency subcontractors and the central project at PSMFC. Separate cost estimates for the subcontractor and the PSMFC components are shown, and are proportional to the amount of effort being expended by each for each data type. Objective 1, Data Acquisition and Development, entails all of

the work related to acquiring data, fitting the data to the regional Data Exchange Format (DEF) to provide regional standardization, georeferencing, and submittal of the data to the central database at PSMFC. The majority of data development work is conducted by the subcontractors, although PSMFC staff do some data acquisition and development for several specific data types, as indicated by the individual cost estimates. A small amount of data management tasks for PSMFC staff for individual new data types are included with the data development portion of the work in Objective 1 for simplicity of the proposal and to keep all new costs related to each new data type in one place.

Costs and efforts for data storage, management and delivery are the primary components in Objective 2, Data Management and Delivery. As demonstrated by the cost estimates for the two groups for each specific task, both the subcontractors and the regional project at PSMFC have roles here. PSMFC deals with database management, GIS, Internet distribution, DEF development and application, application development and data warehousing at the regional scale. The six subcontractors each deal with these same aspects at the state or agency level.

It is important to understand why these functions need to take place at both the state and regional scales. The six subcontractors perform these tasks because in large part, they don't occur elsewhere in their agencies. The subcontractors work directly with the data providers to ensure the data are processed in an efficient manner, and at the same time the data are represented accurately when delivered to StreamNet. This work serves as a precursor to the work that is done at the regional level and aids in preventing redundant processing of the data.

Again, please note that in Table 1 that due to the very short timeframe and mandated other work for several project members, some minor changes in budget allocation could not be rectified to exactly match numbers in the proposal. Differences are minor, and we intend no change to the total requested amount. These inconsistencies will be corrected in the contracting phase.

2. Pg. 100, Par. 1. The response should identify and evaluate the increased scientific value of data in StreamNet and cost savings that would arise if agencies contributing data used common methods and data recording formats.

There is little doubt that the use of appropriate common data collection protocols and recording formats would increase the scientific value of data, although by how much is difficult to quantify. Indeed, common data formats are being actively discussed in several of the NWPPC subbasin planning forums. The issue of common data collection protocols is likely to be discussed under the CSMEP framework which is part of proposal #35033.

We agree that common methods would greatly increase the scientific utility of fisheries data collected in the Columbia Basin. However, as stated above, standardizing field methodologies is outside the realm of the StreamNet project, as we have neither the technical expertise nor the authority to institute such changes. We do work to standardize data across agencies when data are submitted to StreamNet from the subprojects, and

personnel in the subprojects do work with personnel in their agencies to standardize data within their agency. Such standardization eases our tasks, and greatly contributes to regional productivity by allowing scientists to spend time on analysis rather than data conversion, standardization, and georeferencing. The conversions, standardization, and georeferencing is done only once, by StreamNet, and researchers can thus better spend their time. However, we are unable to estimate cost or time savings, or the increased scientific value these bring, particularly because such savings would likely be offset in whole or in part by increased field costs if more information were included in the protocols and by equipment and training costs to convert present systems and time series of data collected by other methods.

The issues raised by the ISRP should be carefully evaluated when common protocols are discussed, but they are beyond the scope of the time allotted for this response.

3. Pg. 100, Par. 1. The response should include objectives and timetable for development and use of standardized protocols for collection of primary field data by the states and tribes.

As mentioned above, data managers are not the appropriate parties to establish common protocols for collection of primary field data. That is field sampling methodology, which must be determined and adopted by the biologists and agencies involved. However, once the agencies begin to address that issue, potentially through project proposal #35033, and perhaps subbasin planning, StreamNet will work with CBFWA and the agencies to develop and implement efficient data handling methods, including QA/QC procedures.

StreamNet will be dependent on the timetable established by the agencies for addressing this issue. Agreement on adoption of standardized field sampling protocols will be difficult and time consuming, since adopting common protocols usually means changing methodology, which breaks long established time series, and may alter the suitability of the data to old agency needs while addressing newer regional needs. Similarly, adopting new data definitions and formats alters existing approaches. This is why StreamNet uses the DEF approach rather than insisting that all agencies use the same data structures. Nevertheless, StreamNet pledges to work closely with the agencies as they address field method protocols. As that process goes on, we will continue to use common DEFs to maintain the flow of data to StreamNet while the region transitions to a new system.

4. Pg. 100, Par. 1. The response should include a careful self-review including an evaluation of whether the structure of the current administrative oversight and advisory board is likely to result in standardization of field data protocols.

When participants originally agreed to participate in the project, it was with the clear understanding that we would **not** develop standardized data collection methods and reporting formats. That effort, largely recognized now as a desirable objective, was anathema when this project began. Consequently, the present administrative structure of

the project was developed only to foster coordination between data development activities of project participants.

What data to collect and standard collection protocols depend primarily on the management use for the data. Resource managers and researchers are the appropriate individuals to be making those decisions, not the data managers. StreamNet participants stand ready to assist the implementation of data collection and reporting standards by developing efficient data handling and storage protocols. As a collaborative project, we would welcome increased participation in the steering committee to facilitate increased input and direction from those more involved with use of the data than data development.

See also the response to project monitoring and evaluation, below.

5. Pg. 101, Par. 3. The response should be more forceful on proposed additions to the project and segments of the project to keep. The proponent should give a prioritized list of data needs based on use of present segments of the database and on past requests for information including information requests for subbasin planning.

The purpose of the proposal structure was to stimulate regional discussion of data priorities. Currently, participants work on those data sets for which their agencies have expressed the greatest need. We as a project can infer regional data needs, but the list of needed data is much longer than we have the resources to fulfill. Our proposal likewise contains more "new" work than we expect there is available funding to undertake. But we as data managers are support staff and are not the best placed within agencies to decide priorities. We intended to present our opinions on priorities of proposed new work in Table 1, with the hope that regional guidance from outside the StreamNet project will help us prioritize data types to develop. We believe that our base work is the top priority, as those data types are the most commonly used. However, our intention to provide a data manager's perspective of the priority of the proposed new data types was thwarted by the short time period available for response. We simply did not have time to attempt to fill in that portion of Table 1. We plan to use the CBFWA review process to initiate effective discussions on data priorities.

Quantifying data use is very difficult. Logs of web and query system usage are available, but their summarization and interpretation is very complex. For example, some people may run a single query on an entire data category to get the data of interest; others run many small queries to obtain the same needed information. In addition, some people download the entire StreamNet database and query it on their own computers. While we do get direct requests for data that are not in our database, lack of such requests does not imply nobody looked for such information. People familiar with the data contained in StreamNet don't bother to ask for what they know is not there. We do know that species distribution data and adult abundance data are frequently used, and that barriers

information would be a valuable addition for many people, but we also know that all of the new data proposed is of interest to someone.

- 6. Pg. 101, Par. 3. Each task for collecting and maintaining high priority new data should include a detailed methods section. For example, the proponent states that “Some data are still relegated to paper files or are retained by local biologists. If requested, StreamNet staff can effectively mine data from field offices.” One of the other areas that the proponents indicate a need for new effort is in collection of data on the fraction of hatchery fish on spawning grounds.**

Please refer to Table 1, which was developed to include information on the methods used or planned for each Task and each data type. These methods statements should help describe how various tasks are accomplished by the project cooperators, but the short response time did not allow for the greater amount of detail that might be desirable. We would be pleased to provide more specific information to the ISRP at a later time if you would like. We intend to develop a document to detail our methodology, and also will include descriptions of the QA/QC procedures we use once the data are obtained from the field biologists. Where the field agencies have formal protocols and QA procedures for primary data collection, those will be referenced.

- 7. Pg. 101, Par. 3. The 40 data sources listed should be prioritized and methods (with proposed budget) given to accomplish the individual tasks of acquiring and maintaining the data.**

Table 1 shows our 40 base and new data development tasks (not sources), along with methods and budget. We had intended to attempt to develop a rough data manager's perspective on priorities, with a relative high, medium or low priority for each task, but as mentioned above, did not have time to do so. We do consider all "base" tasks to be high priority. We also believe that as a service project, we do not have the proper perspective or expertise to assign priorities, and believe that the managers, researchers and planners should indicate which data types are of highest need. This proposal was organized the way it was specifically as an attempt to stimulate such discussions on priorities among regional entities through the project review process. We hope to do that during the CBFWA review.

- 8. Pg. 101, Par. 3. To be consistent with ISRP's statements on implementation of a systemwide M&E program (see proposal #35033) the proportion of StreamNet's budget passed through for participation of other agencies and tribes could potentially be reallocated under the overall CBFWA proposal #35033 (approximately $\frac{3}{4}$ of the StreamNet budget according to the oral presentation).**

Implementation of a systemwide M&E program does not require merging of these projects. The StreamNet project will assist project #35033 to successfully complete its data management activities under tasks 2.2, 3.2, and 4.2. It remains to be seen whether the new proposal #35033 will be funded. If it is, it would only retard progress on the

systemwide M&E effort if the first task of that project were to deal with the administrative overhead of merging a number of ongoing projects. The activities of this StreamNet proposal do not duplicate any activities included in proposal #35033. Indeed, functions such as the StreamNet Library services are unique to this project. There would be no known benefit gained from changing the present administrative structure.

The StreamNet work plan is established in our Statement of Work (attached). We are uncertain whether this comment assumes continuation of existing work under our present Statement of Work, or if resources would be reallocated to new work in support of project #35033. If the former, there is no fiscal or productivity gain to be had from a shift. Instead, the extra administrative tasks associated with the shift would likely result in administrative inefficiencies for one or two budget cycles. If the latter, then the StreamNet project would be fundamentally altered and cause some current data development work to cease. Such a change is possible, but we believe discussions of data development priorities should be completed and strategies to minimize disruption of the project would be called for before such a change should be recommended.

9. Pg. 101, Par. 4. Tasks and methods to meet the objectives (2 – 6) should be expanded and prioritized. For example, tasks and methods to accomplish Objective 6. Support and Services to Subbasin Planning are too brief to allow scientific review.

We have completed more detailed descriptions of methods for each task. These are shown in Table 1. We hope that they are sufficient to provide the information sought, and would be glad to discuss them further in the future. It is also important to note that Objective 6 was intended to provide data and services to an array of planning activities in addition to the NWPPC's Subbasin Planning effort. Other efforts that would be served include recovery planning by the TRTs, NMFS internal data management programs, and any regional monitoring efforts.

10. Pg. 101, Par. 5. The ISRP suggests that an alternative approach be used in the response. Namely, independent proposals should be prepared to provide suggested new data analyses for the region, in the spirit of DART and the FPC

We have provided a revised summary of the project components in Table 1, but will not have time to prepare individual new project proposals as suggested here, even though we agree with the point made. In addition, we received advice from BPA that new proposals are not appropriate at this stage in the review process. Besides trying to make the project components more clearly defined in Table 1, we intend to use the CBFWA review process to discuss the specific purpose and value in order to get regional input on what regional entities see as priority for the StreamNet Project to take on. After that review, we would amend our original proposal to reflect the guidance received. We would like to work with ISRP as well to make appropriate clarifications in the work statement during the contracting process.

11. Pg. 101, Par. 5. The proposals should be to accomplish specific needed analyses, e.g., calculating and/or summarizing specific population estimates, or deriving results from other analyses, where not done by the originating agency. Data justifying demand for analyses should be given with detailed methods to provide the service. It is the opinion of ISRP that quality of the database service provided by StreamNet will be improved by funding an in-house, but independent project, to provide analyses and compete with other second tier database systems on an equal basis.

StreamNet was advised early in its development that it was to be a data acquisition and distribution project, not an analytical project. More recently, we have received requests that we provide data in a more analyzed or summarized format. We therefore included a task in this proposal to develop an analytical capability. We agree with the ISRP that if we do so, it should be a specific project component separated from the data delivery part of the project. We will attempt to provide more detail of the specific analyses we could during the CBFWA review meeting. In response to this comment from ISRP, we have included a brief discussion of what analyses could be done in relation to specific data types in Table 1. That information is included in Task 5 under Objective 4. Additionally, we think it would be appropriate to undertake standard analyses developed by other efforts, such as standard analytic tasks in support of M&E as they are developed and regionally agreed to by a project such as CSMEP (proposal #35033).

12. Pg. 101, Par. 6. The response must have a monitoring and evaluation section in the project history and a proposed monitoring and evaluation section for the proposed project. It is not acceptable for one of the most quantitative projects to not have a quantitative monitoring and evaluation plan for itself.

We understand and agree with this comment. The absence of a monitoring and evaluation section was an oversight on our part. We intended to adjust the proposal, but ran out of time during this response window.

Even though we have not formally included a monitoring and evaluation section in proposals in the past, we have incorporated a better system of tracking and publicizing project accomplishments, even though there was not a specific section in the project dedicated to that effort. Beginning in FY 2000, we modified the format of the annual Statement of Work to provide more specific description of deliverables and deadlines for the project. Then, in the quarterly reports, the accomplishments for each quarter are presented alongside the specific work elements from the SOW within each task. This allows readers to clearly see what we intended to do and what was actually accomplished. As an example, the StreamNet's First Quarter Report for fiscal year 2002 is attached to this response.

As a result of this ISRP comment, the StreamNet Steering Committee has adopted a plan to provide even more specific statements of the deliverables in each task, and then in the following annual report to provide a 'grade' as to how well each task met the deliverable,

based on quantifiable criteria. We will also make sure a specific monitoring and evaluation section is included in future project proposals.

Though counterintuitive, some aspects of database management are difficult to quantify. For example, updates to GIS layers cannot be easily counted. Correction to a record causes no change in number of records in a database. Sometimes improvements to databases such as finding and deleting duplicate records or restructuring tables actually result in fewer records in the database. Similarly, data delivery can be difficult to quantify. Use of the StreamNet query system is difficult to quantify due to the anonymous nature of the Internet and the difficulty of interpreting log file entries. Still, the point of this comment is well taken and an M&E plan will be instituted.

The project has also recently undertaken a review and upgrade of its QA/QC procedures. In the next year we will better document the QA/QC procedures used in data collection and will upgrade our review procedures before data are added to the regional databases. This review will culminate in a report identifying data handling weaknesses and recommendations for future improvements.

13. Pg. 101, RM&E Workgroup comments

Not knowing that the ISRP comments would include the RM&E Workgroup comments, we already prepared a complete response to those comments, which was distributed to the RM&E Workgroup and to the ISRP members. That response was already provided to the ISRP members and is also attached to this response.

Pg. 103, ISRP Remarks on RME Group Comments. The ISRP agrees with this assessment, and recommends funding of Proposal #35033 from the CBFWA to coordinate the development of a basinwide research, monitoring and evaluation program, including potential reallocation of funds from StreamNet and other projects to accomplish the tasks and meet the needs of RPAs 180 and 198. NMFS through participation in CBFWA would have more influence on data collected by the states and tribes and stored by StreamNet to help ensure that RPAs in the BiOp are satisfied.

We can identify no substantial benefits to changing the administrative structure of this project and feel that to do so would impose an unanticipated additional administrative burden on proposal #35033, possibly diluting its effectiveness. Simply reallocating money to that project would cause a loss of present data compilation and library services, a cost the managers are not willing to incur. It must also be noted that StreamNet is not merely a data storage system. Rather, StreamNet staff actively pursue data to compile for inclusion in the agency and StreamNet databases. This role is otherwise unfilled in the region.

We thank the ISRP for its thoughtful review, and we look forward to working with you to work out the details of this admittedly complex proposal.



StreamNet Project

BPA Project No. 198810804

Fiscal Year 2002

First Quarter Progress Report

October 1, 2001 through December 31, 2001

Bruce Schmidt

Pacific States Marine Fisheries Commission

Cooperators

Phil Roger, Columbia River Intertribal Fish Commission

Bart Butterfield, Idaho Department of Fish and Game

Janet Hess-Herbert, Montana Fish Wildlife and Parks

Cedric Cooney, Oregon Department of Fish and Wildlife

Steve Pastor, U.S. Fish and Wildlife Service

Dick O'Connor, Washington Department of Fish and Wildlife

Table of Contents

Introduction.....	2
Objective 1. Data Development and Update, Priority Data Sets.....	6
Objective 2. Data Development and Update, Other Data Sets.....	15
Objective 3. Data Management and Delivery.....	24
Objective 4. Library / Reference Services.....	42
Objective 5. Services to Fish and Wildlife Program Activities.....	46
Objective 6. Project Management / Coordination.....	50

Introduction

StreamNet is a cooperative, multi-agency data compilation and data management project authorized by the Northwest Power Planning Council's Fish and Wildlife Program (FWP) 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 first 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 First 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 this quarter are presented by cooperator, as follows:

CRITFC

1. Normal library services were maintained and expanded at the StreamNet Library. Usage continues a steady increase and this was accommodated with existing staff and resources. Library space is becoming a growing concern and is a limit to providing additional services.
2. A new high-speed scanner has been integrated into the library at no additional cost to the project. CRITFC acquired the scanner with its own funds and staff were trained in its use. Key documents are being scanned and added to the web site as time permits.
3. A prototype genetics data catalog was developed and presented for Steering Committee consideration.
4. The Steering Committee member has been actively representing the project as the Council proceeds through its Provincial Review process and develops its strategy for subbasin planning. This has involved a sometimes intense set of meetings and discussions. Regular updates were provided for the Steering Committee.

IDFG

1. Using outside funding, we completed an updated database of bull trout survey data for the Clearwater and Salmon River basins. Two major data sources, the General Parr Monitoring and the Salmon Region's stream survey database were combined into a single database for the US Fish and Wildlife Service. The data were formatted for inclusion into the StreamNet data. In addition, the Salmon Region now uses the StreamNet stream referencing system (LLID and measures) for their database, easing the future addition of data into StreamNet.

2. After noticing some anomalies in existing data, we began a thorough review of hatchery return and redd count datasets. Included are a check on survey locations and verifying data entry with original sources. We completed the hatchery returns for 1961 through 1999 and several years of redd count data.
3. We have developed a set of ArcView tools for IDFG biologists to use for referencing their data to the StreamNet 100K hydrography. The tools were installed in the IDFG Fisheries Bureau and several regional offices. By creating such tools, IDFG biologists find it easier to record data in formats more easily migrated to StreamNet.
4. Using funds supplied by IDFG, we began to purchase hardware and software to develop a modern information system for fish and wildlife data. Built upon StreamNet data formats, this information system will be the central storage location for IDFG fishery data. It will include automated tools for converting that data into StreamNet data exchange formats.

MFWP

1. The project has begun collection of 2000-2001 distribution and survey data from MFWP biologists, and we continued to input the information into the database.
2. We completed and exchanged Dams, Hatchery Facility and Protected Areas databases to StreamNet regional staff. Work continued on Barriers data.
3. The MFWP genetics database was sent to the CRITFC StreamNet Project as we move toward developing a DEF for this type of data.
4. We accomplished normal project activities, including attendance and participation in the StreamNet Steering Committee meeting in Seattle, where the Distribution and Use DEF was successfully discussed.

ODFW

USFWS

The smallest component of the StreamNet Project, FWS activities centered around routine work, including obtaining and entering fall release information from Warm Springs NFH and participating in the quarterly Steering Committee meeting.

WDFW

1. WDFW StreamNet staff used additional funding from EPA to generate standard metadata for the statewide bull trout distribution/use database, as well as to begin to build basic capability for spatially-enabling field sampling points to allow incorporation of fish survey data, particularly for resident fish. Our salmonid spawner survey field data from the Lower Columbia River is hampered by the use of non-standard location identifiers. We are working to build the capability to easily generate LLIDs and measures (Begin/End points) for each of these locations so that these data can be spatially referenced in our GIS and to facilitate the process of conversion to StreamNet exchange format.
2. We also spent considerable time working the “people” side of the data delivery pathway. Upon request, our Vancouver office staff “adopted” a key database of wild juvenile and adult migrant data from the Cedar Creek watershed. This database was suffering from lack of standard data values and delays in updates. In addition, there was a sharp increase in requests from other WDFW staff for help in operating software, running database routines, etc. We find that our investments in building and maintaining data flow infrastructure always pay off, both in better and more timely data, and in the positive relationships that are built. Such relationships are key to getting our future needs addressed as a high priority by grateful field staff.

Region (PSMFC)

In addition to routine and ongoing work to keep the project functioning and current, significant progress was made in the first quarter toward upgrading the online data query system. Greg Wilke, project programmer, came on board at the end of the last quarter of the previous year. This quarter he began an intensive process to learn the existing system in preparation for his taking over maintenance and improvement of the system. Greg worked closely with Doug Reece, the contract programmer responsible for development of the system, and rapidly learned the system and began making corrections and improvements. Other key accomplishments include conclusion of the project to provide information on mass adipose marking of hatchery salmon and steelhead as requested by the Power Planning Council, and revision of the work statement to improve organization and prioritization of work.

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.

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.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, First Quarter 2002</u>
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.	<ol style="list-style-type: none">1. Data continued to be entered into the Fish Information System (FIS). The FIS was built in a collaborative effort between IDFG/StreamNet and IDFG fish biologists to facilitate data compilation and exchange with the regional StreamNet database. The data being entered came from two primary projects. The first is an ongoing effort to enter historical fish collecting reports. The second is a project to compile historical data from IDFG regional offices. Some of these data are electronic and some are paper. Both projects are funded outside StreamNet.2. The IDFG/StreamNet program received funding from USFWS for 1 month of our data manager to compile bull trout data from the IDFG Salmon and Clearwater regional offices. The data were combined with data already in the FIS to provide an updated picture of bull trout distribution, survey sites, and relative abundance in the two drainages.3. Using the Spawning Ground database developed by IDFG/StreamNet and the Idaho Supplementation Studies (ISS), fish biologists added incidental fish species from juvenile trap data into the FIS.
MFWP	1	Complete Distribution and Use Types dataset 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.	Work is ongoing; we will exchange these data next quarter.
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.	Work is ongoing. We met with southwestern Montana biologists in December, and will schedule the rest of the state next quarter.

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. Jon processed the latest version of our Fish Presence Survey data into GIS format with the intention of gleaning out the cutthroat observation data. He was able to identify 23 points that were located beyond Oregon's borders and 96 records that fell within a particular HUC that did not have matching HUC coding. The information was provided back to our data entry person for further evaluation and correction. We're holding off for now on using this for cutthroat documentation until errors are corrected.
2. Jon initiated work on Coastal Cutthroat distribution data development in the Willamette and Lower Columbia basins. He assembled data from past distribution data development efforts (WDESH I and II, Aquatic Inventory Project, ODF Fish Protection Watershed data, the Fish Presence Survey database, Mt. Hood National Forest, BLM Salem and Eugene districts and the Incidental Fish Observation database). He began processing the data into a compatible format and developed an order of precedence and a draft approach for converting it into a comprehensive linear distribution for this area. Data development is focusing on developing documentation (DistPres) data since it will drive the development of the distribution data. Through both automated and manual means, he was able to convert Mt. Hood National Forest, BLM-Salem, and BLM-Eugene District GIS data into StreamNet compatible documentation format.
3. Jon created Reference Memo's, organized Reference Metadata and assigned RefID's for Mt. Hood National Forest, and Salem and Eugene district BLM GIS data containing fish distribution information. He also acquired a Reference document for a steelhead survey conducted on the Illinois River.
4. We synchronized a replicate copy of the distribution database with the Design Master, which incorporated twelve new 100K records, primarily in the Clackamas and Sandy basins.
5. Jon compiled Baseline97, 1:24,000 scale DLG hydrography in preparation for developing an initial, "presumed" coastal cutthroat distribution dataset. Since these data are not comprehensive, Jon is still working to track down additional hydrography data to completely meet our needs for this project.
6. Jon Reviewed existing cutthroat data to evaluate whether it should be included in the Distribution database.
7. Jennifer used the Data Capture Tool to enter Coastal Cutthroat data for the Hood area (Scott Canyon HUC). Additionally, she (re-) entered some cutthroat data that was displayed on the original maps and approved by Hood biologists, but was not contained in the distribution database.

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. Stacy entered fish presence survey data for the South Willamette Watershed District during this quarter. As of 12/17/2002, we have 6,067 records in the Fish Presence Survey database.
2. Jon processed the most recent replicate copy of the FPS database in order to derive cutthroat documentation data.
3. Bill began work on the Fish Presence database to enhance the User Interface based on suggestions given to him by previous data entry staff.

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. Using a series of queries, Sikora generated a list of suspect Bull Trout distribution data split into more than one record without obvious cause or realistic begin points. O'Connor, Sikora, Hudson and Burns met October 12 to discuss the expectations and realities of how the spatially generated data would output as tabular data. A few issues were fixed directly in the spatial data. The others must be corrected in the tabular output just before it is sent to StreamNet because we do not have the manpower to revise the spatial program at this time. Following the meeting, Sikora tested her queries against the issues revealed using David Grave's EventCompare tool. The queries and the EventCompare tool caught many of the same errors but each maneuver caught one thing that the other did not. When the data exchange format (DEF) is finalized we will work out the combination of maneuvers that is needed to fully proof and correct the data before exchange. To insure our input for the DEF stays on track, Sikora also created a cross-reference table showing the expected draft StreamNet code translation of WDFW's existing presence and usetype code combinations.
2. Sikora researched StreamNet's current snapshot of WDFW salmon distribution data after a user questioned the validity of the data since the hydrolyer portrays stream names contrary to local names. The data was created by looking at stream orientation on a map (not by names), so Sikora and Banach were able to assure the user that the distribution data was correct.
3. O'Connor and Lensegrav did preliminary work to spatially enable resident fish stream sampling data from the Yakima Basin (Ecological Interactions Team data). Data originally entered into ArcView was proofed and prepared for conversion into data records with 100K LLID codes and Begin/End measures as appropriate. The tools and procedures under development will help us convert other resident fish datasets into StreamNet formats, once the new FishSurvey DEF is complete.

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, First Quarter 2002</u>
CRITFC	1	Update existing tribal escapement data through 2001	Existing adult abundance trends were updated through 2000.
CRITFC	2	Update mainstem Columbia and Snake River dam counts through 2001 and provide updated data to the StreamNet database.	All mainstem dam counts were updated through 2000.
IDFG	1	Submit 1998, 1999, and 2000 field season redd count data.	1. We conducted a thorough visual review of 1988, 1953, and 1954 redd count data and transect locations in the IDFG/StreamNet database. Additional years will be reviewed next quarter. Corrections that we made included: 1) verified the transect location and count values for each transect, 2) corrected mislabeled species, and 3) examined the location of each trend over time. We found that many trends had a large variation in position and length over time. Such transects probably do not provide comparable data from year to year. We think a complete overhaul to trends in the Idaho redd count data is required. 2. Sockeye and steelhead redd counts were added to the database.
IDFG	2	Compile year 2001 field season redd count data and submit to PSMFC.	2001 field season redd count data were not yet available.
MFWP	1	Complete input of 1999-2000 data, including trend, count and references; exchange to StreamNet.	Work is ongoing.
MFWP	2	Collect all 2000-2001 survey data during field office visits.	Work is ongoing. We met with southwestern biologists with MFWP and USFS and collected existing field data, and will input the data next quarter.
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 is ongoing.

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.

1. Bill and Shannon added additional fields to the queries designed last year for updating the abundance trends. As part of this update effort, they discovered missing contact information, duplicate HUCs in the 'allstream' table, and trends outside the Columbia Basin and coastal range which weren't being updated. They fixed the query problems, and completed other preparatory measures for updating trends through 2000 which will now allow Shannon to contact biologists for data.
2. Shannon telephoned and e-mail 22 of the 24 contacts identified as trend data providers. She compiled and entered trend data into the interface, from the sources that responded to her request. Some staff actually responded on the day of the request, but most responded a week or more after the request was made.

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).

1. Smith received the 2000 Columbia River Chum return report and finished updating the escapement database for chum. Smith also contacted various regional biologists to collect escapement data needed to fill data gaps. This data is being documented and added to the escapement database.
2. Woodard was asked to take over the Cedar Creek adult and juvenile trap database from John Weinheimer and Dan Rawding. Woodard created an adult and juvenile database in MS Access 2000 to store data that has been collected back to 1998. This data was not consistently collected or recorded from year to year and business rules were not in place, allowing many data entry errors. Smith took on the job of proofing the adult data while Woodard built the storage facility and supporting files. Together, Woodard and Smith spent considerable time on the Cedar Creek data. From now on they will handle the maintenance and data entry yet this extra responsibility may save time in the long run. After the work progresses, the data will be added into our WDFW StreamNet databases, summarized and delivered to PSMFC.

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, First 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.

Steve received fall release information from Warm Springs NFH, and integrated it with other 2001 release information in CRiS.

Region	2	Assist data contributing agencies in development of data, including formatting, coding, data entry, error checking, and submitting to the regional database.	The database manager inquired about any potential availability of existing mapping of PSC codes to the Pacific Salmon Commission's Data Standards Working Group, but none appears to exist.
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 Lensegrav continued to handle these requests.

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.

Project Job Planned work elements

Accomplishments, First Quarter 2002

IDFG 1 Submit 1998, 1999, and 2000 return season hatchery return data.

1. Upon inspection of our existing hatchery return data, we noted a number of various errors. Before submitting these data to PSMFC, we need to complete a thorough review of all of our hatchery return data. We completed the review for data from 1961 through 1999. We verified and corrected, where necessary, all values. We made sure that each record had an associated trap and hatchery. We also checked for completeness for each hatchery and year. This was necessary before final incorporation in the FIS and eventual submission to regional StreamNet. Corrections and updates that we performed included 1) insure each record has a valid hatchery and trap, 2) added comments on differences found between reported totals and calculated totals, 3) added comments on inferred or derived subtotals, 4) made changes to account for historical management changes, 5) updated the reference information, 6) corrected mislabeled species.
2. During the review process, we added age composition data to the hatchery return data.
3. Incidental resident fish presence is sometimes noted at anadromous hatcheries. When found, we also added that data to the hatchery return database.

IDFG 2 Compile year 2001 return season hatchery return data and submit to PSMFC.

2001 field season hatchery return data were not yet available.

Region 1 Assist data contributing agencies in development of data, including formatting, coding, data entry, error checking, and submitting to the regional database.

PSMFC and ODFW StreamNet personnel worked on definitions and data needs for capturing "hatchery fraction" data. This type of information is useful for run reconstruction to determine wild and hatchery components of fish returning to a dam or to spawning grounds. ODFW is pursuing this type of information in support of state management needs and is hoping to integrate this information with that from Washington and Idaho. We began the first steps toward defining data structures, brainstorming on where such information could be obtained, and how it might be made accessible via StreamNet.

WDFW 1 Research, compile, convert and submit hatchery returns updates through 2000 in StreamNet data exchange format. This submission includes new data and corrects errors that were previously submitted for post-1995 data. Work further with WDFW's Hatchery Division to improve their original database source and collection procedures as an investment in future timely and accurate StreamNet updates.

Woodard completed the WDFW Master Hatchery database and updated it with 2000 returns data. All supporting tables were added and updated with StreamNet codes. The age database link was not added to the Master Hatchery database yet due to other priorities. Following the November submission of the hatchery facility database, WDFW was free to submit the returns data that is highly dependent on the facility data. After WDFW updated the dependent hatchery facility data, Woodard summarized and submitted the returns data to Sikora. She proofed the data and StreamNet conversion, focusing on the LLID entries. With work that bridged into the next quarter, Sikora and Woodard swapped more information needed for the exchange.

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, First Quarter 2002

IDFG 1 Submit dam facilities table in data exchange format to PSMFC.

Our work reviewing and updating the redd count and hatchery return data sets, as well as preparing the necessary interfaces took longer than anticipated. We were unable to prepare our dams facilities data for submission to regional StreamNet. This task will be accomplished later in this year.

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 completed the spatial layer and the tabular data were exchanged to the StreamNet database in Gladstone.

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.

1. Lensegrav researched the available fish passage data for Washington dams so O'Connor could respond to a general request and weight the scope of future efforts to compiling this data.
 2. In November, Lensegrav started WDFW's effort to submit dam facility data by reviewing the files compiled by the Department of Ecology (DOE), StreamNet and dams already on WDFW's spatial layer. DOE's dataset is more comprehensive and seemingly the most reliable overall. Lensegrav drafted damsevalproc.doc to outline his plan to proceed with efficient research and data compiling. Using Aforg.exe software, Lensegrav also reviewed and documented older dam files on Sikora's desktop. Sikora reviewed the plan and issues and before the file clutter grows, it is vital to get all existing dam sites in one place, preferably registering the exact same site as the original source. More progress is thwarted because the GIS manager does not have the time to add the DOE dams to WDFW's layer.

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.

Project Job Planned work elements

Accomplishments, First Quarter 2002

IDFG 1 Submit hatchery facilities table in data exchange format to PSMFC.

Some new hatchery facilities data came to us, mostly changes in hatchery managers. We updated our internal dataset, but because our work reviewing and updating the redd count and hatchery return data sets, as well as preparing the necessary interfaces took longer than anticipated. We were unable to prepare our hatchery facilities data for submission to regional StreamNet. This task will be accomplished later in this year.

MFWP 1 Update the StreamNet hatchery database with Montana's public and private facilities. Exchange with StreamNet upon completion.

We completed the spatial layer and the tabular data were exchanged to the StreamNet database in Gladstone.

ODFW 2 Maintain hatchery facility records and update location information as available.

1. Jon initiated work on Oregon's Hatchery facilities data reconciliation and update. He downloaded approximately one half of the state's DOQ's in SID format from the ODF FTP site, which proved useful in our effort to more accurately identify hatchery facility locations. Additional facility location data for rearing and acclimation ponds as well as traps was also obtained. Jon was able to complete the hatchery data clean-up which included the creation of coordinate data for 82 records, as well as adding 7 new records to the hatchery table. He submitted the data to Susan for incorporation in the new Hatchery database, then created metadata for the new coverage, posted it on the FTP site, and updated the web links. The data will be provided to SN during the fourth quarter of this fiscal year.

2. Susan and Jon collaborated to improve the Hatchery table. They agreed that for clarity, the TYPE field should be renamed MgmtAgencyType, and the HATCHTYPE field should be renamed ProductionType, and they added a FACILITYTYPE field into the table.

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).

Lensegrav and Sikora continued to add or correct hatchery facility site locations based on any new information, including select sites for Yakima area hatchery activity. Lensegrav assigned OutFlowTypeID codes and determined BegFt based on the October 2001 version of StreamNet's EventMapper. Sikora submitted the data to StreamNet on November 9, 2001 also directing StreamNet to purge redundant hatchery codes.

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, First Quarter 2002

CRITFC 1 Review ocean and mainstem Columbia River harvest data presently in the StreamNet databases and report findings to Steering committee

The existing ocean harvest data tables were examined. Serious omissions were identified in the data bases and the report formats were determined to be confusing and of marginal value to users. It was recommended that the entire harvest data system be rebuilt. The new system should not try to include primary harvest data (landing records) which are capably managed by individual state agencies. Rather, summary data would be more appropriate for the StreamNet system and would be more useful to managers.

ODFW 1 Compile and exchange updated and/or new tributary sport harvest data.

The database is up-to-date to the extent possible, and we are awaiting sport catch updates from the ODFW propagation section, so no specific work was completed on this task this quarter.

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.	<ol style="list-style-type: none"> 1. Smith worked on completing the sport snout recovery tables for the 1999 and 2000 harvest years. Three tables were completed and delivered to Susan Markey, covering the 1999 and 2000 Sport Salmon and Steelhead CWT recoveries and the Salmon/Steelhead CWT mark rates observed in the 2000 sport fisheries. 2. Lensegrav assisted on one day of field collection for a selective fishery study. 3. Late this quarter Sikora started reviewing the viability of port locations for old StreamNet Washington harvest data.
------	---	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

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.

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.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, First Quarter 2002</u>
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.	New projects are being input on the biannual cycle with MFWP; data will be exchanged as scheduled.
ODFW	1	Maintain, correct and exchange existing restoration project information.	There were no requests to update or correct existing records this quarter.

WDFW 1 If new funding permits, finalize conversion of Washington's IAC's (Interactive Committee for Outdoor Recreation) PRISM database for WRIA 5 records and submit to StreamNet. Build an ArcView project file that incorporates Washington Salmon Recovery Funding Board data, basin-specific salmon habitat limiting factors (LFA) and potentially SaSI stock status. Assess if this tool allows managers to effectively compare relative expenditures (and the factors they intend to address) to identify priority issues in the basin and the utility of creating similar products for other basins.

1. Lensegrav created an ArcView project covering Water Resource Inventory Area 5 (WRIA 5) for the Limiting Factors Analysis to investigate the feasibility of using ArcView for this type of application. The outside funding to complete this never materialized; a pilot might be created in the Columbia Basin if additional funding is found or if current StreamNet priorities change.
 2. Lensegrav provided specific advice and data examples to O'Connor for his presentation to the OFWIM Annual Meeting in November (see Objective 6, Task 4).
 3. Mike Banach submitted a draft exchange format late in FY2001 to WDFW only. Lensegrav reviewed it, verifying the changes would have little impact on how we represent Washington's data, and presented a draft of his report to Sikora/O'Connor for review.

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, First 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.

Work is ongoing and on schedule.

ODFW 1 Update, maintain, correct and exchange adult migration barrier information.

1. Initiated efforts to reconcile hatchery data from the Barrier database and hatchery data in GIS coverage format. The end product will be a hatchery table that contains coordinate information for all hatchery related facilities which matches the coverage point locations for these facilities. Modifications will also be made to the hatchery table to facility type information. See Objective 1, Task 6, Component 2 for specific details.
 2. Several staff met to discuss the status and direction of the barrier database. We discussed what constitutes the core components of the database, some potential approaches for modifying it, and also how to go about making it more comprehensive. Following the meeting, the overhaul of the barrier database was initiated.

ODFW 2 Update, maintain, correct and exchange anadromous and resident fish barrier data.

Jon investigated the criteria that were developed by the Cooperative Forest Ecosystem Research program in regards to passage of cutthroat trout over natural barriers. The CFERP found that height alone was not a reliable indicator to determine passability of a particular barrier. Variations in the structure of barriers strongly influence their passability (i.e., whether a falls is a straight drop or actually a series of steps). This will have implications for our efforts to develop data that distinguishes between mixed sea-run / resident and resident only populations of coastal cutthroat trout.

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).

As of January, 2002 WDFW Habitat Program was reviewing the future of the SSHIAP Project and proposing its future focus be tasks such as integrating and truthing the several barriers files that exist for Washington state. O'Connor will participate in this decision via the agency's Corporate Data Oversight Committee, and work to integrate any barriers data efforts they undertake with this StreamNet Task.

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, First Quarter 2002

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.

The Idaho Supplementation Studies used the IDFG/StreamNet Juvenile Trapping database and interface to compile their data last field season. During this quarter we developed and implemented a methodology to transfer that data into the IDFG/StreamNet FIS. This will facilitate the flow of data to StreamNet.

IDFG 2 Incorporate the General Parr Monitoring database into the IDFG/StreamNet Fish Information System and submit to PSMFC.

The Fisheries Bureau, using funding outside StreamNet, worked to attach general parr monitoring sites to StreamNet stream LLIDs and measures. This will make attaching the GPM data to the hydrography and eventually incorporating into StreamNet easier.

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, First Quarter 2002</u>
IDFG	1	Compile year 2001 Age/Sex Composition data.	During our review of our hatchery return data, we summarized age composition data from length frequency tables in the Stock Summary Report. The data were added to the IDFG/StreamNet hatchery returns database.
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.	We will request this information from field biologists during the regularly scheduled visits.
WDFW	1	Research, compile, convert and submit age data for natural spawner data (salmon and steelhead) in one prototype subbasin (probably Lower Columbia R). This effort is to assess any problems with the existing 2001.1 format, standardization with any other agencies' data already submitted to StreamNet, and plan for further data submittals.	<ol style="list-style-type: none">1. Woodard provided ongoing support for the Region 5 scales database. The data in this database includes age specific data for sport, escapement, and hatchery returns. This database is also the core of Region 5's run reconstruction of escapement and hatchery returns to the Columbia River and the source for the WDFW StreamNet database.2. Woodard and Smith added the age database to the escapement database. Smith spent time getting familiar with the reporting of age data and the links to the escapement detail data. Smith worked on updating the statistical age data for return years 2000-01. This statistical data (Mean, Number, Standard Deviation) is now added to the age database along with the overall age composition by age.3. Woodard and Sikora gave feedback to IDFG's Evan Brown so he could standardize his data entry for the CountValue field when this information was not provided by the biologists.

Objective 2 Data Development and Updates, Other Data sets

Task 5 Production factors and run reconstruction

Develop and maintain information on survival, production factors, spawner / recruit estimates, and run reconstruction. This is currently a low priority, but the existing spawner / recruit estimate data will be maintained.

Project Job Planned work elements

Accomplishments, First Quarter 2002

All 1 On an opportunistic basis, acquire run reconstruction and production data from developing entities if any become available.

No work was done on this task by any of the projects this quarter.

Objective 2 Data Development and Updates, Other Data sets

Task 6 Habitat

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

Project Job Planned work elements

Accomplishments, First Quarter 2002

Region 1 Coordinate with regional entities on habitat data needs and availability. Begin developing an approach toward capturing high priority data types. New development of habitat data may require additional resources.

We reviewed a WDFW/WDOE report proposing standard stream habitat measurement methods. Because the topic "habitat" is so broad, if the StreamNet project was to pursue this type of data in the future, we would need to work with a wide variety of data providers to determine the types of data that could be collected at a regional level and account for the variety of methods. This report is only one of many such materials that would need to be evaluated.

Objective 2 Data Development and Updates, Other Data sets

Task 7 Genetics

Develop and maintain information on genetic information and data sources for areas where genetics data exist. Efforts this year will concentrate on organizing existing information, and then working on a Data Exchange Format.

Project Job Planned work elements

Accomplishments, First Quarter 2002

CRITFC 1 Develop prototype genetics data application using CRITFC genetic data.

A prototype application was presented to the Steering Committee. Primary genetic data is rapidly evolving and constantly changing. We proposed that StreamNet maintain a catalog of available genetic data sets and contact information, rather than the primary data itself.

MFWP 1 Obtain results from genetic analysis from the University of Montana Genetics Lab for sampled populations of Montana's species of special concern.

Work is ongoing.

MFWP	2	Update fish distribution table when new genetic samples affect fields/records.	Work is ongoing.
MFWP	3	Exchange data to the StreamNet regional database when a DEF is approved by the Steering Committee.	The DEF is not yet ready. We have sent our database to CRITFC, and hopefully they will complete a DEF this FY.

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, First Quarter 2002</u>
CRITFC	1	Work with Oregon Technical Support Team (when funded and formed by NWPPC) to obtain existing data in electronic format	Draft work statements and budgets that included data management support for subbasin planning in Oregon were developed and presented to the Council. No data assembly will actually occur until the Council makes its final decisions about how to conduct subbasin planning.
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	The Council has not adopted a subbasin planning strategy yet. No work was performed this quarter.
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.	There are no apparent needs at this time.

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, First Quarter 2002</u>
ODFW	1	Pursue supplemental datasets on an opportunistic basis consistent with StreamNet direction.	<ol style="list-style-type: none">1. Shannon worked on locating resident species information by calling Chris Moyer for Redband survey results on the Deschutes River and its tributaries. He requested that she call back at the end of December for finalized data. She also called Chuti Fielder for bull trout data from the Hood Basin - this data was promised "soon" via fax.2. Shannon spoke with Restoration and Enhancement Program staff about a grant proposal we submitted to help compiling species location information. There were problems with the contact person information, and with signatures, but these issues were cleared. We were assured that the proposal is intact and will be reviewed in February.3. Michael worked with Fish Division Natural Production staff to develop standard definitions for Origin and Present Production categories for fish populations.
WDFW	1	Work with participants in the Blocked Area Resident Fish Stock Status Project to obtain copies of their fish sampling data. Assess the "fit" to existing StreamNet data exchange formats. Convert and submit data as appropriate.	O'Connor participated in the November JSAP Steering Committee meeting to discuss the need for common field sampling data formats among the four JSAP sampling agencies (WDFW and three tribes in the Upper Columbia). He helped write an RFP to seek a contractor to assess the internal formats currently in place and to propose a format that can integrate as much data as possible from the four disparate sources. O'Connor will guide development of this format to make conversion to StreamNet exchange format as simple as possible. StreamNet target formats would be the FishSurvey table (under construction) and possibly one of the (draft) Habitat data tables.

Objective 2 Data Development and Updates, Other Data sets

Task 10 Carcass placement

Work with 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, First Quarter 2002</u>
ODFW	1	Exchange carcass placement report 'as is' for 1999 placement efforts.	To date, no information has been submitted by ODFW Carcass Placement staff. Once data comes in, we will review and process it and submit it to StreamNet. We did package and ship a Carcass Database CD to a new user (a field biologist) upon his request.

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, First Quarter 2002</u>
IDFG	1	Begin design and development of incorporation of population status and legal designation into the IDFG/StreamNet Fish Information System.	We did not work on this job component during the quarter.
MFWP	1	Species of Special Concern are currently identified on the MRIS website; when the MT Natural Heritage Program website includes status information on these species, we will create a link between our sites. 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 available.	MFWP is working toward moving their website to a new design. We will incorporate this feature when the move is completed, probably in the 3rd quarter.

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, First Quarter 2002</u>
IDFG	1	Work with IDFG biologists to incorporate other data sets into the IDFG/StreamNet Fish Information System, dependent on the time available after completion of higher priority tasks and opportunistic collaboration of non-StreamNet IDFG projects.	While we worked closely with IDFG fish biologists to incorporate their data into the FIS and StreamNet, we did not start any new data categories, which this task addresses.

ODFW	1	Update, maintain, correct and exchange photographic information (MapCat and related tables).	Susan submitted updated MapCat (photographic) data to StreamNet in early October. Susan also compiled a list of barriers and dams in the Bend area for which we do not have photographs.
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.	Columbia River Management staff conducted fall chinook spawning ground surveys on Oregon tributaries to the lower Columbia River and documented fin marks and recovered CWT's. This information will be provided to StreamNet as it is finalized.
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.	Columbia River Management staff provided Shannon with estimates of hatchery and wild summer steelhead returning to the Columbia River in 2001. This information will first be processed for use in the Willamette-Lower Columbia TRT effort, then it will be passed on to Shannon who will put this information into the proper format and submit it to StreamNet.

Objective 3 Data Management and Delivery

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

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.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, First Quarter 2002</u>
IDFG	1	Maintain and enhance hardware and software for the IDFG/StreamNet 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.	<ol style="list-style-type: none">1. We provided routine system administration to the servers and workstations in IDFG/StreamNet. We also developed a comprehensive backup and recovery system for the servers. Future work will include backup and recovery for all the IDFG/StreamNet client workstations.2. We received \$60,000 from IDFG this fiscal year to expand the work on the FIS. Some of the money is earmarked for wildlife, so we have created an umbrella organization called the Idaho Fish and Wildlife Information System (IFWIS). IFWIS continues to keep StreamNet and development of the FIS as its core work, using the IDFG money to leverage work we are doing with StreamNet. The money this year was all categorized as operating or capital, so we started to develop a plan to expand and enhance our hardware and software. We will be purchasing new workstations for all staff, adding 2 new servers, upgrading ArcInfo 7.2.1 to ArcGIS 8.1, and obtaining internet mapping software to develop Intranet access to the FIS.
IDFG	2	Begin design and collection of barrier component in IDFG/StreamNet Fish Information System. At current funding levels this task will be of lower priority than fish data components and progress will depend on completion of objective 1 tasks.	We did not work on this job component during the quarter.
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.	<ol style="list-style-type: none">1. We drafted a Data Dissemination Policy for MFWP2. We developed a 4 hour GPS training course and will send 2 staff to each region during January to present it.3. We provided ArcView Training for MFWP staff in December

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. Many activities took place in support of state-level data management:
2. Staff coordinated on the development of a Life-Stage Timing Database. We discussed draft database structures, and subset out distribution data by timing units within the John Day basin for testing out different database structures that will facilitate mapping of the data. Bill developed 3 logical models for the database in order to evaluate their structure against the various requirements of the data and needs of all users. Bill then tested the tabular system, while Jon evaluated the spatial aspects of the different pilot databases, and provided feedback on functionality for mapping the data. One of the choices was eliminated as testing proceeded. Bill also worked on a demonstration program that can graphically display the Timing information into bar graph form.
3. Susan gave a "refresher" training session for users of the FishScreen Database. This session was mainly to answer questions that the ODFW Fish Screening staff had regarding the database.
4. Shannon requested and obtained new species codes for resident species from Mike Banach and updated the OR_Data UI, as well pertinent ODFW staff with the new codes.
5. Jon reviewed Draft Info. Sys. Div. policies on Acceptable Use of Electronic Systems and Tools; Acquisition & Replacement of Information Resources; and Disposal of Computer Hardware, Software and Peripherals.
6. Bill completed the data entry component for the TRT database, but is continuing to add user enhancements.
7. Susan started work on the first draft of the barrier data needs questionnaire.
8. Bill helped Shannon create a query to isolate and present all required information that may be needed during biologist contacts.
9. Bill updated, recompiled and installed a Time Logger system onto Shannon's computer. The application allows Shannon to log time spent in particular areas of the data collection process. This is part of our effort to determine where the most time is spent, and therefore where to look for opportunities to improve efficiency in order to save time. The information should also help as we look to establish counterparts to Shannon in field offices.

Region 1 1 Locate and evaluate data obtained by the precursor projects to StreamNet (CIS and NED), including floppy disks and hard copy reports. Determine the types of data that are available in each format and how much are already included in StreamNet. Determine the feasibility and value of reclaiming lost data and the workload required. Prepare a report making recommendations to the Steering Committee for the possible inclusion of those data not already included in StreamNet.

While moving files from the old web server to the new server, we reviewed files in the ftp directories. Duplicates were found and deleted. Obsolete files were archived on CD and deleted from the system. The Regional Fisheries Biologist located early StreamNet floppy disks (created by the Coordinated Information System project, Northwest Environmental Database project, and the early StreamNet project) and copied all files possible onto CD. Many floppy disks had corrupted files. Most of these were recovered using Norton Utilities, but several disks were unusable and thus information was lost. The next step in the process is to evaluate the files that were recovered and determine what is of value for incorporating into StreamNet.

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

1. PSMFC staff obtained a new server to replace the StreamNet web site server. Significant work was done to configure and test this server and to begin transferring files from the old server. The old server's hard disks were filled entirely, creating severe performance problems. Several hundred MB of files needed to be archived so that the web site could be responsive.
2. The Regional Database Manager and Regional Fisheries Biologist obtained new computer workstations. Time was spent configuring and transferring files to these computers.
3. The Regional Database Manager acquired a laptop computer and a printer for ODFW and a laptop computer for WDFW.

WDFW 1 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.

1. Sikora and Woodard coordinated all database and piecemeal work described in better detail under the specific data categories in Objective 1 and 2.
2. Sikora and Lensegrav researched better names for WDFW's marine waterbody codes.
3. O'Connor and Hudson began early discussions concerning cleaning up existing spatial event table data formats in light of upcoming WDFW work to integrate the StreamNet, Bull Trout 2000, and SaSI tables with information from the Limiting Factors project (LFA).

Objective 3 Data Management and Delivery

Task 2 Maintain and enhance the GIS and hydrography database systems at the project and regional level

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.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, First Quarter 2002</u>
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.	<ol style="list-style-type: none">1. We provided routine system administration to the servers and workstations in IDFG/StreamNet. We also developed a comprehensive backup and recovery system for the servers. Future work will include backup and recovery for all the IDFG/StreamNet client workstations.2. We received \$60,000 from IDFG this fiscal year to expand the work on the FIS. Some of the money is earmarked for wildlife, so we have created an umbrella organization called the Idaho Fish and Wildlife Information System (IFWIS). IFWIS continues to keep StreamNet and development of the FIS as its core work, using the IDFG money to leverage work we are doing with StreamNet. The money this year was all categorized as operating or capital, so we started to develop a plan to expand and enhance our hardware and software. We will be purchasing new workstations for all staff, adding 2 new servers, upgrading ArcInfo 7.2.1 to ArcGIS 8.1, and obtaining internet mapping software to develop Intranet access to the FIS.3. IDFG/StreamNet provided specifications for the new IDFG computer fleet management program for GIS classes of computers. Began to research servers and develop infrastructure plan.
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>Using non-StreamNet funds we developed a variety of ArcView applications that provide GIS tools to fisheries biologists. This helps facilitate the flow of data into the FIS and StreamNet, by ensuring local database efforts match FIS standards, in particularly that they link to LLID. New tools include:</p> <ol style="list-style-type: none">1. The Geographic Information Locator (GIL) is a custom front end to our large set of GIS data. It eases the use of GIS data for biologists lacking important ArcView skills. It provides an easy and convenient way for users to locate specific geographic features and display a variety of GIS data with it.

2. One of the largest assistance requests that we get from biologists is to project data for them. Idaho is divided into two UTM zones, so in the state office we use a modified UTM projection called the Idaho Transverse Mercator (ITM). It covers the entire state in one zone.

Because ITM is not a standard projection, it is not available as such in ArcView or for GPS receivers. Therefore, most biologists collect their data in UTM using their local zone. To use with our statewide database they need to project to ITM. We developed the Idaho Projector Extension which provides a custom, simple to use interface to project among ITM, UTM, and Decimal Degrees.

3. The Fish Tools ArcView application enables users to associate GPS point data to a LLID and computes the measure on the stream that the point lands. It allows the user to control the tolerances and exact placement of each point. The data are saved to a data table for eventual use in the FIS and StreamNet. Fish Tools includes complete documentation. It has been installed along with our GIS data sets at Nampa Fish Research. We provided on-site training.

4. Our current applications for conducting queries and maps of the FIS fish distribution data requires an intermediate, temporary view of the data be built. We began to develop an application in ArcInfo 8.1 that would create a SQL Connection directly to the FIS. We ran into speed problems and decided to defer this project until we obtain ArcSDE.

5. Using non-StreamNet funds, we improved the functionality of the IDFG/StreamNet data request project. This project accepts of location and returns a list of special status fish species. The requests typically come from private consultants and organizations for the development of environment assessments.

6. Working with IDFG biologists, we identified a few new routes that need to be added to the 1:100,000 scale hydrography LLID system.

7. At IDFG/StreamNet, we keep all of our GIS data in the Idaho Transverse Mercator projection in meters. This differs from the regional StreamNet projection and units. In preparation for submitting data to PSMFC, we began to develop an ArcInfo program to translate IDFG measures to StreamNet measures.

8. We produced a set of hydrography maps for the IDFG Fisheries Bureau.

MFWP 1 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).

1. Janet met with MFWP Administrators in October to prioritize data development needs, and will follow-up with each division.
2. We currently are updating antelope, sage grouse, native fish species management areas and tabular data with associated spatial component for snow track surveys, fishing regulations, and upland game bird projects. Maintain the MFWP StreamNet GIS system.

MFWP	2	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.	This task was finished. Maintenance and enhancement with LLID will be ongoing.
ODFW	1	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.	Jon began the process of assembling stream route data in preparation for assessing the synchronization between ODFW's 100k data and the data maintained at PSMFC.
Region	1	Assist the database manager, as needed, with the spatial component of data and its implementation online.	<ol style="list-style-type: none"> 1. The GIS Specialist assessed changes between the 1990 and 2001 subbasins at the request of the database manager and prepared a map illustrating these changes for future use on the StreamNet web site. 2. The GIS Specialist determined locations for a set of new macroinvertebrate sites and reported these back to the Fisheries Biologist. 3. Errors in the hydrography layer were discovered and reported back to WDFW and ODFW for correction.
Region	2	Integrate the functioning of the GIS system with the StreamNet fisheries and habitat database in support of the query system. Maintain up-to-date cross tables used via the StreamNet web interface to select information by geographic area.	We developed new cross tables for the map catalog to the subbasins as defined by the Power Planning Council in 2001.
Region	4	Maintain a library of StreamNet GIS layers for internal use and as downloadable data on the web site with complete documentation (metadata).	We revised the metadata format based on feedback from an NBII representative and posted updated metadata to the StreamNet web site. We completed submission of StreamNet metadata to the NBII clearinghouse.
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.	<ol style="list-style-type: none"> 1. The GIS specialist fixed the hydrography in the ID/MT border area where stream routes on the hydrography were missing due to recent updates in this area by both states. Updated hydrography files were posted to the internet site. 2. We created a new EventMapper hydrography layer based on recent updates and distributed it to registered EventMapper users.
Region	6	Rebuild LLID-based stream route system on the National Hydrography Dataset hydrography for Western Montana (this work is complete for ID, OR, WA).	<ol style="list-style-type: none"> 1. The GIS Specialist rebuilt the LLID-based stream route system on the National Hydrography Dataset hydrography for western Montana and integrated this information into the NHD/LLID data conversion application. The updated application and GIS files were posted to the StreamNet Internet site. The application may now be used to convert hydrography data anywhere within Washington, Oregon, Idaho or western Montana. 2. Extensive testing of the NHD/LLID conversion application was conducted. Errors found were corrected whenever possible. Some errors could not be fixed due to inherent differences between the line work of these two hydrography layers.

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.

1. Sikora and Lensegrav attended Hudson's November 14 demonstration of his distribution data applications for GIS Day. Lensegrav also attended the GIS users meeting.
2. Lensegrav updated our GNIS file and our documentation with a more current version. Lensegrav and Sikora added instructions to our internal interface documentation and general instructions for ArcInfo, describing how to load the new hatchery facility points layer and how to get the hatchery names to show up. Lensegrav tutored Burns on how to use Topozone, TerraServer, and EventMapper. Sikora demonstrated the WDFW hatchery facility interface for Burns and together they refreshed their memory in how the lake interface worked.
3. Lensegrav generated MUCodes for I-82 ponds in Yakima County for a Region 3 biologist and updated the spatial layer with our most current tabular Hatchery Facility work. Lensegrav assisted a couple staff projects by creating ArcView projects. Burns created a reference file to show the LLIDs that cross more than one HUC since these streams are often the source of problems.
4. Sikora and Hudson conferred a few times this quarter about the status of future GIS improvements and expected delays.
5. O'Connor and David Graves (PSMFC) discussed issues related to spatial data exchange, not limited to 100K hydro data. Issues included whether PSMFC should generate spatial layers from tabular files received and the amount and formality of documentation (metadata, reference documents, etc.) required for spatial data exchange. Resolution of these issues awaits broader Steering Committee discussion.
6. O'Connor and Burns worked to figure out the MetaMaker product and used it to begin compiling metadata for the Washington state bull trout distribution/use spatial database. One of the products will be a list of formatting tasks that need to be done "by hand" to the metadata file after MetaMaker processing, since that product has some inflexible aspects with respect to precise formatting of information.
7. O'Connor rebuilt the WDFW StreamNet GIS Data Dictionary document with an additional Bull Trout appendix.

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, First Quarter 2002
IDFG	1	Review and update entire hatchery return dataset, in order to ensure the proper past assignment of trend definitions, location identifiers, accurate counts, and disposition codes.	<p>1. Upon inspection of our existing hatchery return data, we noted a number of various errors. Before submitting these data to PSMFC, we need to complete a thorough review of all of our hatchery return data. We completed the review for data from 1961 through 1999. We verified and corrected, where necessary, all values. We made sure that each record had an associated trap and hatchery. We also checked for completeness for each hatchery and year. This was necessary before final incorporation in the FIS and eventual submission to regional StreamNet. Corrections and updates that we performed included 1) insure each record has a valid hatchery and trap, 2) added comments on differences found between reported totals and calculated totals, 3) added comments on inferred or derived subtotals, 4) made changes to account for historical management changes, 5) updated the reference information, 6) corrected mislabeled species.</p> <p>2. During the review process, we added age composition data to the hatchery return data.</p> <p>3. Incidental resident fish presence is sometimes noted at anadromous hatcheries. When found we also added that data to the hatchery return database.</p>
IDFG	2	Review and update entire redd count dataset, in order to ensure the proper past assignment of trend definitions, location identifiers, and accurate counts.	<p>1. We conducted a thorough visual review of 1988, 1953, and 1954 redd count data and transect locations in the IDFG/StreamNet database. Corrections that we made included: 1) verified the transect location and count values for each transect, 2) corrected mislabeled species, and 3) examined the location of each trend over time. We found that many trends had a large variation in position and length over time. Such transects probably do not provide comparable data from year to year. We think a complete overhaul to trends in the Idaho redd count data is required.</p> <p>2. Sockeye and steelhead redd counts were added to the database.</p>
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.	Using input from local stream survey databases and the Fish Tools ArcView project we have compiled a short list of new streams that need to be routed and assigned LLIDs.

ODFW 1 Work with regional staff as necessary to assure seamless loading of data into the regional database.

Shannon and Bill worked on identifying inconsistencies of Trend numbers between the OR-Data1 database and StreamNet's copy. Rough queries showed that there were a significant number, 485, of trends that did not match the TRENDID and LLID in the regional level data. Shannon was able to correct most of the trends identified by Bill Kinney as incorrect (only 5 harvest related records remain to be corrected). Most involved the stream being referenced by ODFW survey's that crossed the California border, but also there was an incorrect batch of LLIDs being used. Some problems were also caused by Oregon (appropriately) deleting trends in the past and assigning new trends to previously deleted trend numbers. Somehow the regional and Oregon systems got out of sync, but proper record keeping allowed us to track down the cause of the inconsistencies.

Region 3 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.

1. Fish Distribution: Work continued on modifications to our Fish Sightings and Distribution tables. In an attempt to work one state at a time, PSMFC and WDFW worked on changes needed from the perspective of WDFW. The issue of developing standard definitions for the distribution data was not resolved during the quarter. Some errors were found in the existing Fish Distribution layer, and these were reported to the originating agency (WDFW) for correction.
2. Adult Abundance: The Data Manager worked to resolve duplicative TrendIDs submitted by multiple compilers within one agency, and continued to reassign TrendIDs which PSMFC had entered to other agencies as replacement data was submitted. We received new escapement data from ODFW, adding 58 new anadromous species Trends and 285 new resident species Trends. These new Trends were comprised of approximately 1000 new escapement count records. 910 existing Trends were also updated by about 2700 additional records.
3. Hatchery Releases: No hatchery release data were provided to StreamNet, yet the topic of how to deal with these data continued to be debated among the Steering Committee at their quarterly meetings.
4. Hatchery Returns: We received 320 new hatchery returns Trends from ODFW, comprised of about 4500 new escapement count records.
5. Dams and Fish Passage Facilities: New dam facility related data was provided by MFWP near the end of the quarter. These data will be loaded in the second quarter.
6. Hatchery Facilities: Changes to the draft hatchery facilities DEF were made as per requests from WDFW. Hatchery facilities data were submitted by WDFW and loaded. Hatchery facilities data were submitted by MFWP at the end of this quarter, but will not be loaded until the second quarter. Numerous photographs of hatchery facilities were provided by ODFW, and these were loaded into StreamNet.

Region 4 Examine the StreamNet database for errors and report any found to the appropriate entity for correction.

Work continued on this ongoing task.

Region	5	In order to modernize existing data sets, begin converting the georeferencing for the Protected Areas and Smolt Density Model data from river reach numbers to LLIDs.	We initiated a project to georeference the Protected Areas and Smolt Density Model data from the 1:250,000 scale (river reach) to the 1:100,000 scale (LLIDs). Work is ongoing as of the end of this quarter. When completed and quality checked, we should be able to switch georeferencing for these two data types over to the LLID system. These two data types are the last ones still using RRNs, so we will be able to completely move to the LLID approach when this effort is complete.
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"> 1. Sikora drafted instructions on how to write SQL statements commonly useful for exchanging data. 2. StreamNet responded to WDFW's November hatchery facility exchange with three responses delivered over the following two months. WDFW and StreamNet swapped information to resolve the trouble caused with the direction to delete a few hatchery codes. A few codes are used in an obscure, old and incomplete table showing Hatchery Production at each hatchery OR the MapCatalog table that tracks map submissions by BPA. The MapCatalog table is documented in the exchange format and WDFW will start directing StreamNet how to clean this table if it will be affected by any data submission. 3. The Hatchery Production table is not documented in the exchange format and WDFW sees little purpose to the table, as is. O'Connor will initiate an effort to delete or replace this table when the WDFW Hatchery Genetic Management Plans are finalized. For now, Sikora and Kinney resolved how to treat each code related

to the MapCatalog or Hatchery Production table.

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, First Quarter 2002

CRITFC	1	Review and comment on DEF issues brought to the Steering Committee	We reviewed and participated in DEF discussions.
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.	We Presented a draft DEF for a data catalog as part of the prototype system presented to the Steering Committee.
IDFG	1	Working with the StreamNet Steering Committee, maintain and enhance the data exchange standards as needed.	During Steering Committee meetings, we discussed the fish distribution and hatchery returns DEF. Neither were completed and await further action.

MFWP	2	Work with CRITFC to develop a draft DEF for genetics data for adoption by the Steering committee	We sent the MFWP genetics data structure to CRITFC. Based on agreement in Steering Committee, they will continue the work toward developing a draft DEF.
MFWP	3	Work with Regional StreamNet staff and Steering Committee to create a Data Exchange Format for Distribution and Use Type.	We contributed to work on the DEF for distribution and use at the quarterly Steering Committee meeting. Progress was made, and hopefully we are close to resolving this DEF.
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.	<ol style="list-style-type: none"> 1. Several staff participated in a regional StreamNet meeting at the OFWIM conference where fish distribution and documentation data exchange formats were discussed. 2. Cedric, Jennifer and Jon coordinated to review StreamNet's proposed Data Exchange Formats for fish survey and distribution data in order to assemble ODFW comments to be submitted to StreamNet. Jennifer rewrote table definitions for both the FishSurvey and FishHabitatDistribution tables. 3. Jon investigated implications of proposed changes to the Distribution component of the StreamNet DEF. He mapped out conversion from the old structure to the new one in regards to UseType and QualityCriteria data that will be merged into the new DistTypeID field. 4. Jon and Jennifer began process of redesigning the distribution database to improve field definitions and validation rules. Also sketched out additional modifications to meet new agreed upon StreamNet exchange formats. 5. Jennifer, Jon, and Cedric engaged in discussions with Mike Banach regarding updates to StreamNet's coding for cutthroat species. We then addressed Coastal cutthroat trout coding issues in regards to differentiating between sea-run, mixed sea-run and resident, and resident only populations. Jon also spoke with Sharon Clarke regarding hydrography coverages related to cutthroat data development needs. 6. Jon (re) initiated discussion regarding resident distribution data formats with Mary Hanson. The next step will be to design some draft data structures that can store all the relevant information that we would like to capture and manage. Once some draft structures are in place then we can solicit feedback from appropriate folks within (and possibly outside) the agency.

ODFW	2	Develop and propose a DEF for screening data.	Work on this task centered around developing and refining ODFW's FishScreen Database. This work is being funded by an outside contract, but once our database structure is somewhat stable, we will be able to develop and propose a DEF to StreamNet. Susan completed and released Version 1.1 of the Fish Screening and Passage Program Database along with customized download instructions for several staff. Subsequent to that, she provided tech support to several Fish Screening and Passage Program staff, and periodically synchronized and created replicated copies of the database for various staff members, and updated the reporting capabilities of the database. Susan also consistently reviewed populated copies of the database for changes that may affect the database reports and the development of a DEF.
Region	1	Assist with the design and implementation of data exchange standards as they relate to the spatial aspect of data in the StreamNet database.	Regional staff assisted in Steering Committee discussions on DEF changes related to fish distribution, hatchery, and trend locations.
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.	The StreamNet Library at CRITFC provided a Library data dump to the Data Manager.
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.	Codes were added to the Data Exchange Format for new calculation methods, species/subspecies, run, and habitat use types. Redundant species codes for bull trout were detected and corrected.
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.	1. O'Connor engaged in all efforts to finalize the distribution data exchange format, starting with leading the Steering Committee discussion at the October meeting, continuing it at the November OFWIM meeting, and providing a summary of decisions-to-date in November to assist PSMFC staff in the finalization process. Mike Banach hoped to efficiently manage the responses to his latest draft by submitting it one-by-one to each state. WDFW was first. O'Connor and Sikora reviewed the draft and Sikora prepared and submitted WDFW's response. It took some time to learn of the progress so Sikora contacted ODFW's Cedric Cooney directly to research their data collection for migration uses and the implications for WDFW's format suggestion. O'Connor and Graves exchanged information about the nature of fish distribution records and the problem of overlapping natural events, to correct some mutual misunderstandings about how the data are collected and how they should be represented spatially.

(prxchfmt*.doc) to change StreamNet's habitat restoration exchange format. We expect to add more to this document at the earliest opportunity. We do not plan to put it before the Steering Committee until the formats for other high priority data categories are resolved.

3. Sikora reminded Banach that the hatchery facility format should allow general marine areas as warranted instead of pointing to the Pacific Ocean for all saltwater events.

WDFW 2 Develop a revised DEF for Hatchery Return data and propose to Steering Committee

O'Connor prepared another draft hatchery return proposal for internal WDFW review. O'Connor, Woodard and Sikora met on October 1 to confer over features needed in the draft. As follow-up, O'Connor put together a table listing potential fish disposition categories and polled StreamNet agencies to see what data are readily available. The result and proposed "plan to move forward" was projected to be ready at the first SC meeting of the second quarter.

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.

Project Job Planned work elements

Accomplishments, First Quarter 2002

ODFW 1 Recommend and/or take part in review of new products and features. Provide feedback on content, suitability, navigability and data currency issues.

1. Staff recommended modification of CRM web to include in-season updates of catch estimates in Columbia River commercial and sport fisheries.
 2. Jon reviewed an NHD / LLID event conversion application developed in Access by David Graves and provided comments regarding potential fixes and improvements. The application takes event data tied either to an LLID- based or an NHD route system and converts them so that they will work on the other system.

ODFW 2 Work with Regional StreamNet staff to link the StreamNet website to available Columbia River fisheries information (including Columbia River 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.

Reviewed a paper describing the Col. River Management web site and how it might be linked and related to the StreamNet web site. The informational text is now complete but developing the link between the StreamNet database and the CRM website needs to be completed.

ODFW	4	Manage and maintain the ODFW Natural Resources Information Management Program website and it's links to StreamNet.	<ol style="list-style-type: none"> 1. Susan posted: 1) two updates of Winchester and Gold Ray Dam fish counts; 2) the POS/Web Programmer Analyst job announcement and skill sheet as a service to ODFW; 3) the 24K Jan.-Mar. 2001 Progress Report and 4) the 24K Fish Habitat Distribution Development Procedures Manual. 2. Susan enhanced the site by adding a fish inventory web site link, adding a link to the Idaho Fish and Game Department, and added the latest ESA Candidate List. 3. Susan performed standard site maintenance including updating the various StreamNet links. 4. Susan discussed plans for uniting the NRIMP and GIS@ODFW web sites with Milt Hill. She Created new web graphics and Javascript features for the prototype site and added links to the ODFW home, fish, wildlife, habitat, news and agency pages (on all pages of the site), and a link to the Map Projections for the State of Oregon (on the Data Standards page). Susan maintained both the NRIMP site and a prototype merged site pending approval from ODFW to release the merged site.
Region	1	Maintain the GIS Data, Map, and PNW Reach File Internet pages.	We 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.	<ol style="list-style-type: none"> 1. We installed ArcIMS 3.1 (Internet mapping software) on the new StreamNet web server. This included extensive trials and testing to assure working configuration with other software and hardware elements. We duplicated installation on the GIS Specialist's computer for development purposes and wrote a technical document on how to install and configure ArcIMS in case the procedure needs to be repeated in the future. 2. We began development of an online interactive mapping application. Work is ongoing and will continue into future quarters. 3. StreamNet personnel reviewed an ArcIMS site set up by California Department of Fish and Game in order to explore functionality and to generate ideas for how the StreamNet ArcIMS system could work.
Region	3	Maintain and enhance the look and usability of the current web-based query system.	<ol style="list-style-type: none"> 1. This quarter we added new data criteria selection features to the query system for NWPPC Subbasins, Old 1990 Subbasins, Regions, and Huc4. 2. We completed many requested interface and functionality enhancements / fixes. 3. We modified the query system look to more closely match the main StreamNet web site. 4. A proposal for changing the geographic criteria available (HUC, subbasin, county, etc.) in the query system was developed and delivered to the Steering Committee. The change was accepted, and will be implemented when possible.

Region	4	Develop and test a new and enhanced web-based query system based on a more open and flexible programming environment (Cold Fusion).	Cold Fusion was installed on the new web server and testing with the new web server software (Apache) was accomplished. This provides a solid, more open (more than just the programmer can work on it) foundation on which to serve StreamNet data.
Region	5	Deploy features of the new flexible query system as components are approved by the Steering Committee	Regional personnel worked on the functionality and layout of a data category for fish migration barriers. This task is more complicated than expected because we will permit querying by any barrier, or by barriers that affect only a selected species. Significant progress was made, but this was not high priority for implementation during this quarter because the barriers data currently contained in the StreamNet database is quite limited.
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.	Usage and error logs were maintained and used to track query system usage and to trouble-shoot errors encountered.
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.	With the addition of a full-time StreamNet Programmer to the project, many items which had been languishing were addressed. The programmer worked with the old contract programmer to learn the system. The new programmer also worked with the biologist, GIS specialist, and database manager to improve the query system in many ways. This work continues, guided by the other regional personnel.
Region	8	Complete review of the existing StreamNet HTML pages. Decide which pages to archive and delete, which to include in the StreamNet web site, and which to modify for inclusion in the StreamNet web site.	A full archive of all StreamNet web pages was created in preparation for transferal of the StreamNet web site to a new server.
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.	<ol style="list-style-type: none"> 1. Sikora, O'Connor and other staff gave feedback on the initial StreamNet Forum site. 2. Sikora and O'Connor did an initial review of the Washington state contents of the current Online Map Catalog, and provided input as to which maps to remove and which to retain.

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.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, First Quarter 2002</u>
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.	<p>We continued a strong commitment to the development of the FIS. The FIS is intended to provide data management and access functionality to IDFG staff, while facilitating the flow of information to StreamNet. We are finding that as we implemented pieces, IDFG biologists are becoming increasingly interested and excited about using it. This will aid StreamNet with a much enhanced flow of data.</p> <p>Specific accomplishments this quarter include:</p> <ol style="list-style-type: none">1. We researched system requirements and web development tools for a web-based data query and GIS mapping tools. We intend to implement a data query and access system on the IDFG intranet. This will provide broad use of FIS and StreamNet data by IDFG staff. We began work building an intranet query and access tools and we implemented IIS on our server in anticipation of development.2. The FIS data structure is a complex set of normalized, related tables in a relational database management system (SQL Server). Most biologists asking for data wanted a simple flat file of data. We have built an FIS-Warehouse to provide non-normalized data set for our FIS data.3. IDFG is slowly migrating from its current Banyan network to a Windows2000 network. We started making plans for the implementation of a Windows 2000 network system in FIS.4. IDFG/StreamNet provide coordination of dataset and interface design, administered and maintained the FIS, including the IDFG/BLM challenge cost share program and Collection Permits.5. The IDFG/StreamNet programmer prepared an interface for editing and defining trends. This is in response to errors we found in the redd count and hatchery return data sets. Also prepared an interface tool that allows the display of trend locations and provide recommended trend locations and statistics.6. Working with the Idaho Supplementation Studies, we enhanced the Juvenile Trapping and Spawning Ground Survey programs.7. We began development of a hatchery facilities data entry and maintenance module to the FIS.8. In preparation of moving data to PSMFC, we began research and development of a data transfer method using XML. We implemented an XML solution to transfer ISS data to the FIS.

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.	This work is ongoing with the USFS.
MFWP	2	Explore creating a complete user interface for MFWP biologists, preferably a web based system; standardize look-up tables across the state.	We worked with some individual biologists on local programming needs.
MFWP	3	Maintain 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 is ongoing.
Region	1	On an as-needed basis, update or develop tools to assist with data entry and data management. Assist StreamNet data compilation agencies with trouble-shooting, modification, or development of data input interfaces. Tools might include input interfaces, error checking routines, geographic locators, etc.	No work was done on data entry tools this quarter. However, the programmer built, tested, deployed a web-based discussion forum for StreamNet staff. The forum rapidly became a primary tool of communication among all StreamNet staff at both the regional and cooperator levels for discussing and resolving technical issues. This tool helped to reduce email clutter and also kept discussions organized by topic.
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.	<ol style="list-style-type: none"> 1. Lensegrav searched websites for Paradox and dBase import patches for MS Access. 2. Sikora tested StreamNet's EventCompare tool and to date has found at least two uses for it. We downloaded the NHD conversion tool but have yet to test it. 3. Late November, Sikora defined the need for Brown to create a tool to merge event records that never should have been split into more than one record. 4. WDFW staff updated the EventMapper 100K hydro layer with a new version sent by David Graves in October. Initial tests indicate the new layer is a solid product.

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, First 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.	<ol style="list-style-type: none">1. We received one month of funding for our data manager from USFWS to update our bull trout data in the FIS with local data sets from IDFG Salmon and Clearwater offices. The data were to be used in development of recovery plans and identification of critical habitat. We provided the data to USFWS in a combined Access database and ArcView project that allowed mapping the data.2. We filled 15 data requests that came directly to our office. The requests consisted of 10 species lists, 3 sets of shapefiles of streams, wetlands, and fish distribution, and 2 technical assistance (fish species status list, river mileage calculations).
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.	We filled 20 requests from the Fisheries Division, most from BPA funded project in Kalispell.
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.	<ol style="list-style-type: none">1. Jon responded to two NMFS requests for fish distribution data. One was for 24K Coho data on the coast and the other was for Mid-Columbia River steelhead data. He also responded to an internal ODFW request for westslope cutthroat trout data. Jon filled requests for Umpqua 24K streams data, "tributary-to" data for all 100K streams in Oregon, and for an Oregon Salmon Distribution poster. In addition he provided his OFWIM Salmon Distribution Data Standards PowerPoint presentation to the Virginia Dept. of Game and Inland Fisheries.2. A total of 19 data, 3 document, 1 map, and 8 'other' requests were answered during this quarter. A detailed list by requester and request type can be made available upon request. Library-specific document requests are summarized under Objective 4, Task, 3, Component 2. Also, 2,423 data downloads were made from the ODFW FTP site during this quarter.
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.	Regional staff responded to 55 requests for information or help during the quarter. Twenty five of these requests were GIS or map-related.

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.

All staff responded to data requests and documented them in a detail database available on request. Over two dozen major requests were handled this quarter, including dataset dumps for gamefish stocking, anadromous fish releases, spawner survey and other fish counts, fish distribution data (particularly bull trout), and age data. Maps of fish distribution/use continue to be popular, along with lake maps (where available). A new development this quarter was an increase in requests for ArcView-related products, such as shapefiles for both map base layers and fish data layers, and custom ArcView maps (our first ever).

Objective 4 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

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, First Quarter 2002
CRITFC	1	Coordinate source material submissions for data compiled by participants.	The Library received and cataloged a shipment of materials from California.
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 StreamNet Library added approximately 650 new records to the library collection.
CRITFC	3	Maintain and develop a collection of journals related to fisheries and aquatic sciences as well as other related scientific topics.	We renewed subscriptions to the usual journals, and also renewed memberships to several societies. The library received over 190 items through duplicate exchange to fill in gaps in serial collections.
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.	We began working with Bill Kinney on updates to reference tables and formats for library records.

MFWP	1	Update the StreamNet library with references and publications from the Fisheries Division Library on an annual basis.	No updates were 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 is ongoing. We still need to work with the FWP library to incorporate all fishery papers, not just internal documents.
ODFW	1	Update library bibliography of ODFW, Fish Commission, and Game Commission reports with historic and current publications.	Gloria continued to enter reports into the Library Bibliography, including 26 electronic reports.
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.	<ol style="list-style-type: none"> 1. Shannon finalized and submitted a Library submission to StreamNet in early October. 2. Bill and Shannon worked on creating a Reference Submission database to enhance user productivity when submitting new or updated references to StreamNet. They also created an automated Library Submission process, that creates the library reference submission in a report which can be printed and sent to StreamNet. This system results in an easier and faster submission process. The database also allows for a lot fewer errors to be made in the reporting process. 3. Shannon did a reference table comparison between Oregon's reference table, StreamNet reference table, and the StreamNet library set. She identified some missing references in both the StreamNet table and StreamNet library table, and sent Bill Kinney reference information he could use to update the StreamNet table. She identified the missing reference data from the StreamNet library as North Coast distribution documentation and some barrier materials. These references will be submitted, or possibly resubmit, to the library.
ODFW	3	Organize and submit to the StreamNet library all references related to the data developed under Objectives 1 and 2.	A Library submission was made to StreamNet in early October.
Region	1	Work with the StreamNet Library to search the library holdings for non-durable electronic reference materials (mainly floppy disks). Archive any files found on CD. Print hard copies if appropriate.	Gary Christopherson, former StreamNet employee, made available a box of books and reports that may be useful to the StreamNet Library. These materials were obtained by PSMFC staff and sent to the StreamNet Library for processing.
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.	Sikora sent a replacement reference for the Hatchery Facility Database and researched the hatchery returns references identified as missing in Bill Kinney's email.

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, First Quarter 2002</u>
CRITFC	1	Provide and maintain an appropriate facility for the storage and public use of the StreamNet Library collections.	The lease with Ashforth-Pacific, Inc. for library space was continued. We also continued work from last year on space expansion plans.
CRITFC	2	Catalog and organize the materials for ease of use by clients and staff.	We continued integration of all materials into one subject oriented collection.
CRITFC	3	Provide access to the catalog of materials via the Internet and update the online catalog on at least a monthly basis.	The catalog was made available through the Internet. We upgraded the search and record display pages. The catalog was updated monthly.
CRITFC	4	Develop and execute a plan to place electronic documents in the catalog and on the library website.	We began developing a plan for virtual library materials. We also added electronic access to several StreamNet documents.
CRITFC	5	Develop and keep schedule of open times and reference desk staff hours.	Scheduled reference desk hours and open times were posted on the library website.

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, First Quarter 2002</u>
CRITFC	1	Provide information and reference services to library clients	We answered over 25 requests for information from clients.
CRITFC	2	Provide information about services and hours to library clients via print and Internet	We kept webpages updated with information about hours and holidays.
CRITFC	3	Provide interlibrary borrowing services for library patrons to access materials not yet owned by the StreamNet Library.	We answered over 160 requests for materials from clients for materials not owned by the StreamNet Library.
CRITFC	4	Provide access to hardcopy and electronic files of draft and final documents related to subbasin planning and the NPPC amendment process.	The 1990 subbasin plans are now in residence on the library server and continue to have a separate section in the library website.

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.	Bill spent time working with Gloria to get her new laptop set up and to transfer information from her old computer to her new one. This included the bibliographic software.
ODFW	2	Respond to requests for ODFW documents and other source materials through the ODFW Library.	Provided 107 documents pertaining to Klamath Basin for the Dept of Justice to make copies. In addition, Gloria provided 502 hardcopy documents and 14 electronic documents to 48 individual users (12 additional users were referred to other sources) during the quarter.

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, First Quarter 2002
CRITFC	1	Provide interlibrary lending services for other libraries to access the library's unique collection	We provided over 50 items to other libraries.
CRITFC	2	Maintenance of memberships in appropriate library and subject-related associations. Ex. IAMSLIC, NRIC, OFWIM, etc.	Memberships in library organizations were renewed. We continued serving as webmaster for SLA -Oregon Chapter. We presented a technical paper and workshop at the OFWIM annual conference.
CRITFC	4	Coordinate with other StreamNet libraries, library clients and other libraries to improve service to clients and limit duplication of effort.	We provided information to clients referred by Gloria Bourne at the ODFW StreamNet 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	The Council's subbasin planning process has not yet begun, so no work was accomplished on this specific task.
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.	Gloria provided 7 documents to the StreamNet Library which fill gaps in their Oregon Game Commission report holdings.
ODFW	2	Coordinate with the Oregon State Library system to enhance access to published periodicals, journals, and other documents for StreamNet users.	Gloria set up 3 more ODFW employees with State Library SmartOrGov services.

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

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.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, First Quarter 2002</u>
CRITFC	1	Provide described services to CRITFC staff working on subbasin planning and NMFS' TRT groups	The Council's subbasin planning process has not yet begun. References were provided as requested by participant on the TRT.
IDFG	1	Provide data and related assistance to subbasin planning efforts in Idaho. IDFG has the lead role in a number of subbasins and we will provide support services, including tabular reports and GIS services to these subbasins.	<ol style="list-style-type: none">1. We provided queries of the FIS to biologists developing subbasin summaries for the Palouse, Salmon, Boise-Payette-Weiser, Upper Middle Snake, Upper Snake Headwaters, and Closed Basins subbasins. The data consisted of presence absence tied to LLID and abundance measure where available.1. IDFG had the lead role in preparation of subbasin summaries for the Boise-Payette-Weiser, Upper Middle Snake, Closed Basins, and Upper Snake Headwaters subbasins. Using funding supplied by subbasin planning, IDFG StreamNet staff used FIS data and StreamNet equipment to produce a variety of maps that were included in the summaries. Map types included: location, land use, land cover, vegetation, climate, stream gauges, dams, lithology, managed areas, aquifers, ecoregions, fish distribution, rare plants and animals, protected areas, and 303(d) listed streams.
MFWP	1	Work with Montana's CBFWA representative involved with subbasin planning and provide data, map products and assistance as needed.	No requests are outstanding.
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">1. Cedric attended the initial System-wide Provincial Review meeting held in Portland.2. Cedric contacted Tony Nigro regarding ODFW's strategy for responding to the system-wide provincial review. He informed me that Ron Boyce was still leading this effort, but that nothing had been done thus far.

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.

Regional staff developed a set of subbasin maps for the subbasin planning component of the NW Power Planning Council, to be used on their web site. These included low resolution and high resolution maps of all subbasins and provinces for printing and/or online selection, and a custom low-resolution base map of each subbasin for use on their individual subbasin pages.

WDFW 1 Participate in Subbasin planning meetings and provide data and advice as needed.

1. Smith worked to update the Columbia River Subbasin reports that WDFW compiled long ago for StreamNet, yet abandoned when StreamNet started focusing on database submissions. Water uses, historical releases, presence/absence and any relevant information are being added to these reports to update and describe the basin better. Woodard worked with the fish data compilation for these reports. Chum and Chinook data for tributaries below Bonneville Dam were delivered to Ron Roler along with past reports on these tributaries. Ongoing consultation of historical data on these tributaries continues and data is delivered or manipulated as needed.

2. Woodard downloaded ArcExplorer from the Internet to learn how to create maps for the region/project and lay presence/absence data on top of specific layers. GPS units were used to gather beginning and ending points for index areas on streams, and points where Chinook, Coho and Chum had spawned or were observed in the Subbasin. Woodard took this data and loaded it into ArcExplorer and ArcView to determine how to more efficiently collect and store such information and be able to deliver this to StreamNet.

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, First Quarter 2002

CRITFC 1 Work with NMFS, NWPPC and subbasin planning groups to identify M&E needs and plans

We co-authored summary reports on M&E needs and plans developed as part of the Council's Mainstem and System Wide Provincial Review. These summaries will be the basis for future project selection and funding for the next three fiscal years under the Council's Fish and Wildlife Program.

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, First Quarter 2002

ODFW 1 Participate in discussions and offer solutions related to Columbia River Basin database management and information distribution issues, as needed.

Jon met with BPA Fish and Wildlife Program staff to view an ArcIMS application that they have developed to serve GIS data in support of subbasin planning. Their application is essentially "out of the box" ArcIMS for the purpose of enabling viewing and download of GIS data.

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, First Quarter 2002

All 1-2

No work was performed on this task by any of the projects this quarter.

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, First Quarter 2002

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.

1. IDFG/StreamNet has developed a close relationship with the FWP funded Idaho Supplementation Studies. We worked with ISS to continue development of a spawning ground database and interface for redd count and carcass count data. We also continued to develop the juvenile trapping system. Both systems were used on a prototype basis by ISS this past field season. They found them very useful and we have worked with them to fix bugs and add enhancements. Both system allow data entry by field biologists and data maintenance by the project coordinator. Data are then electronically transferred to the FIS and made available to StreamNet.

		<p>2. We also worked with another IDFG project, a BLM Challenge Cost Share project to compile historic data from IDFG regional offices. In the past we developed a database and interface, plus the Fish Tools ArcView application for their use. During this quarter, we monitored and administered the database and interfaces for the project. These data come directly into the FIS and are available to StreamNet.</p> <p>3. Two other systems that IDFG/StreamNet has developed in the past for IDFG are a collecting permit system and fish reference system. We provided administrative and technical support to the Fisheries Bureau for both systems as they continuously entered data into the FIS.</p> <p>4. IDFG/StreamNet staff worked with the Upper Snake River Stock Assessment Program to ensure the compatibility of their resident fish data for the FIS and eventually StreamNet. We also worked with the IDFG Salmon regional office to incorporate LLID and GPS coordinates into their stream survey database. This will facilitate the eventual incorporation of their data into the FIS and StreamNet.</p>
ODFW	1	<p>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.</p> <p>1. Cedric accompanied Leah Gorman to Seattle to demonstrate the TRT Database to NMFS staff, and to pursue funding for and answer questions about future efforts.</p> <p>2. Cedric coordinated with PSMFC, NMFS, and NWPPC staff in an effort to hire Stacy Carpenter to replace Leah Gorman on the Willamette-Lower Columbia TRT Viable Salmon Population Project.</p> <p>3. Bill prepared the VSP Database backend for delivery to NMFS, deleting all test information and populating the database with real data. Final adjustments were made to the database in the User Interface and database management areas. The database was delivered in early December.</p>
Region	1	<p>Respond to requests to StreamNet from F&WP participants for data, maps, GIS products or general assistance. Provide assistance, including custom map work where feasible. Direct users to other resources if requests exceed project capabilities.</p> <p>During the quarter we completed compilation of data on adipose marking of hatchery fish as requested by Power Planning Council staff. A revised report with revised maps was prepared and presented to the Council at their monthly meeting.</p>

Task 6 Protected Areas

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

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, First Quarter 2002</u>
MFWP	1	Exchange Montana's Protected Area database, which has been converted to LLID stream routing.	Montana's Protected Area database, converted to LLID, was exchanged to the StreamNet database. A conversion was done so that Regional Staff didn't have to do anything to the coverage.
Region	1	Maintain the Protected Areas database within the StreamNet database	The Protected Areas database was maintained. In addition to routinely making this database available on the StreamNet website, we initiated a project to convert these data from the 1:250K River Reach referencing system to the 1:100K LLID system (see Objective 3, Task 3, Job 5).

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.

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.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, First Quarter 2002</u>
CRITFC	1	Attend and participate in Steering Committee meetings	Phil Roger participated in all Steering Committee discussions. Presentations were given on the status of regional activities related to information management and on a prototype genetics catalog application.
CRITFC	2	Effectively administer the CRITFC StreamNet project	Normal project management was provided. Phil oversaw transition between fiscal year contracts, including final budget adjustments and new proposal development and implementation. Staff evaluations were completed.

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.	Steve attended and participated in the Steering Committee meeting.
IDFG	1	Prepare budgets, work statements, and progress reports	The IDFG StreamNet project coordinator prepared the FFY 2002 budget and statement of work for IDFG/StreamNet. He also prepared quarterly reports.
IDFG	2	Provide project management and staff supervision for IDFG StreamNet.	The IDFG StreamNet project coordinator provided personnel supervision for not only the IDFG/StreamNet staff, but additional staff in IFWIS. He also managed work flow, providing a special emphasis to leverage StreamNet as much as possible with other projects that were assigned or made available.
IDFG	3	Participate in Steering Committee activities, including Steering Committee meetings, project direction, and data exchange format development.	The IDFG StreamNet project coordinator was an active participant in steering committee meetings and DEF development.
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.	<p>1. IFWIS staff attended training on Intro. to VB for ArcGIS and Intro. to ArcGIS. Costs were covered with non-StreamNet funds, but the training benefits StreamNet because all staff contribute to StreamNet objectives.</p> <p>2. The IDFG StreamNet project coordinator was the chairman of the 2001 Northwest GIS Users Group Conference in Sun Valley, Idaho on October 8-12, 2001. He became the user group president at the conclusion of the conference. The conference had approximately 250 attendees that were GIS professionals from across the Pacific Northwest. The conference provided training, a vendor show, plenary session and concurrent sessions.</p>
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.	<p>1. The annual Statement of Work for Montana was completed and sent to regional staff.</p> <p>2. We had a full staff meeting in Kalispell in December and laid out work for the fiscal year.</p> <p>3. We attended the 2 day Steering Committee meeting in Seattle in October.</p> <p>4. We completed Performance Agreements for all staff except one.</p>

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.

1. Bill and Cedric attended the StreamNet Steering Committee meeting in SeaTac on Oct. 25 - 26.
2. Reports and SOW:
Oregon finalized and submitted the 2001-3 Quarterly Report for StreamNet. Most staff submitted their StreamNet fourth quarter report and request log. Cedric reviewed and commented on StreamNet's draft 2001-2 Quarterly Report. Cedric completed development of the Oregon StreamNet 2002 Statement Of Work and budget, and submitted it to Bruce Schmidt. Several Oregon staff provided input regarding potential work components and budget considerations, including Columbia River Management staff.
Cedric completed the final review of the overall StreamNet 2002 SOW and submitted comments to regional staff.
3. Training:
Shannon attended beginning and advanced PowerPoint workshops. She created a disk of information to use in the class to make a presentation. Shannon worked on becoming more familiar with the grant writing process by reading literature on the subject.
Shannon attended a SAS workshop at the OSU Forestry BLDG. Cedric, Jon, Jennifer, Bill, and Shannon attended the Organization of Fish and Wildlife Information Managers Annual Conference in Portland, titled "Data Standards from A-Z".
Jon attended the morning portion of an all day ArcView 8.1 seminar. It served as a valuable clarification of how the various pieces of the current software puzzle all fit together, and provided good insights to the new suite of editing tools.
4. Library:
We finalized a memo for Dave McAllister's signature describing the services provided by Gloria and the Library and soliciting funds to keep the Library operational through the biennium and beyond.
Shannon worked on applications to procure Library renovation grants, and spent time at the Portland library identifying Library funding sources in the grant section and by using 'The Funding Center' CD-ROM. She drafted and submitted four Library funding proposals.
5. Hardware/Software/Equipment:
We contacted Bill Kinney regarding the ordering of a new printer for the office and a laptop. Bill agreed to purchase the Lexmark printer after we discussed issues about it. He also ordered the Dell model notebook we spec'd out.
Susan and Cedric investigated the costs of hardware needed to conduct video conferencing with remote staffers and for future StreamNet meetings.
6. Personnel:
We finalized the interview schedule and conducted interviews for our ISS-4 GIS Analyst position. We are now awaiting permission from DAS to fill the position.

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"> 1. Routine project administration continued. 2. The project proposal for FY-02 was submitted, but approval was delayed. The initial proposal was developed to provide full funding for all core staff members, resulting in an increase in the requested budget above the basic COLA. StreamNet was included in a CBFWA list of projects that needed increased budgets, but no decision was made on our request, and we started the year on a level funding trajectory until the Council has time to review the details of our full budget request. 3. Project staffing at the regional level at PSMFC was brought to the full level at the end of FY-01 with the hiring of Greg Wilke as the project programmer. This significantly increased project capability by substituting a permanent staff person for the higher salaried, part time contract programmer used previously. This change eliminated delays caused by competing work assignments for the contract programmer and increased responsiveness to project needs. Initial activities this quarter included new employee orientation and instruction on the StreamNet query system. It is important to note, however, that all staff positions are now filled, but three positions (programmer, GIS specialist and fish biologist) are supported for only 9 months each by the StreamNet contract. These individuals need to spend 1/4 of the year working on other, non StreamNet, contracts.
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.	A data entry form was developed for input from the cooperating projects to enter data for the FY-01 Annual Report. This work was a lower priority than work to finish the FY-02 project proposal and gain approval of the budget. Thus, input into the annual report was delayed into the next quarter.
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 fall Steering Committee meeting was held near SeaTac on Oct. 25-26, 2002, hosted by WDFW. Key elements of the meeting included: Demonstration of the IDFG Fisheries Information System, which is an internal agency database developed by StreamNet used to capture and manage data from agency biologists; Report on the success of the Willamette VSP data project by ODFW; Work on developing a common approach for fish distribution data; Review and discussion of 2002 work statement in light of delay in budget approval; and, Planning for the Mainstem/Systemwide Province Review.
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).	<ol style="list-style-type: none"> 1. O'Connor, Sikora, Lensegrav and Woodard planned and hosted the Oct. 25-26 Steering Committee meeting in Burien, WA (near SeaTac). Staff provided input to the WDFW work update, delivered by O'Connor/Sikora at the meeting. Sikora revisited with Woodard on how to re-organize his reports of work accomplished. 2. O'Connor and Sikora prepared the budget and work plan for FY2002 and made timely submittals of the FY2001 Q4 Report, draft FY2001 Annual Report (to be finalized next quarter), justification for FY2002 COLAs, and responses to requests to review/modify the new work plan template eventually adopted for StreamNet in FY2002.

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.

1. All staff were asked to clean the WDFW server again due to space issues and Jeff Parkhurst tuned-up Sikora PC's. Oddly, she's experiencing more problems since the tune-up yet they could be due to the new re-writable CD or abCD software that was added near the same time. Lensegrav loaded software on the new laptop PC. O'Connor and Sikora notified IS staff of DOE's virus declaration for a *.exe file Sikora passed to them. The warning proved to be only overly cautious language. Lensegrav established a Virtual Private Network (VPN) account and the necessary software for working at home 1 day a week.
2. Lensegrav ordered Advanced File Organizer (AFO) software so staff could easily document files and he attended a two day class on technical writing (Technical Writing: Tricks of the Trade). Lensegrav also researched the BC Fisheries website and documented his findings. Sikora has yet to check the website herself or review this document.
3. All staff attended the WDFW Director's Roundtable meetings. Sikora attended O'Connor's October 12 meeting to brainstorm ideas for a unit work plan. Following the meeting, Sikora talked with Jeff Parkhurst on the procedures to establish data on the WDFW website so we could also advertise when we need help with information. Sikora reviewed O'Connor's draft work plan and instructions for Burns to mine information from the Stream, Lakes and Fisheries Database. This quarter we received a noteworthy increase in requests to tutor other WDFW staff in how to operate software or run database routines.
4. O'Connor and Sikora performed standard work planning and time management tasks for supervised StreamNet staff.

Objective 6 Project Management / Coordination

Task 2 Participate in Fish and Wildlife Program development activities

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

Project Job Planned work elements

Accomplishments, First Quarter 2002

CRITFC 1 Work with NWPPC and related agency staffs to improve data management services to the region

Phil Roger worked with Council staff and contractors to include data management functions in draft work statements for subbasin planning. He worked with the Oregon Coordinating Group on similar issues but focusing on division of responsibilities between a state technical assistance team and local subbasin groups. He kept Steering Committee apprised of developments and status.

Region 1 Work with regional entities to contribute data management expertise with development of activities within the scope of the Fish and Wildlife Program.

PSMFC assisted ODFW personnel (non-StreamNet) working on their 24K hydrography project with how to submit references to the StreamNet library.

Objective 6 Project Management / Coordination

Task 3 Coordinate with other related activities

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.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Accomplishments, First Quarter 2002</u>
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.	We continue to focus our efforts at developing an efficient flow of data from IDFG by providing data management tools that match StreamNet data standards. Some of those projects, in particular Idaho Supplementation Studies, includes federal and tribal biologists. They have had an opportunity to listen to what IDFG biologists say about our tools. In the future, we will be trying to expand our support of ISS to include these other agencies and therefore capture all ISS data.
MFWP	1	Maintain communication between state and regional entities	Staff attended a meeting with USFS and BLM data managers in December to discuss programs and how we could better coordinate data collection and dissemination.
ODFW	1	Establish / maintain working relationships with data collection projects within and outside ODFW to promote efficient and beneficial data sharing.	<ol style="list-style-type: none">1. Jon answered barrier/dam questions for Mindi Sheer at NOAA.2. Cedric attended a meeting in Portland lead by the REO to discuss their restoration data development and compilation process.3. Cedric traveled to Bend to attend Susan's FishScreen Database Q&A session w/Fish Screen and Passage Program staff. He also met with the office manager of the Bend Annex to secure office space for Susan.4. Shannon and Cedric attended a presentation at OSU given by Kelly Moore and Hiram Li in which they compared and contrasted the Oregon Plan and the Washington Plan.5. Jon acquired a draft coverage of the Northcoast Salmon Abundance and Diversity watershed data that Andy Talabere has been developing. This was done with the intention of including it in a discussion with ODFW and StreamNet staff to talk about potential applications of GIS to the problems that field biologists are working to solve.

Region 1 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.

1. PSMFC and Xerces Society staff updated a proposal for creation of a regional macroinvertebrates database. The proposal was submitted to EPA for funding.
2. Oregon DEQ collects fish sightings information during their biological monitoring work. The ODEQ lead, Rick Hafele, was put in contact with Cedric Cooney so that ODFW/StreamNet could obtain the data collected by ODEQ.

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.

Project Job Planned work elements

Accomplishments, First Quarter 2002

CRITFC 1 Prepare and present demonstrations and descriptions of the library services available through StreamNet

Lenora Oftedahl, StreamNet Librarian, presented a paper and conducted a workshop at the OFWIM Annual Conference.

IDFG 1 Where appropriate, participate in public or private meetings and forums to represent StreamNet and IDFG. Produce reports, maps, or other materials in support of or for dissemination of StreamNet information.

As part of our collaboration with ISS, we participated in cooperators meetings.

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.

1. Jon investigated differences between 1995-97 distribution data and 1998-2000 distribution data, and prepared graphics highlighting key differences between the datasets in preparation for his Organization of Fish and Wildlife Information Managers Annual Conference. He gave a trial presentation at an NRIMP staff meeting and incorporated changes to the presentation based on feedback from the NRIMP team. The presentation was given at the conference during the Data Management and Delivery Session.
2. Shannon developed a PowerPoint presentation to explain the NRIMP Program for a brown bag lunch lecture.

		<p>3. Shannon completed a draft 'Inside Tracks' article highlighting the function and abilities of the NRIMP program. She also updated a draft article describing the Incidental Fish Observation data system, and another comparing and contrasting 'Spreadsheet vs. Database' functions.</p> <p>4. Shannon initiated and completed a PowerPoint presentation on the Carcass Placement database.</p> <p>5. In an effort to help Bruce Schmidt prepare a presentation for a Steelhead Workshop in the Spring, NRIMP staff solicited ideas for how GIS can help field biologist from ODFW biological staff. Staff also participated in a meeting in Portland to further identify ways that GIS can aid steelhead biologists.</p>
Region	1	<p>Prepare and deliver presentations to scientific and professional meetings to demonstrate project capabilities and accomplishments and to solicit additional data and involvement or coordination with the project.. Expected results would be enhanced visibility for the project, increased participation and data flow from agencies, improved coordination, and avoided duplication of effort.</p> <p>The Program Manager and Regional Fisheries Biologist prepared and delivered presentations at the annual Organization of Fish and Wildlife Information Managers meeting. These talks addressed real-world needs in data compatibility between different users. Topics presented were: 1) Use of region-wide data exchange formats to organize dissimilar data 2) Long term fisheries monitoring: using standardized data sets: How well is it working? and 3) Obstacles to standardization of field sampling methodology. Or: Why is it so hard to get everyone to do it the same way?</p>
WDFW	1	<p>Participate as opportunities arise to highlight StreamNet programs & data. Report key contacts and results to Regional Project Manager to keep Manager apprised on opportunities pursued in Washington state.</p> <p>O'Connor delivered a presentation "Scrambling for Data Standards in Habitat Restoration Projects" at the Annual Meeting of the Organization of Fish and Wildlife Information managers (November; Portland, OR).</p>

Supplemental Information: Work accomplished outside the specific work elements in the Work Statement

The following work was accomplished in addition to or beyond the specific tasks described in the FY 01 Statement of Work. Although these tasks were not specifically listed in the work statement, they were opportunistic in nature and contributed directly to StreamNet project goals.

<u>Project</u>	<u>Accomplishments, First Quarter 2002</u>
CRITFC	<p>Most of the "other" activities are related to tasks in the existing work statement and have been mentioned as accomplishments under those tasks. There are two general areas of activity that might be considered here, however. 1) The first is the growing reputation and credibility of the StreamNet Library for providing services and resources for fisheries projects not specifically described in the StreamNet work statement. For instance, the Library has been asked on two occasions to create custom CD's of reference reports on protocols for habitat monitoring and, again, on the status of coastal cutthroat trout. These have been relatively small projects which can be handled within the present budget, but we anticipate this type of request will grow. 2) The second is that the Steering Committee member is routinely asked to participate in regional planning and evaluation groups. These include, for instance, participation in the Regional Assessment Advisory Committee, Regional Data Management project, Subbasin Planning, monitoring and evaluation discussions, etc. This broad scale understanding of regional needs and plans is reported regularly to the Steering Committee and helps keep the project relevant to regional needs.</p>

- Region In continuation of coordination work begun in previous years under other funding, PSMFC staff assisted Oregon Department of Environmental Quality with final corrections to their macroinvertebrates database. We pointed out 22 sampling sites that needed to be corrected. We also worked with ODEQ to create an updated database for their agency. This new database should be better integrated into the ODEQ LASAR database, and thus fit their needs better while allowing for easy data sharing at a regional level in the future. Also related to macroinvertebrate work, the Regional Fisheries Biologist gave a presentation at the annual meeting of the Northwest Biological Assessment Workgroup, held this year in Cannon Beach, Oregon. This presentation was designed to introduce the idea of a regional macroinvertebrates database to the Northwest's macroinvertebrates community. We hope that this effort will result in outside funding to continue the regional macroinvertebrates database work that we have been pursuing.
- WDFW
1. The WDFW Habitat Program is reviewing the future of its SSHIAP Project, and is considering a request from O'Connor to integrate and truth the various collections of barriers data we have. Such work would greatly enhance the quality of Washington state migration barriers data, and would give us the product we need to be able to effectively exchange high-quality barriers data with StreamNet.
 2. The Resident Fish Joint Stock Assessment Project in Northeast Washington is struggling to deal with the different field sampling data formats used by the four project participants. An RFP was drafted to seek a consultant to help integrate the data (both fish sampling and habitat sampling) into a single common database. O'Connor is involved in guiding the RFP, selection, and data format creation process. We hope to see a format adopted that will support simple conversion to the appropriate StreamNet exchange formats.
 3. The WDFW Fish Program recently authorized creation of a one-year project to fund 2.5 FTE in order to build basic fish data GIS capability in the agency (partnered with current contract funding). A series of priority tasks were assigned, including moving SaSI (salmon stock identification and status) data onto the Web using 24K hydrography. If we succeed in meeting these goals, prospects for future WDFW support for basic fish GIS data will improve considerably. In addition, O'Connor is scheduled to travel across the state to visit the six Regional WDFW offices this spring to interview field staff about their basic data needs, both tabular and spatial. Results of this survey will build the first-ever WDFW Fish Data Plan, which will provide strategic guidance for both WDFW-funded efforts and partner efforts such as StreamNet.
-

Response and Clarification to the
Comments from the RME Workgroup 7/19/02
Relative to the StreamNet Project

Bruce Schmidt
StreamNet Program Manager
August 1, 2002

Following are responses and clarifications to the review comments provided by the RM&E Workgroup on the StreamNet FY03-05 funding proposal. Text of the review comments by the workgroup are presented in their entirety below in black type, with comments and explanations inserted into the original text in 'Highlight Changes' mode in red type.

198810804 – StreamNet

The Stream net proposal claims specifically to address RPA's 180 and 198 (at Section 1), and other RPA's outside the Data Management Subgroup's scope.

Overall:

The Action Agencies' RME program calls for the systematic, rigorous and directed collection and maintenance of data for status and effectiveness monitoring as defined by the program. Like the NWFSC project (see comments on NWFSC proposal above), the StreamNet project only manages data that is submitted to it by the participating agencies. **(Note: StreamNet actually works within the management agencies to locate, acquire, and manage data. The data are not 'submitted' by the agencies, and without StreamNet, much of the data would only exist in biologists' files and in gray literature.)** The project is not designed in the base or new program to ensure that agencies that submit the data have a quality control and quality assurance program that would meet the RME requirement. Hence data in the base program and data anticipated in the new program may be standardized but may be insufficient for the needs of the BO if the data collecting agencies have not used consistent, rigorous protocols as defined by the RME program. For example, because of the lack of protocols, the current StreamNet database does not adequately locate dams, barriers, points of diversion, amounts of each diversion, changes in points of diversion, etc. Any new data collection should proceed only after common field collection protocols have been adopted.

The comments above accurately portray the reality that the agencies that collect most of the data referenced in the paragraph are autonomous, and therefore establish their own approaches to data collection, including establishment of objectives, data collection protocols and quality assurance procedures. The comments inappropriately imply, however, that it is the role of StreamNet, as a data management project, to dictate data collection protocols to independent agencies.

The StreamNet Project does provide means to facilitate discussions with the management agencies to address issues such as these. It would be best if the RM&E Workgroup called on the data collecting agencies to sit down to discuss this issue. StreamNet can easily organize and facilitate such a meeting.

Further, we would suggest that working with the fish management agencies to make sure data are collected in accordance with adequate standards will ultimately prove more effective, efficient, and cost effective than any attempt to develop entirely new sampling efforts, particularly where sampling work is already going on.

The StreamNet Project has expanded its budget request this year to provide capability to acquire and deliver additional data types. We took this approach since it has been difficult to get a regional consensus on what specific data types are top priority. As long as the proper data are being collected by the agencies, we stand ready to locate, acquire, standardize and distribute them. If the proper data types are not included in our project proposal, we are very open to suggestions on which data types are more important. Data types referenced in the RM&E comments above, including dams, barriers, and points of diversion are included in the new request, and amounts and changes in diversion could be included with little additional effort. Multiple agencies would be involved with collecting these data, and we intend to document the procedures and QA followed. Data related to diversions and flows would be new data types, while dams and barriers are already receiving some work. Completion of barriers data will require additional funding and several years to complete. But, work on dams is ongoing, and most dams have already been located, more than half georeferenced to the stream network, and imprecise lat/long coordinates from the National Inventory of Dams are being corrected. Progress has been slower than desired due to insufficient resources, not because of lack of protocols, as stated in the review. This information is available through the StreamNet website, and work is continuing under the base project to complete georeferencing to the hydrography for those dams, primarily smaller ones, where it is not yet completed.

The last sentence in the RM&E paragraph above implies that all field data collection should cease until common field collection protocols have been adopted. Given the amount of time it will take to get the agencies that are involved in data collection to determine what the common protocols should be, whether common protocols are suitable to all locations in the basin, and the fact that much sampling effort is based on other agency funding and is intended for other agency purposes, this recommendation appears short sighted. It is unlikely that the region can afford to skip sampling while protocols are established. Furthermore, data management projects, like StreamNet, do not have the ability to force agencies to adopt protocols. In stead, we were established specifically to locate and capture the useful data that are being collected. We are positioned well, with staff inside many of the agencies, to assist them in establishing protocols and standards and are ready to do so, but would advocate that current data continue to be collected while that process is going on.

In any discussion of the effectiveness of data management are two separate considerations: Data content and Data delivery. The StreamNet Project has been given a charge to distribute fish related data and information in a regionally standardized format (data delivery), and we have been effective at that mission. Data content, however, is dependent on the independent agencies collecting the proper information using appropriate methods. No data management project has been given authority to control what data the independent agencies collect. StreamNet has been aware that some data that are being requested are not yet being collected, and that the region would benefit from more standardized approaches to collecting data. We stand ready to work with the RM&E Workgroup and the Action Agencies to work out the details in cooperation with the data collecting agencies. This has been needed for some time, and we hope that the current emphasis on meeting the BO will provide the stimulus to get all parties to the table so that the data provided through the StreamNet online database fully meet RM&E and other regional requirements

The StreamNet proposal has a considerably greater emphasis on Subbasin data than specific Opinion-generated RM&E data.

The StreamNet Project was created to acquire, standardize and distribute the basic kinds of fish related data that are collected and used by the region's fish management agencies, and that have often been used for basic monitoring of populations. The focus has been on the data that have been collected over many years. Many of the RM&E needs presented in the BO are newly identified needs, and have not yet been incorporated in routine field data collection activities by the management agencies. Since StreamNet is dependent on the data collected by the agencies, it is not realistic to blame the project for not having the needed information. Rather, we believe that StreamNet can play a valuable intermediary role with the RM&E Workgroup and the agencies to further develop data collection activities, and work collaboratively toward designing a data collection and management program suitable to all. Additional resources will likely be required to adopt new protocols or modify sampling programs to meet BO needs, but it is ultimately more cost effective to adjust existing sampling programs and cooperate with existing efforts than to embark on new or independent programs.

RPA 180.

It is not clear how the StreamNet proposal meets the requirements for the “development and implementation of a basinwide hierarchical monitoring program... the ground truthing of regional databases... and a draft program including protocols for specific data to be collected”.

The full RPA, to develop and implement “a basinwide hierarchical monitoring program...ground truthing regional databases...and a draft program including protocols for specific data to be collected” can only be accomplished by a

collaborative effort among the data users (RM&E Workgroup, NMFS, and the Action Agencies), data collecting agencies (state and tribal fish management agencies, departments of environmental quality, and land management agencies), and database managers. StreamNet can play a valuable role in regards to organization, management and dissemination of data from the overall program, and as a facilitator and intermediary, if necessary, among the parties. It is not realistic, however, given that the data collection agencies are independent, to expect that a regional database project could undertake the entire RPA alone. NMFS and the Action Agencies recognized that the monitoring program would have to be a collaborative effort, as they wrote in section 3.5 of the July RM&E Framework document: “NMFS and the Action Agencies are cooperatively developing this FCRPS RME Plan with the intent that it will complement and integrate with other regional activities to the greatest extent practicable. Both the Action Agencies and NMFS recognize that the various programs have different goals, and that this will preclude region-wide reliance on any single monitoring program” (REVIEW DRAFT. July 22, 2002, Research, Monitoring & Evaluation for the 2000 FCRPS Biological Opinion). We agree with the concept of integration described here.

The text of the StreamNet proposal at page 8 refers to RPA 180 with the detail of the proposal offered by StreamNet stated as follows: “StreamNet’s experience and abilities with database management can be provided to support this effort on a more cost effective basis than through entities that are not already dealing with monitoring data in the basin”. This claim is not supported with any other information, and it does not address the concept of a basin wide monitoring program specified in RPA 180. It is not clear what the StreamNet deliverables for RPA 180 are.

As stated in the project proposal, StreamNet can assist accomplishment of RPA 180 through application of its database management and data dissemination experience, in collaboration with the other parties that will of necessity be included in the overall effort. We are able to manage the data delivery component of the effort, but as pointed out previously, other parties will need to be included in the effort. Since there is no specific Request for Proposals detailing program components for this effort, we find it difficult to completely describe the entire program, as we have not been included in discussions to date. Potential component deliverables would certainly include standardized exchange formats, data protocols, multiple delivery options, and access to supporting documentation. We remain ready and able to contribute to the data management component of this RPA, but reiterate that no single data management program could meet all of needs of RPA 180.

Note: StreamNet has two funding requests that it says do relate to RPA 180. The first is to deploy a prototype database to obtain and deliver water temperature data. This item, temperature recording for RPA 143, has a 2003 cost of \$83,130. The second expenditure is stream habitat data for 2003 expenditure of \$89,799 to complete a needs assessment (scoping) with existing groups who collect habitat data, hold focus groups, define core data develop a database structure and manage the data. While this could be a part of a basin wide monitoring program it is by no means complete.

As mentioned above, the StreamNet Project proposal is not intended to constitute the entire program under RPA 180 and others. We believe that a basin wide monitoring program must of necessity be a collaborative effort among multiple entities, with our expertise being the data management and delivery components, plus specific experience in several data types that may likely be key components within the monitoring program data. NMFS and the Action Agencies expressly stated that the monitoring program would have to be a collaborative effort in the RM&E Framework document. We believe that our experience, expertise, and positioning with the management agencies make us the most logical, and the most ready, entity to manage and distribute the data developed by this program. Thus, we addressed only the data management components of a monitoring program, and will work with the other program entities on development of the overall monitoring program.

RPA 198.

There is a specific reference in the StreamNet proposal to work on the SAIC project as “Participation in Regional Data Initiatives”. The proposal is listed in a category of expenditure called “Services to Fish and Wildlife program”. The 03 budget for this category is \$167,508 however it is not possible to determine how much of this funding is being proposed for RPA 198 and, for that matter, what “Participation in Regional Data Initiatives means”. There is a reference at page 22 of the proposal as follows: “Work with state and local subbasin teams to identify priority information management and sharing needs. Share findings with SAIC project”. There is inadequate information here to determine what the deliverables are and who has responsibility.

Part of the base StreamNet Project has been to provide data management services to support the Council’s Fish and Wildlife Program. This includes providing data in response to specific requests, advising on database management and data delivery, working with other FWP funded efforts such as subbasin planning, and assisting with region wide data initiatives, including the SAIC data needs / data inventory project, as well as contributing toward RPA 198. Funding was not specifically identified for RPA 198 related efforts, because the specific components of a common data system were not clearly detailed in the Biological Opinion. As an ongoing systemwide project specializing in database management and data delivery, StreamNet is committed to contributing to cooperative efforts to manage data on a regional basis. Specific deliverables and responsibilities need to be established through a collaborative process with data collecting agencies and data using entities.

Pros:

1. StreamNet’s willingness to address new information system development needs.
 1. StreamNet’s experience in data management and knowledge of existing databases

2. The project consolidates, standardizes and distributes fish information throughout the Columbia Basin; also some coastal streams.
3. It includes a library function.
4. Through use of data exchange formats (DEFs), data are made comparable among the 4 states, CRITFC, PSMFC and USFWS.
5. Relies on metadata, 1:100,000 hydrography; Uses LLIDs for accuracy.
6. Program is distributed among F&W management agencies. The seven cooperating agencies represent the major F&W management agencies, except for NMFS.

While initially included in the StreamNet Steering Committee, NMFS withdrew and did not maintain its involvement with the project. While a NMFS employee has attended a few Steering Committee meetings that were announced publicly, NMFS has not yet indicated an interest in having permanent representation (which would be welcomed).

7. It uses restoration project database format developed by PSMFC and California; data from states.

Clarification: The initial DEF for habitat restoration and improvement projects was developed by StreamNet, which is administered by PSMFC. Modifications to the DEF were proposed by a project similar to StreamNet with California Dept. of Fish and Game, also under PSMFC administration. These data must come from a variety of agencies that fund and/or conduct such work, and to date, no repository for the full set of information exists, which is what StreamNet is proposing to provide.

8. Has ARC-IMS GIS application; on-line query system promotes distribution of standardized data.

Cons:

1. The proposed budget does not include budget items for Planning/Design or Construction/Implementation. This makes it difficult to determine how StreamNet will complete proposed tasks such as needs assessment which is a Planning/Design task.

As an ongoing systemwide project, StreamNet has been considered to be in the Operation phase. Project planning and set up occurred a number of years ago. It has always been our understanding, as instructed by BPA, that the categories in the BPA proposal template referred to the stages of planning, constructing and implementing of the project being proposed, not for the part of our ongoing operations that may relate to planning. This view is consistent with proposals submitted by other projects and past proposals submitted by StreamNet. Our understanding can be illustrated by the following example: a hatchery construction project would move through the Planning and Design phase, to the Construction and Implementation phase, to Operation and Maintenance phase. We consider the StreamNet Project to now be solidly in the Operational phase.

2. We cannot determine how and when StreamNet will meet RPA action item 180 and what the cost will be. The StreamNet proposal for RPA 180 does not address the requirements of RPA 180 for a basin wide hierarchical monitoring program.

StreamNet can contribute to the component of a basin wide hierarchical monitoring program that relates to capture, organization, management and distribution of the resultant data, but can not be expected to meet the full scope of RPA 180, including the field sampling and sampling design. The RPA Framework clearly identified NMFS and Action Agency intent that this be a collaborative effort, but having not had an opportunity to meet with the RM&E Workgroup, we did not have the ability to understand the range of cooperators and specific actions desired, and the BO provided only general conceptual guidance. We anticipate being able to contribute development of the data management component of this effort as part of our base project funding, which was requested to provide a small amount of additional funding to cover time for our programmer, GIS specialist and biological data coordinator that was not covered in the previous contract. The base budget includes time to support FWP related activities, such as this RPA, and our existing programming and database management experience, along with significant existing hardware and software infrastructure, will allow for significant participation in development of the program. Once the program is more fully developed, we would be better able to estimate any ongoing costs needed in subsequent years' budgets.

3. Data / information will be collected but not necessarily standardized. It will be a repository, no guarantee of data integrity.

This statement is largely incorrect and appears to be inappropriately applied to the StreamNet project. It is accurately contradicted in item 2 in the Pro comments, above. StreamNet has as a primary objective the development and dissemination of data that are regionally standardized. Data are actively managed, and the data review process significantly improves data accuracy through identification and correction of errors. A secondary objective is to provide a warehouse function for data that are not yet covered in a regional Data Exchange Format but that would be valuable for regional use. These data sets may not be standardized and are simply posted in their native formats so that they can be easily located and obtained. If these warehoused data are deemed to be of value for monitoring programs, then we would work with the data collectors to develop regional data standards and exchange formats.

4. For RPA 198, we cannot determine what the actual spending and deliverable is, apart from generally described cooperation and coordination and completing a needs assessment for priority subbasin data.

Development of a common data system will of necessity entail a collaborative effort among the data collecting field agencies and the data using entities. Total costs for RPA 198 will be highly influenced by the approach used to develop the common data system called for in the RPA. Major decisions such as the degree of centralization or decentralization, reliance on existing hardware or purchase of new hardware, at a centralized location or multiple distributed locations or

both will have major impact on the ultimate cost. We believe that during the next StreamNet Project fiscal year we will be able to work with the data collecting and using agencies to develop the concept and develop prototype applications utilizing staff and infrastructure currently contained in the base level StreamNet budget. The base level funding will need to include three months of time each for a programmer, GIS specialist and a biological data coordinator (to serve as a liaison with the data collecting agencies) that are not currently covered by the previous base level funding. These staff would be able to conceptualize, scope and develop a final plan for the database system as part of the new base portion of the StreamNet Project. This approach will also be able to incorporate regional database recommendations produced by the data needs and data inventory project currently contracted to SAIC by the Power Planning Council, with which StreamNet is participating.

5. Current data categories are limited to those established as part of the StreamNet mission. Region needs other data but guidance previously lacking.

We agree with this statement and have in the past requested regional guidance on which data are most desired. ISRP in their review of the database projects in 2000 characterized this problem as the fault not of the projects but of the region to provide guidance. We welcome the emphasis that will now be placed on identifying new information needs as part of the comprehensive monitoring program called for under RPA 180. New funding was requested this year in multiple data categories so that regional entities could help establish data priorities through the proposal review and authorization process. If data types are needed that are not included in the request, it will still be possible to identify them and fund them instead of lower priority data types. Specific guidance from the RM&E Workgroup would be greatly appreciated.

6. Data are not distributed but partial distribution through State StreamNet servers has been evaluated.

The exact meaning of this statement is somewhat unclear. StreamNet data are distributed widely through the project's online database and query system. If the comment refers to whether the StreamNet data system is itself a "distributed" system, at present it is not. Ultimately, the project could evolve in that direction, but this is only one possible database model, and decentralized systems have some drawbacks, including slower response times and more frequent down time. At present the fish management agencies that originate the data in our system lack the data management and computer systems necessary for them to manage and serve their own data as part of a regionally distributed system. StreamNet currently serves to bridge that gap by providing data management staff and services to the agencies and serving the data regionally through centralized servers in the project office. We encourage the agencies to move in this direction as agency commitment to internal data management increases.

7. Lacks 1:24,000 level data of interest to IRICC agencies – difference in mission.

All data in the StreamNet database are georeferenced to the 1:100,000 scale hydrography. At present, there is no finalized and regionally accepted 1:24,000 routed hydrography layer completed. When that is accomplished, we will begin evaluation of the need to migrate data to the finer scale. It is important to note that StreamNet data are primarily related to fish, and the fish data are collected nearly exclusively (more than 95%) on streams that are contained in the 1:100,000 scale. The few streams not contained in that layer are added, as necessary. Thus, there is no loss of data by using the 1:100,000 scale. Habitat related data, however, are more likely to be developed in smaller scale streams, and as more emphasis is placed on habitat related data, the need for the 1:24,000 scale hydrography will increase. We look forward to completion of the ongoing regional efforts to develop this scale hydrography, and will incorporate its use as dictated by the data we work with.

Also, while most data are at the 1:100,000 scale, the Oregon StreamNet Project recently prototyped cutthroat trout distribution in the Hood River subbasin at the 1:24,000 scale in conjunction with a separately funded project to develop 1:24,000 scale distribution for other salmonids throughout the anadromous zones of Oregon. This information is available through the ODFW FTP server and will soon be included in StreamNet's data warehouse.

8. Lack of NMFS in StreamNet may mean data are not standardized and cannot be exchanged with the StreamNet projects.

While NMFS was originally represented in the StreamNet Steering Committee, they were not directly involved as a data contributor to the project, and the NMFS representative simply dropped out. In recent years NMFS has participated in Steering Committee meetings that were publicly announced, but we do not have a representative formally assigned to the project. We feel that this is a significant lack, and would welcome a NMFS representative committed to working with the project, both to provide guidance and to serve as a liaison with NMFS.

However, we do not believe that the lack of a NMFS representative affects whether data in the StreamNet database are standardized (they are), or whether they can be exchanged with the StreamNet Projects. Since the StreamNet sub projects exist specifically to exchange data with the StreamNet database in a regionally standardized format, it is not clear what this statement is trying to convey.

If the concern is whether StreamNet data are standardized for exchange with NMFS, we can customize data output formats to fit NMFS needs. StreamNet developed a data system to specifically address NMFS TRT data needs in the Lower Columbia / Willamette that is compatible and syncable with the StreamNet data system.

9. NMFS proposing use of OWEB and PRISM restoration databases also.

StreamNet by its very nature is a collaborative project. OWEB and PRISM both contain data relevant to habitat restoration projects under their programs in their respective states, and as such, should be incorporated in any regional database system. StreamNet has already used OWEB and PRISM as data sources. However, there are additional sources of restoration project data, and these programs are not designed to serve other data types regionally as StreamNet is. The data from these and other sources also still need to be merged and standardized. We believe that there should be a role for a number of data projects under the umbrella of a comprehensive data management system. StreamNet is ideally situated to acquire data that are generated by the region's fish management agencies, and can work well with a variety of other state and federal agencies. We have been doing this for years, and have considerable experience with regional data distribution. We look forward to working with NMFS and the Action Agencies to develop a comprehensive approach with the appropriate roles spelled out.

10. NMFS' identified 30 tabular data layers might duplicate newly proposed StreamNet data layers and will need integration. Who serves the Region? StreamNet has no desire for unnecessary duplication of effort. A key consideration should be the origin of the data. StreamNet is ideally situated to capture, standardize and distribute data from the state and tribal fish management agencies, and can extend its efforts easily to state environmental and water agencies and the land management agencies. Where data are already made available over the web by the data originators, StreamNet would have a lesser or no role. We would be happy to sit down with NMFS and discuss what data are contained in these 30 data layers and determine how best to avoid unnecessary duplication, as well as how to facilitate the flow of information to NMFS for any additional layers that are needed.

In general, the RPAs related to the monitoring effort did not specifically address the needed data management and data delivery components. It may have been assumed that all of the data management elements were contained in RPA 198, but few details were provided regarding what kind of data system was envisioned. Data management does not just "happen", and needs to be integrated with data collection and data use. In the Columbia Basin, this involves a large number of separate agencies, and thus must be carefully coordinated among multiple data users and data collectors. Any data management system needs to incorporate two key elements: data content and data delivery. Content is largely determined by the data collecting entities reacting to expressed data needs, with advice from data managers on how to organize and handle the data. Without content, data delivery is superfluous. Data management projects, like StreamNet, are primarily skilled in data management and delivery, which constitute a specific discipline that is often underestimated in its complexity.

Because the necessary collaborative work among data users, data collectors and data managers to define data system approaches and desired capabilities has not yet taken place, it is difficult to clearly specify components and costs. The StreamNet Project stands ready to contribute its data management experience to the discussion, but is not able to propose a specific system and estimate total costs. This can be accurately done only after there is agreement on what data must be included in the system; who has the needed data and how available they are; whether the data already exist or new sampling will be necessary; if new sampling is necessary, who is best situated or authorized to collect specific kinds of data; what means the data collectors have to distribute their data (i.e., whether they have the capability of managing and posting data on the web); and what kind of regional data distribution approach is needed. StreamNet is proposing to use its base project funding, increased slightly to cover a full year each for its programmer, GIS specialist and biological data specialist, to work with the entities involved with RM&E to answer the above questions and help design an appropriate and effective database management system.

The July 22, 2002, review draft of the RM&E Workgroup's plan, titled Research, Monitoring and Evaluation for the 2000 FCRPS Biological Opinion, in section 3.5 describes the general components needed in a database management system. The time necessary to develop such a system will be considerable, so allowance needs to be made to maintain existing data delivery systems while the more comprehensive system is developed. The plan also specifically recommends incorporation of existing data centers, which need to receive continued funding support in order to be available to the larger effort.

The plan also presupposes that a distributed database management approach will be the most effective approach, but before reaching such a conclusion it would be wise to address the current capabilities of the data collecting agencies. Since many do not currently maintain their own database systems or online data distribution capability, they will not be able to participate in a distributed system without significant investment in staff and infrastructure. And, distributed systems are slower and less reliable due to the larger number of components. It will, then, be more cost effective and timely to allow for incorporation of more centralized data systems like StreamNet until such time as the agencies are more able to be linked directly into a regional system. The currently ongoing database evaluation project being conducted by SAIC under contract to the NW Power Planning Council should provide significant guidance on system needs and potential designs. Results from that effort should be incorporated in planning RPA 198 actions before making final decisions on system design and cost.

We agree with most of the other recommendations made in the plan, and offer the capabilities of our experienced database management, programming and GIS staff to work with the RM&E group, NMFS, the Action Agencies, and other data using entities, along with the data collecting agencies, in the conceptualization and

construction of the envisioned comprehensive approach to data management in the Columbia Basin.



StreamNet Project

BPA Project No.: 198810814

FY 2002 Work Statement

Bruce Schmidt, Pacific States Marine Fisheries Commission

Cooperators:

Phil Roger, Columbia River Intertribal Fish Commission; Bart Butterfield, Idaho Department of Fish and Game; Janet Hess-Herbert, Montana Fish Wildlife and Parks; Cedric Cooney, Oregon Department of Fish and Wildlife; Steve Pastor, U.S. Fish and Wildlife Service; and Dick O'Connor, Washington Department of Fish and Wildlife

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). It is funded primarily by the Bonneville Power Administration as part of its program to protect, mitigate and enhance fish and wildlife resources affected by the development and operation of hydroelectric facilities on the Columbia River and tributaries. Other funding has been obtained from agencies including the Environmental Protection Agency and the National Marine Fisheries Service. The Pacific States Marine Fisheries Commission administers the project.

Three fourths of the project consists of sub-projects within the state fish and wildlife agencies, Columbia River Intertribal Fish Commission and US Fish and Wildlife Service to develop databases within the respective agencies and facilitate data transfer regionally. In addition to administratively housing the StreamNet sub-projects, these cooperating agencies also contribute in kind support. The kind and amount of support varies between agencies. All agencies provide at least some salary support for their StreamNet Project Leader (1 month from CRITFC and ODFW, 3 months from IDFG, 8 months from MFWP, 10 months from FWS, and 12 months from WDFW). Several provide use of servers or other computer equipment and services that are not covered by charges for indirect costs. All contribute time by biologists and in some cases data entry staff to provide data to the project. MFWP provides \$65,000 worth of in-state travel, office space, computers and office supplies.

This document is the FY 2002 Work Statement for the StreamNet Project. Not all tasks identified in the Work Statement apply to all participating agencies. Each participating agency contributes work to a subset of the project tasks, with their responsibilities detailed individually for each task. The intent of this format is to provide clarity concerning the total activities addressing each project task and the role of each project participant. This combined Statement of Work covers Federal Fiscal Year 2002, from October 1, 2001 through September 30, 2002.

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. In stead, 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 more a change in organization than in 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.

<u>Table of Contents</u>	<u>Pg.</u>
Objective 1. Data Development and Update, Priority Data Sets.....	3
Objective 2. Data Development and Update, Other Data Sets.....	8
Objective 3. Data Management and Delivery.....	15
Objective 4. Library / Reference Services.....	23
Objective 5. Services to Fish and Wildlife Program Activities.....	25
Objective 6. Project Management / Coordination.....	29
StreamNet FY 2002 Budget.....	A-1

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.

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.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Date Due</u>	<u>Deliverable</u>	<u>Lead</u>
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.	Periodic	Updates to fish distribution data.	Murdock
MFWP	1	Complete Distribution and Use Types dataset 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.	1/02	Updated data set exchanged to regional database	S. Carson
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.	8/02	Information collected; updated data tables	S. Carson, J. Hutten
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).	8/02	Updated event data exchanged to region	Bowers
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.	As data are submitted from field staff.	Updated database	Herber
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.	As data are submitted from field staff.	Updated database	Cooney
Region	1	Assist data contributing agencies in development of data, including formatting, coding, data entry, error checking, and submitting to the regional database.	Ongoing, on Request	Assistance to data contributing agencies	Graves, Banach, Kinney
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	1/02	Updated local and regional databases	O'Connor

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>Date Due</u>	<u>Deliverable</u>	<u>Lead</u>
CRITFC	1	Update existing tribal escapement data through 2001	1/31/02	Updated escapement trend data sets exchanged	Forrest
CRITFC	2	Update mainstem Columbia and Snake River dam counts through 2001 and provide updated data to the StreamNet database.	3/02	Updated dam count data sets exchanged	Forrest
IDFG	1	Submit 1998, 1999, and 2000 field season redd count data.	12/01	Redd count data exchanged to region.	Murdock
IDFG	2	Compile year 2001 field season redd count data and submit to PSMFC.	4/02	Redd count data exchanged to region	Brown
MFWP	1	Complete input of 1999-2000 data, including trend, count and references; exchange to StreamNet.	12/01	Data submitted to StreamNet database	S. Carson, J. Hutten
MFWP	2	Collect all 2000-2001 survey data during field office visits.	4/02	Acquired data from field offices	S. Carson, J. Hutten
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.	9/02	Updated MRIS data set; data exchanged to StreamNet	S. Carson
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.	1/02, 5/02, & 9/02	Updated Oregon trends exchanged to region, three submissions planned	Hurn
Region	1	Assist data contributing agencies in development of data, including formatting, coding, data entry, error checking, and submitting to the regional database.	Ongoing, on Request	Assistance to data contributing agencies	Banach, Kinney
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).	8/02	Updated database and exchange to region	Woodard
WDFW	2	After the WDFW dam layer is in place, consult the biologists to scope and collect any existing dam and weir counts that might not already be captured in our on-going Adult Abundance collection.	9/02	Work plan, more adult abundance data if it exists.	Woodard

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.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Date Due</u>	<u>Deliverable</u>	<u>Lead</u>
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.	9/02	dbf file in PSC format 3.2 submitted to database	Pastor
FWS	2	For resident fish, explore availability of data relative to FWS facilities. Provide resident fish production and release data to PSMFC.	9/02	Exchange of resident fish data	Pastor
ODFW	1	Acquire specific release location information for select releases in the Willamette, Lower Columbia, or Sandy basins as available.	5/02	Release location data tied to RMIS release codes	Cooney, Gorman
ODFW	2	Investigate if Hatchery Release data can be acquired in an un-rolled format prior to it being submitted to RMIS.	5/02	Report on what information is available unrolled	Cooney
Region	1	Assist contributing projects with cross referencing PSC codes with LLID codes.	As needed	Provide assistance as requested	Graves
Region	2	Assist data contributing agencies in development of data, including formatting, coding, data entry, error checking, and submitting to the regional database.	Ongoing, on Request	Assistance to data contributing agencies	Banach, Kinney
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.	Ongoing	Generalized release locations (Supercodes) converted to specific LLID locations	Kinney
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.	13/01 & ongoing	Direct submittal updated anadromous database	Sikora
WDFW	2	Collect, convert and submit Joint Stock Assessment Project (JSAP) blocked area release data (1994-Present, Columbia River drainage above Chief Joseph Dam) per the expected format. See Job 3 for efforts in other areas.	2/02	Resident database developed (JSAP = Col R above Chief Joseph, 1995-present)	O'Connor, Burns
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 dataset relies upon improvements to our Lakes spatial layer first).	As possible	Resident database	Sikora
WDFW	4	Investigate the possibilities for digitizing points for fish release sites that occur away from a facility and tying the sites to the hatcheries habitually using the sites. This effort will involve tabular and spatial work and require a lot of coordination since the sites will include stream, lake, and marine areas.	TBD	Database & spatial layer developed	O'Connor, Hudson, Sikora

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>Date Due</u>	<u>Deliverable</u>	<u>Lead</u>
FWS	1	Compile FWS hatchery return data for FWS hatcheries and submit to the regional database	9/02	StreamNet HatchRet file	Pastor
IDFG	1	Submit 1998, 1999, and 2000 return season hatchery return data.	12/01	Hatchery return data exchanged to Region	Murdock
IDFG	2	Compile year 2001 return season hatchery return data and submit to PSMFC.	4/02	Hatchery return data exchanged to Region	Brown
ODFW	1	Compile data on returns to ODFW hatchery facilities (updated through 2000 returns where possible).	6/02	Updated return data exchanged to Region	Herber
Region	1	Assist data contributing agencies in development of data, including formatting, coding, data entry, error checking, and submitting to the regional database.	Ongoing, on Request	Assistance to data contributing agencies	Banach, Kinney
WDFW	1	Research, compile, convert and submit hatchery returns updates through 2000 in StreamNet data exchange format. This submission includes new data and corrects errors that were previously submitted for post -1995 data. Work further with WDFW's Hatchery Division to improve their original database source and collection procedures as an investment in future timely and accurate StreamNet updates.	11/01	Updated database exchanged to Region	Woodard

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.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Date Due</u>	<u>Deliverable</u>	<u>Lead</u>
IDFG	1	Submit dam facilities table in data exchange format to PSMFC.	1/02	Dams data exchanged to Region	Murdock
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..	1/02	Created data set and GIS coverage exchanged to Region	J. Hutten, K. Lindstrom
ODFW	1	Update, maintain, correct & exchange dam information (as part of Barrier database)	8/02	Database exchanged	Brodeur
Region	1	Assist data contributing agencies in development of data, including formatting, coding, data entry, error checking, and submitting to the regional database.	Ongoing, on Request	Assistance to data contributing agencies	Banach, Kinney
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.	3/02 & ongoing	WDFW tabular database and spatial layer developed and coordinated with StreamNet.	Sikora

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>Date Due</u>	<u>Deliverable</u>	<u>Lead</u>
FWS	1	Update hatchery facility records as needed, Update hatchery water records as needed. Update FWS data sets with 2001 data and submit to PSMFC	9/02	Updated Hatchery file	Pastor
IDFG	1	Submit hatchery facilities table in data exchange format to PSMFC.	1/02	Dams data exchanged to region	Murdock
MFWP	1	Update the StreamNet hatchery database with Montana's public and private facilities. Exchange with StreamNet upon completion.	12/01	Hatchery Facilities data exchanged to StreamNet	J. Hutten
ODFW	1	Incorporate temporary facilities that correspond to hatchery return data but are not yet in the data set.	7/02	New temporary facilities added to database	Herber
ODFW	2	Maintain hatchery facility records and update location information as available.	7/02	Updated location information	Brodeur
Region	1	Assist data contributing agencies in development of data, including formatting, coding, data entry, error checking, and submitting to the regional database.	Ongoing, on Request	Assistance to data contributing agencies	Banach, Kinney
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).	10/01 & ongoing	Updated database (& possible spatial layer)	Sikora

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.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Date Due</u>	<u>Deliverable</u>	<u>Lead</u>
CRITFC	1	Review ocean and mainstem Columbia River harvest data presently in the StreamNet databases and report findings to Steering committee	3/02	Report and recommendations provided to Steering Committee	Roger
CRITFC	2	Correct and update ocean and mainstem Columbia River harvest data as agreed to by Steering Committee	9/02	Updated harvest data sets exchanged	Forrest
ODFW	1	Compile and exchange updated and/or new tributary sport harvest data.	8/02	New and/or updated sport harvest data exchanged	Frazier
Region	1	Assist data contributing agencies in development of data, including formatting, coding, data entry, error checking, and submitting to the regional database.	Ongoing, on Request	Assistance to data contributing agencies	Banach, Kinney
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.	As possible	Possible updates to local and regional databases	O'Connor, Burns

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.

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	Date Due	Deliverable	Lead
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.	3/02, 9/02	Updated data set exchanged to Region	J. Hutten
ODFW	1	Maintain, correct and exchange existing restoration project information.	As needed	Corrected database exchanged to Region	Brodeur
Region	1	Assist data contributing agencies in development of data, including formatting, coding, data entry, error checking, and submitting to the regional database.	Ongoing, on request	Assistance to data	Banach, Kinney
Region	2	Coordinate with agencies and organizations involved with habitat restoration work in the Columbia Basin regarding data needs, standards and formats, storage and delivery. Work toward achieving regional consistency in restoration project data.	Ongoing	Coordinated regional data	Banach
WDFW	1	If new funding permits, finalize conversion of Washington's IAC's (Interactive Committee for Outdoor Recreation) PRISM database for WRIA 5 records and submit to StreamNet. Build an ArcView project file that incorporates Washington Salmon Recovery Funding Board data, basin -specific salmon habitat limiting factors (LFA) and potentially SaSI stock status. Assess if this tool allows managers to effectively compare relative expenditures (and the factors they intend to address) to identify priority issues in the basin and the utility of creating similar products for other basins.	As possible	TBD. Possible database and/or ArcView project	O'Connor, Sikora

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.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Date Due</u>	<u>Deliverable</u>	<u>Lead</u>
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.	3/02	Initial data collection completed, data exchanged to Region	J. Hutten, K. Lindstrom
ODFW	1	Update, maintain, correct and exchange adult migration barrier information.	9/02	Updated barrier data exchanged to region	Brodeur
ODFW	2	Update, maintain, correct and exchange anadromous and resident fish barrier data.	Ongoing	Updated Oregon barrier data	Bowers
Region	1	Assist data contributing agencies in development of data, including formatting, coding, data entry, error checking, and submitting to the regional database.	Ongoing, on request	Assistance to data	Banach, Kinney, Graves
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 Obj 1, Task 5, Job 1).	As possible	Review of barriers data, plan for future work	Unknown

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.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Date Due</u>	<u>Deliverable</u>	<u>Lead</u>
CRITFC	1	Seek to obtain tribal data on smolt abundance. Inform Steering Committee on data availability	9/02	Report to Steering	Forrest
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.	When	Report on progress toward development of juvenile trapping component.	Murdock
IDFG	2	Incorporate the General Parr Monitoring database into the IDFG/StreamNet Fish Information System and submit to PSMFC.	9/02	General Parr Monitoring data in exchange format or as stand alone database	Murdock
Region	1	Assist data contributing agencies in development of data, including formatting, coding, data entry, error checking, and submitting to the regional database.	Ongoing, on request	Assistance to data	Banach, Kinney
WDFW	1	As funding and time permits, collect and scope existing juvenile data to plan future conversion and submission efforts.	As possible	Plan for future efforts	Unknown

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>Date Due</u>	<u>Deliverable</u>	<u>Lead</u>
CRITFC	1	Survey member tribal fishery programs to determine availability and format of salmon age data. Inform Steering Committee on data availability	6/02	Report to Steering	Forrest
FWS	1	Update age and sex data through 2001.	9/02	Updated Age table	Pastor
IDFG	1	Compile year 2001 Age/Sex Composition data.	4/02	Age/Sex composition data exchanged to region	Brown
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.	4/02	Report on data availability to Steering Committee	S. Carson, J. Hutten
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.	4/02	Tested age dataset	Hurn
Region	1	Assist data contributing agencies in development of data, including formatting, coding, data entry, error checking, and submitting to the regional database.	Ongoing, on request	Assistance to data	Banach, Kinney
WDFW	1	Research, compile, convert and submit age data for natural spawner data (salmon and steelhead) in one prototype subbasin (probably Lower Columbia R). This effort is to assess any problems with the existing 2001.1 format, standardization with any other agencies' data already submitted to StreamNet, and plan for further data submittals.	4/02	Database for one test subbasin and future work plan.	Sikora, Woodard

Objective 2 Data Development and Updates, Other Data sets

Task 5 Production factors and run reconstruction

Develop and maintain information on survival, production factors, spawner / recruit estimates, and run reconstruction. This is currently a low priority, but the existing spawner / recruit estimate data will be maintained.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Date Due</u>	<u>Deliverable</u>	<u>Lead</u>
Region	1	On an opportunistic basis, acquire production and run reconstruction data from developing entities if any become available.	Whenever available	New data in database or on web site	Banach

Objective 2 Data Development and Updates, Other Data sets

Task 6 Habitat

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

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Date Due</u>	<u>Deliverable</u>	<u>Lead</u>
ODFW	1	Incorporate applicable stream and watershed level habitat data, as these become available	As available	Updated data	Bowers
Region	1	Coordinate with regional entities on habitat data needs and availability. Begin developing an approach toward capturing high priority data types. New development of habitat data may require additional resources.	Ongoing	Agreement with regional entities on what data will be captured, by whom and when. Available data sets posted on web site.	Schmidt
WDFW	1	As time and funding permits, scope available data source and develop a future work plan.	As possible	Plan for future efforts	Unknown

Objective 2 Data Development and Updates, Other Data sets

Task 7 Genetics

Develop and maintain information on genetic information and data sources for areas where genetics data exist. Efforts this year will concentrate on organizing existing information, and then working on a Data Exchange Format.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Date Due</u>	<u>Deliverable</u>	<u>Lead</u>
CRITFC	1	Develop prototype genetics data application using CRITFC genetic data.	12/01	Prototype reporting application submitted to SC	Forrest
MFWP	1	Obtain results from genetic analysis from the University of Montana Genetics Lab for sampled populations of Montana's species of special concern.	Quarterly	Updated data in MRIS only; no exchange format yet	S. Carson
MFWP	2	Update fish distribution table when new genetic samples affect fields/records.	Quarterly	Updated data	S. Carson
MFWP	3	Exchange data to the StreamNet regional database when a DEF is approved by the Steering Committee.	When DEF is developed	Genetics data exchanged to StreamNet	J. Hess-Herbert
Region	1	Assist data contributing agencies in development of data, including formatting, coding, data entry, error checking, and submitting to the regional database.	Ongoing, on	Assistance to data request	Banach, Kinney

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>Date Due</u>	<u>Deliverable</u>	<u>Lead</u>
CRITFC	1	Work with Oregon Technical Support Team (when funded and formed by NWPPC) to obtain existing data in electronic format	9/02	Data, currently is in electronic form, to region	Forrest
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	9/02	Data entry and editing applications	Forrest
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.	Ongoing	Coordination with subbasin planners	J. Hess-Herbert
Region	1	Participate in regional discussions on Subbasin Planning to identify data that may become available through the planning process. As data are identified, begin development of data standards and formats, and processes to effectively acquire the data without duplication of effort.	Ongoing, opportunistic	Plans for acquiring data sets produced by Subbasin Planning, and draft data standards	Schmidt, Banach
WDFW	1	Assist regional staff with Washington Subbasin data as time allows.	On request	Assistance	O'Connor

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>Date Due</u>	<u>Deliverable</u>	<u>Lead</u>
ODFW	1	Pursue supplemental datasets on an opportunistic basis consistent with StreamNet direction.	Opportunistic	Supplemental data sets available on line	Herber
Region	1	Assist in acquiring data sets from other entities where the data would be useful in relation to the fisheries data available in the StreamNet database and for regional planning and management needs. Initial efforts may be only exploratory in nature, and will only be pursued within existing resources and as data become available	Ongoing, opportunistic	Knowledge of available data sets, and acquired data sets posted on the StreamNet web site in original format.	Banach
WDFW	1	Work with participants in the Blocked Area Resident Fish Stock Status Project to obtain copies of their fish sampling data. Assess the "fit" to existing StreamNet data exchange formats. Convert and submit data as appropriate.	6/02	Data acquired, 'fit' to DEF assessed	O'Connor, Burns

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>Date Due</u>	<u>Deliverable</u>	<u>Lead</u>
ODFW	1	Exchange carcass placement report 'as is' for 1999 placement efforts.	7/02	Carcass Placement report exchanged to region	Hurn
Region	1	Assist data contributing agencies in development of data, including formatting, coding, data entry, error checking, and submitting to the regional database. This data category is currently a low priority. Priority may increase if management agencies increase their efforts in developing these data.	Ongoing, opportunistic	Acquisition of data sets	Banach
WDFW	1	As time and funding permits, scope available data source and develop a future work plan.	As possible	Plan for future efforts	Unknown

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>Date Due</u>	<u>Deliverable</u>	<u>Lead</u>
IDFG	1	Begin design and development of incorporation of population status and legal designation into the IDFG/StreamNet Fish Information System.	9/02	Report to Steering Committee on design and progress	Murdock
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.	ongoing	Links to other websites	J. Hess-Herbert
Region	1	Assist data developers on an as needed basis. Currently a low priority	On request	Assistance to data	Banach
WDFW	1	If time permits and a spatial update of existing SaSI information occurs during the year, propose and test a means to share both tabular and spatial information with the regional StreamNet database.	As possible	Plan for future efforts	O'Connor, Burns

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>Date Due</u>	<u>Deliverable</u>	<u>Lead</u>
IDFG	1	Work with IDFG biologists to incorporate other data sets into the IDFG/StreamNet Fish Information System. This task will be dependent on the time available after completion of higher priority tasks and on the opportunistic collaboration of non-StreamNet IDFG projects.	9/02	Report to Steering Committee on progress.	Murdock, Butterfield
ODFW	1	Update, maintain, correct and exchange photographic information (MapCat and related tables).	6/02	Updated photographic database exchanged to region	Brodeur
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.	3/02	New data compiled and exchanged	Frazier, Hurn
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.	8/02	New data compiled and exchanged	Frazier, Hurn
Region	1	Advise and assist data developers with other data sets not currently in the StreamNet system. Low priority and within current resources only.	On request	Assistance or advice to data developers	Banach, Graves, Kinney

Objective 3 Data Management and Delivery

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

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.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Date Due</u>	<u>Deliverable</u>	<u>Lead</u>
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.	Ongoing	Continued function of data system	Butterfield
IDFG	2	Begin design and collection of barrier component in IDFG/StreamNet Fish Information System. At current funding levels this task will be of lower priority than fish data components and progress will depend on completion of objective 1 tasks.	As possible	Report on progress toward development of barrier component.	Murdock
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.	Ongoing	well-coordinated data management systems	J. Hess-Herbert, all staff
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.	Ongoing	Functional tabular	Herber
Region	1	Locate and evaluate data obtained by the precursor projects to StreamNet (CIS and NED), including floppy disks and hard copy reports. Determine the types of data that are available in each format and how much are already included in StreamNet. Determine the feasibility and value of reclaiming lost data and the workload required. Prepare a report making recommendations to the Steering Committee for the possible inclusion of those data not already included in StreamNet.	4/02	Report on work required to recapture CID/NED data.	Banach
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 .	Ongoing	Functional and improved database servers and software	Kinney
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.	Ongoing	Tabular databases, spatial coordinat ion, descriptions of data exchanged, functional database system	Sikora, Woodard

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	Date Due	Deliverable	Lead
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.	Ongoing	Continued function of the GIS	Butterfield
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.	Ongoing	Report on progress.	Graham, Hatton, Butterfield
MFWP	1	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.	Ongoing	functioning GIS system	J. Hess-Herbert, all staff
MFWP	2	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.	Ongoing	Functioning hydrography	S. Carson, J. Hutten
ODFW	1	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.	Ongoing	Functional GIS program within ODFW	Bowers
Region	1	Assist the database manager, as needed, with the spatial component of data and its implementation online.	Ongoing	Sound spatial component of the StreamNet database	Graves
Region	2	Integrate the functioning of the GIS system with the StreamNet fisheries and habitat database in support of the query system. Maintain up-to-date cross tables used via the StreamNet web interface to select information by geographic area.	Ongoing	Online delivery of databy geographic criteria	Graves
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.	Ongoing	Functional regional GIS system	Graves
Region	4	Maintain a library of StreamNet GIS layers for internal use and as downloadable data on the web site with complete documentation (metadata).	Ongoing	GIS data library and documentation (metadat a) available on StreamNet website	Graves
Objective 3 Region	Task: 2 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.	11/7/01 Ongoing	1:100,000 hydrography layer and documentation available for project use and	Graves

on line

Region	6	Rebuild LLID-based stream route system on the National Hydrography Dataset hydrography for Western Montana (this work is complete for ID, OR, WA).	3/01	Completed crosswalk between the LLID & NHD systems which will allow data conversion by the StreamNet project and other data users.	Graves
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.	Ongoing	Spatial Layers, tabular coordination, descriptions of data exchanged, functional GIS system	Hudson

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.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Date Due</u>	<u>Deliverable</u>	<u>Lead</u>
IDFG	1	Review and update entire hatchery return dataset, in order to ensure the proper past assignment of trend definitions, location identifiers, accurate counts, and disposition codes.	9/02	New and improved hatchery return data set.	Brown
IDFG	2	Review and update entire redd count dataset, in order to ensure the proper past assignment of trend definitions, location identifiers, and accurate counts.	9/02	New and improved redd count data set.	Brown
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.	Ongoing	New routes submitted to PSMFC.	Graham, Hatton
ODFW	1	Work with regional staff as necessary to assure seamless loading of data into the regional database. into regional database	Ongoing	Data submitted and loaded	Bowers, Herber
Region	1	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.	Ongoing	Data with sound spatial referencing available on the StreamNet web site	Graves

Objective 3	Task: 3	11/7/01			
Region	2	Update hatchery releases database with data from the Regional Mark Information Center and directly from state agencies where information is available in either StreamNet data exchange format or a modified PSC data exchange format without	Ongoing	StreamNet hatchery release data as current as possible.	Kinney

rolling CWT release records into single records by tag code. Reconcile known redundancies in the hatchery release table resulting from acquisition of data from multiple sources.

Region	3	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.	Ongoing	Maintain StreamNet databases	Kinney
Region	4	Examine the StreamNet database for errors and report any found to the appropriate entity for correction.	Ongoing	List of database errors encountered. Eventual database corrections.	Banach, Kinney
Region	5	In order to modernize existing data sets, begin converting the georeferencing for the Protected Areas and Smolt Density Model data from river reach numbers to LLIDs.	3/02	Updated, more accurate, standardized, and mappable locations for Protected Areas and Smolt Density Model data.	Graves
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.	Ongoing	Exchange follow-up as needed.	Sikora, Hudson

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.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Date Due</u>	<u>Deliverable</u>	<u>Lead</u>
CRITFC	1	Review and comment on DEF issues brought to the Steering Committee	Ongoing	Comments on DEF issues via Steering Committee	Forrest, Roger
CRITFC	2	Propose a draft DEF for genetics data to the Steering Committee, based on the application and comments received under Obj. 2, Task 7, job 1. Work with MFWP on development of the draft.	5/02	Draft DEF	Forrest
FWS	1	Review and comment on DEF issues brought to the Steering Committee	Ongoing	Contribution to SC review of DEF	Pastor
IDFG	1	Working with the StreamNet Steering Committee, maintain and enhance the data exchange standards as needed.	Ongoing	Input to DEF	Butterfield

Objective 3	Task: 4	11/7/01			
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.	ongoing	Reviewed DEFs	S. Carson, J. Hess-Herbert

MFWP	2	Work with CRITFC to develop a draft DEF for genetics data for adoption by the Steering committee	5/02	Draft DEF for genetics data to Steering Committee	J. Hess-Herbert
MFWP	3	Work with Regional StreamNet staff and Steering Committee to create a Data Exchange Format for Distribution and Use Type.	12/01	DEF proposed to Steering Committee and adopted	J. Hess-Herbert
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.	Ongoing	Updated and agreed upon DEFs	Cooney
ODFW	2	Develop and propose a DEF for screening data.	2/02	Draft DEF submitted to Steering Committee	Brodeur
Region	1	Assist with the design and implementation of data exchange standards as they relate to the spatial aspect of data in the StreamNet database.	Ongoing	Sound formats for spatial referencing of data	Graves
Region	2	Create a Data Exchange Protocol document that explains the process of developing and exchanging data to the StreamNet database.	4/02	Data Exchange Protocol document	Kinney
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.	Ongoing	Reduce confusion and enhance accessibility to data references	Kinney
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.	5/02	Updated Data Exchange Format	Banach
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.	5/02	White paper on DEF simplification	Banach
Region	7	Assist with development of XML schema based data exchange option for both incoming and outgoing data.	Ongoing	Enhanced function of data exchange process	Kinney
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.	Ongoing	DEF proposals & feedback. Metadata.	Varies
WDFW	2	Develop a revised DEF for Hatchery Return data and propose to Steering Committee	1/02	Proposed DEF submitted to Steering Committee for adoption	O'Connor

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.

Project	Job	Planned work elements	Date Due	Deliverable	Lead
ODFW	1	Recommend and/or take part in review of new products and features. Provide feedback on content, suitability, navigability and data currency issues.	Ongoing	Recommendations to regional staff	All staff
ODFW	2	Work with Regional StreamNet staff to link the StreamNet website to available Columbia River fisheries information (including Columbia River 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.	4/02	URL's & text to PSMFC	Frazier
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.	2/02	Summary submitted to PSMFC	Frazier
ODFW	4	Manage and maintain the ODFW Natural Resources Information Management Program website and it's links to StreamNet..	Ongoing	Website maintenance and links to www.streamnet.org	Brodeur
Region	1	Maintain the GIS Data, Map, and PNW Reach File internet pages.	Ongoing	Up-to-date GIS and hydrography information available on line	Graves
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.	3/01	Internet mapping	Graves, Wilke
Region	3	Maintain and enhance the look and usability of the current web-based query	Ongoing	Functional and enhanced query capability	Wilke
Region	4	Develop and test a new and enhanced web-based query system based on a more open and flexible programming environment (Cold Fusion).	Beta version by 3/31/02	New query system.	Wilke
Region	5	Deploy features of the new flexible query system as components are approved by the Steering Committee	As approved	New query system features operational	Wilke
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.	Ongoing	Administration of web	Kinney
Objective 3	Task: 5		11/7/01		
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.	Ongoing	Improved web query system	Banach
Region	8	Complete review of the existing StreamNet HTML pages. Decide which pages to	6/02	Completed major revision of	McGill

		archive and delete, which to include in the StreamNet web site, and which to modify for inclusion in the StreamNet web site.		the StreamNet web site	
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.	Ongoing	Feedback	Varies

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.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Date Due</u>	<u>Deliverable</u>	<u>Lead</u>
CRITFC	1	Provide support services to CRITFC staff working on interagency information issues, as needed	Ongoing	Report on services provided	Forrest
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.	Ongoing	User interfaces, local and central databases, and transfer of information.	Butterfield, Murdock
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.	Ongoing	Functioning interfaces, and data received	S. Carson
MFWP	2	Explore creating a complete user interface for MFWP biologists, preferably a web based system; standardize look-up tables across the state.	04/02	Decision on whether to develop interface	J. Hess-Herbert, S. Carson
MFWP	3	Maintain 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.	Ongoing	Functioning interfaces	S. Carson, J. Corbin, J. Hutten
Region	1	On an as-needed basis, update or develop tools to assist with data entry and data management. Assist StreamNet data compilation agencies with trouble-shooting, modification, or development of data input interfaces. Tools might include input interfaces, error checking routines, geographic locators, etc.	As needed	New and updated data input tools.	Wilke
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.	Ongoing	Internal tools and procedure instructions, external feedback	Brown, Hudson, Sikora

Objective 3 Task: 6

11/7/01

Page 21 of 32

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.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Date Due</u>	<u>Deliverable</u>	<u>Lead</u>
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.	Ongoing	Filled requests, responses summarized in quarterly reports.	Graham, Brown, Butterfield
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.	Ongoing	satisfied customers	all staff
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.	Ongoing	Summaries in quarterly reports	All staff except Gloria
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.	Ongoing	Satisfied requests	Banach
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.	Ongoing	Filled requests for maps, data reports, data files	Varies

Objective 4 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

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.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Date Due</u>	<u>Deliverable</u>	<u>Lead</u>
CRITFC	1	Coordinate source material submissions for data compiled by participants.	9/02	Updated catalog of materials	Oftedahl
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 & unpublished materials as requested by clients.	9/02	Updated, expanded collection of materials.	Oftedahl
CRITFC	3	Maintain and develop a collection of journals related to fisheries and aquatic sciences as well as other related scientific topics.	Ongoing	Current collection of journals available to library users	Liberty
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.	12/01, then monthly	Updated reference table	Oftedahl, Kinney
MFWP	1	Update the StreamNet library with references and publications from the Fisheries Division Library on an annual basis.	date to be determined	CD of new data to the SN Library	J. Hess-Herbert
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 SN Library	12/01	Updated references submitted to StreamNet Library	S. Carson
ODFW	1	Update library bibliography of ODFW, Fish Commission, and Game Commission reports with historic and current publications.	Ongoing	Updated bibliography	Bourne
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.	Ongoing	Documents	Hurn
ODFW	3	Organize and submit to the StreamNet library all references related to the data developed under Objectives 1 and 2.	Ongoing	Reference material to StreamNet Library	Cooney
Region	1	Work with the StreamNet Library to search the library holdings for non-durable electronic reference materials (mainly floppy disks). Archive any files found on CD. Print hard copies if appropriate.	12/01	CDs with information saved from eventual deterioration.	Banach, Oftedahl
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.	On-going	Documents and files sent to library per guidelines	Varies

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>Date Due</u>	<u>Deliverable</u>	<u>Lead</u>
CRITFC	1	Provide and maintain an appropriate facility for the storage and public use of the StreamNet Library collections.	9/02	Library open to public	Oftedahl
CRITFC	2	Catalog and organize the materials for ease of use by clients and staff.	9/02	Current catalog of materials	Oftedahl
CRITFC	3	Provide access to the catalog of materials via the Internet and update the online catalog on at least a monthly basis.	9/02	Updated website and	Oftedahl
CRITFC	4	Develop and execute a plan to place electronic documents in the catalog and on the library website.	9/02	Access to electronic documents	Nock
CRITFC	5	Develop and keep schedule of open times and reference desk staff hours.	9/02	Availability of staff	Nock

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>Date Due</u>	<u>Deliverable</u>	<u>Lead</u>
CRITFC	1	Provide information and reference services to library clients	9/02	Information provided as requested	Nock
CRITFC	2	Provide information about services and hours to library clients via print and	9/02	Updated website and brochure	Oftedahl
CRITFC	3	Provide interlibrary borrowing services for library patrons to access materials not yet owned by the StreamNet Library.	9/02	Information	Nock
CRITFC	4	Provide access to hardcopy and electronic files of draft and final documents related to subbasin planning and the NPPC amendment process.	9/02	Current collection	Oftedahl, Nock
CRITFC	5	Identify changes and new features that will improve delivery library services	9/02	Recommendations to improve delivery of services	Oftedahl, Nock, Liberty
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.	8/02	Updated Library information system	Herber, Bourne
ODFW	2	Respond to requests for ODFW documents and other source materials through the ODFW Library.	@ request	Filled requests	Bourne

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	Date Due	Deliverable	Lead
CRITFC	1	Provide interlibrary lending services for other libraries to access the library's unique collection	9/02	Material circulation	Nock
CRITFC	2	Maintenance of memberships in appropriate library and subject-related associations. Ex. IAMSLIC, NRIC, OFWIM, etc.	9/02	Presentations, reports, professional development	Oftedahl
CRITFC	3	Provide consultations for groups and other agencies on library organization and services.	9/02	Services as requested, detailed in reports	Oftedahl
CRITFC	4	Coordinate with other StreamNet libraries, library clients and other libraries to improve service to clients and limit duplication of effort.	9/02	Improved services	Oftedahl
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	9/02	Recommendations to Steering committee	Oftedahl, Nock
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.	5/02	Index of documents.	Bourne
ODFW	2	Coordinate with the Oregon State Library system to enhance access to published periodicals, journals, and other documents for StreamNet users.	Ongoing	Regular communication & Coordination	Bourne

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

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.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Date Due</u>	<u>Deliverable</u>	<u>Lead</u>
CRITFC	1	Provide described services to CRITFC staff working on subbasin planning and NMFS' TRT groups	Ongoing	Report on services provided	Forrest
IDFG	1	Provide data and related assistance to subbasin planning efforts in Idaho. IDFG has the lead role in a number of subbasins and we will provide support services, including tabular reports and GIS services to these subbasins.	Ongoing	Services provided, activities reported in progress reports.	Butterfield, Brown, Graham
MFWP	1	Work with Montana's CBFWA representative involved with subbasin planning and provide data, map products and assistance as needed.	Ongoing, on request	Requested products	J. Hess-Herbert, J. Hutten
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)	As requested	Assistance	Cooney, Bowers, Herber
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.	On request	Maps and data provided to planners	Graves
Region	2	Assist subbasin planners with the use of the StreamNet database system, including GIS data and the spatial component of the StreamNet database.	On request	Data flow to subbasin planners	Banach, Graves
WDFW	1	Participate in Subbasin planning meetings and provide data and advice as needed.	As requested	Assistance	O'Connor

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.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Date Due</u>	<u>Deliverable</u>	<u>Lead</u>
CRITFC	1	Work with NMFS, NWPPC and subbasin planning groups to identify M&E needs and plans	ongoing	Report of activities	Roger
Region	1	Participate in regional discussions of Monitoring and Evaluation to coordinate the use of StreamNet data in support of M&E efforts.	On request	Contribution of SN data and services to M&E activities	Schmidt
WDFW	1	Provide input as needed on database and format issues.	As requested	Recommendations	O'Connor

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.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Date Due</u>	<u>Deliverable</u>	<u>Lead</u>
CRITFC	1	Participate on Regional Data Management Committee and other groups to improve data management in the region	Ongoing	Report of activities and progress to the SC	Roger
ODFW	1	Participate in discussions and offer solutions related to Columbia River Basin database management and information distribution issues, as needed.	As requested	Assistance	Cooney
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.	Opportunistic	Contribution to regional data management efforts	Schmidt
Region	2	Utilize the Systemwide Project Review process to recommend effective and cost-efficient approaches for meeting regional data needs. This will be done through project presentations and through development of issue papers that evaluate various aspects of data management in the basin.	3/02	Recommendations incorporated in the final project review	Schmidt
WDFW	1	Participate in discussions and offer solutions related to Columbia River Basin database management and information distribution issues as needed.	As requested	Support	O'Connor

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.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Date Due</u>	<u>Deliverable</u>	<u>Lead</u>
MFWP	1	Be available to Montana entities as a source of information and assistance for capturing F&WP-related data, as needed.	Opportunistic	Data sets identified and obtained	J. Hess-Herbert, J. Hutten
Region	1	Research and obtain resident fish data sets developed by BPA-funded projects. Where data are of a type similar to StreamNet data types, work with project sponsors to capture data in StreamNet format and enter into the StreamNet database. Where data are of a different type, work with project sponsors to identify the best means to post useful data in an archive format 'as is.'	12/01, then ongoing	Resident fish data in StreamNet database or posted as an archived data set in original format.	Banach
Region	2	On opportunistic basis, work with other F&WP projects to assist with archiving useful regional data sets.	Opportunistic	Archived data sets available on line	Schmidt
WDFW	1	Be available to Washington entities as a source of information and assistance for capturing F&WP-related data, as needed.	Opportunistic	Assistance in archiving data	O'Connor

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.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Date Due</u>	<u>Deliverable</u>	<u>Lead</u>
CRITFC	1	Assist in providing services as requested and as time and budgets allow	Ongoing	Reports to SC on services provided	Forrest
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.	Ongoing	Assistance provided, summarized in progress reports.	Butterfield
MFWP	1	Data services will be provided by Montana StreamNet staff, on request.	Ongoing	Data services provided	all staff
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.	As requested	Technical assistance	Cooney
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.	Ongoing	Assistance provided	Banach, Graves
WDFW	1	Generate maps, data reports, and electronic copies of data sets as requested by F&WP project staff, within existing project capabilities.	Ongoing	Filled requests for maps, data reports, data files.	Varies

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 dataset, b) archive the official version as a historic record, and c) in consultation with the Council, respond to requests for information concerning Protected Areas

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Date Due</u>	<u>Deliverable</u>	<u>Lead</u>
MFWP	1	Exchange Montana's Protected Area database, which has been converted to LLID stream routing.	11/01	Routed database exchanged to Regional StreamNet	J. Hess-Herbert
Region	1	Maintain the Protected Areas database within the StreamNet database	Ongoing	Protected Areas data available in query system	Kinney

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.

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.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Date Due</u>	<u>Deliverable</u>	<u>Lead</u>
CRITFC	1	Attend and participate in Steering Committee meetings	Ongoing	Attendance and participation in discussions	Roger, Oftedahl
CRITFC	2	Effectively administer the CRITFC StreamNet project	Ongoing	Contract administration	Roger
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.	Ongoing	Project administration performed	Pastor
IDFG	1	Prepare budgets, work statements, and progress reports	Quarterly and Annually	Required reports submitted to PSMFC	Butterfield
IDFG	2	Provide project management and staff supervision for IDFG StreamNet.	Ongoing	Project supervised	Butterfield
IDFG	3	Participate in Steering Committee activities, including Steering Committee meetings, project direction, and data exchange format development.	Ongoing	Participation in Steering Committee activities	Butterfield
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.	Ongoing	Staff development	Butterfield
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.	As defined in job	Quarterly and annual reports; meeting attendance.	J. Hess-Herbert
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.	Ongoing	Participation in SC meetings, prompt project oversight	Cooney
Region	1	Project Administration: Perform ongoing administration of the StreamNet project, to include budget development and tracking, contract monitoring, personnel functions, inventory control, etc.	Ongoing	Functional project	Schmidt
Region	2	Reporting: Submit quarterly 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.	Quarterly, and 12/31/02	Reports	Schmidt

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.	Ongoing	Effective guidance and coordination with Steering Committee	Schmidt
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).	Ongoing	Steering Committee participation, quarterly and annual reports, budgets, SOW	O'Connor, Sikora
WDFW	2	The state coordinator and state data manager will jointly manage all aspects of StreamNet in WDFW, including budget, personnel, work scheduling, and product delivery.	Ongoing	Effective project	O'Connor, Sikora

Objective 6 Project Management / Coordination

Task 2 Participate in Fish and Wildlife Program development activities

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

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Date Due</u>	<u>Deliverable</u>	<u>Lead</u>
CRITFC	1	Work with NWPPC and related agency staffs to improve data management services to the region	Ongoing	Reports to Steering Committee	Roger
MFWP	1	Provide services as requested	Ongoing	Requested services	J. Hess-Herbert, staff
Region	1	Work with regional entities to contribute data management expertise with development of activities within the scope of the Fish and Wildlife Program.	On request	Input and assistance to F&WP	Schmidt
WDFW	1	Assist in any pertinent coordination efforts.	Opportunistic	Assistance	O'Connor

Objective 6 Project Management / Coordination

Task 3 Coordinate with other related activities

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.

<u>Project</u>	<u>Job</u>	<u>Planned work elements</u>	<u>Date Due</u>	<u>Deliverable</u>	<u>Lead</u>
CRITFC	1	Work with NMFS and non F&WP agency staffs to improve and provide data management services to the region	Ongoing	Reports and recommendations to SC	Roger
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.	Ongoing	Coordination with related projects/activities	Butterfield
MFWP	1	Maintain communication between state and regional entities	Ongoing	Communication	J. Hess-Herbert
ODFW	1	Establish / maintain working relationships with data collection projects within and outside ODFW to promote efficient and beneficial data sharing.	As needed	Enhanced data flow into StreamNet	Cooney
Region	1	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.	Ongoing	Project proposals	Schmidt
WDFW	1	Assist in any pertinent coordination efforts.	Opportunistic	Assistance	O'Connor

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>Date Due</u>	<u>Deliverable</u>	<u>Lead</u>
CRITFC	1	Prepare and present demonstrations and descriptions of the library services available through StreamNet	Ongoing	Reports on activities to Steering Committee	Oftedahl
IDFG	1	Where appropriate, participate in public or private meetings and forums to represent StreamNet and IDFG. Produce reports, maps, or other materials in support of or for dissemination of StreamNet information.	Opportunistic	Public awareness of the StreamNet project and capabilities	Butterfield
MFWP	1	Determine if Montana needs any publications, documents and produce them if needed. Review regional products when necessary.	Ongoing	Review	J. Hess-Herbert
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.	As needed	Published articles, and presentations	All staff
Region	1	Prepare and deliver presentations to scientific and professional meetings to demonstrate project capabilities and accomplishments and to solicit additional data and involvement or coordination with the project. Expected results would be enhanced visibility for the project, increased participation and data flow from agencies, improved coordination, and avoided duplication of effort.	Opportunistic	Presentations	Staff
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.	As needed	Materials for distribution	Schmidt
WDFW	1	Participate as opportunities arise to highlight StreamNet programs & data. Report key contacts and results to Regional Project Manager to keep Manager apprised on opportunities pursued in Washington state.	As needed	Participation, information materials, reports	O'Connor

Appendix A

FY 2002 StreamNet Budget

StreamNet Project, FY 2002 Budget

A. Personnel	<u>Detail</u>	<u>No.</u>	<u>Rate</u>	<u>Amount</u>	<u>Totals</u>
Program Manager		12	6,112.05	\$73,345	
Database Manager		12	5,675.43	\$68,105	
Biological Data Coordinator		9	4,073.54	\$36,662	
GIS Specialist		9	3,594.15	\$32,347	
Programmer/Analyst		9	4,023.58	\$36,212	
	Subtotal			<u>\$246,671</u>	
Fringe Benefits			38.00%	\$93,735	
Total Personnel				<u>\$340,406</u>	\$340,406
B. Travel					
Airfare	Person-trips to Helena	4	500		
	Person-trips to Boise	6	400		
	Trip to Sacramento	1	300		
	Person-trips to Seattle	2	<u>300</u>		
				\$5,300	
Per Diem	Person-nights hotel expense	25	80		
	Days meals	40	34		
	Incidental expenses		<u>250</u>		
				\$3,610	
Vehicle Rent	20 days @ \$45			\$900	
Mileage	2,000 mi @ \$0.345			\$690	
Misc. - parking, etc.				\$500	
Total Travel				<u>\$11,000</u>	\$11,000
C. Services and Supplies	<u>Details</u>				
Office Supplies	Includes paper, pens, office items, computer supplies (printer/plotter paper & inks, diskettes, writable CDs), etc.	12	250	\$3,000	
Office Lease	Office space, by person-month	12	1,600	\$19,200	
Postage		12	50	\$600	
Communication	Phone expenses	12	250	\$3,000	
Photocopier		12	100	\$1,200	
Training	Intermediate Visual Basic		250		
	Customizing ArcIMS		1,200		
	Building XML Applications, SQLServer		1,275		
	ESRI seminars		<u>500</u>		
				\$3,225	
Data Processing Services	PSMFC computer services, including: Share of T-1 line Network administration Web page development & support PC support & maintenance			\$81,875	

Software	Arc/Info	3,000	
	Grid/ Spatial Analyst	500	
	ArcPress	200	
	ArcIMS	2,500	
	Cold Fusion 4.5 Studio	538	
	Windows Server 2000 for Kisutch	513	
	Windows Server 2000 for Keta	513	
	Delpi 6 Pro upgrade	<u>385</u>	
			\$8,149
Meeting expenses			\$605
Publications	Advisor magazine		\$225
Total Services/Supplies			<u>\$121,079</u>
D. Capital Outlay (>\$3000)			\$0
Total Capital Outlay			\$0
E. Total Direct Cost			\$472,485
F. Indirect Cost (A through C X rate)		0.15	\$70,873
G. Total Cost, PSMFC StreamNet			<u><u>\$543,358</u></u>
H. Subcontractors			
	Columbia River Intertribal Fisheries Commission		\$390,345
	Idaho Department of Fish and Game		\$242,394
	Montana Department of Fish, Wildlife and Parks		\$155,307
	Oregon Department of Fish and Wildlife		\$383,963
	U. S. Fish and Wildlife Service		\$17,130
	Washington Department of Fish and Wildlife		\$353,760
	Subtotal: Subcontractor Services		<u>\$1,542,899</u>
	PSMFC Administrative Overhead	2%	<u>\$30,858</u>
Total Subcontractor Services			<u><u>\$1,573,757</u></u>
I. Total StreamNet Project			\$2,117,115

Notes:

The GIS Specialist, Biological Data Coordinator, and Programmer are only 9 months on BPA contract
Contract programming costs have been eliminated

Columbia River Intertribal Fish Commission StreamNet Project, FY 2002 Budget

A. Personnel	<u>Detail</u>	<u>Number</u>	<u>Rate</u>	<u>Amount</u>	<u>Totals</u>
Project Manager		2	5,776	11,552	
Programmer		11	3,903	42,933	
Librarian		12	3,930	47,160	
Ass't. Librarian		9	3,290	29,610	
Library Tech		12	2,250	27,000	
	Subtotal			158,255	
	Fringe Benefits		31.50%	49,850	
	Total Personnel			208,105	\$208,105
B. Travel					
Airfare	2-Boise @ \$255; 1-Kalispell @ \$515			1,025	
Per Diem	8 nights @ \$55; 12 days @ \$30			800	
Vehicle Rent	10 days @ \$40			400	
Mileage				0	
Misc. - parking, etc.				0	
	Total Travel			2,225	\$2,225
C. Services and Supplies					
	<u>Details</u>				
Office supplies	12 mo. @ \$200			2,400	
Photocopier lease	12 mo. @ \$600			7,200	
Journal subscriptions	AFS and other fishery journals			12,000	
Books				1,400	
OCLC usage				1,093	
CD-ROM	Subscription ABAFR Index			0	
Library space lease				50,917	
Training				0	
Computer repair & maintenance				0	
				0	
	Total Services/Supplies			75,010	\$75,010
D. Capital Outlay (>\$3000)					
	none this year			0	
	Total Capital Outlay				\$0
E. Total Direct Cost					\$285,340
F. Indirect Cost (A through C X rate)			36.80%		\$105,005
G. Total Cost, StreamNet subproject					\$390,345

Idaho Department of Fish and Game StreamNet Project, FY 2002 Budget

A. Personnel	Months	Per Month	Annual	Total
Bart Butterfield, Project Leader/Sr. GIS Analyst	9	\$4,508.40	\$40,576	
Bruce Murdock, Sr. Programmer/Analyst	12	\$3,775.20	\$45,302	
Desi Graham, GIS Analyst	4	\$3,308.93	\$13,236	
Evan Brown, Data Compiler/Sr. Fish Tech	12	\$2,690.13	\$32,282	
Josephine Hatton, GIS Specialist	1	\$2,293.20	\$2,293	
Fringe - 37.55%			\$50,200	
Total Personnel				\$183,889
B. Travel				
Airfare - 5 trips PDX, 1 Olympia, 1 Helena @ \$300 per trip			\$2,100	
Lodging - 15 nights @ \$75 per night			\$1,125	
Per Diem - 25 days @ \$30 per day			\$750	
Mileage (pool car) - 3000 miles @ \$0.192 per miles			\$576	
Total Travel				\$4,551
C. Services and Supplies				
Office Supplies - paper, inks, postage, etc.			\$350	
Software			\$3,000	
GIS License			\$1,500	
Training			\$3,000	
Computer Repair/Maintenance			\$1,300	
Risk Management Liability			\$1,000	
Telephone/modem - 2 phones @ \$900/yr, modem \$600			\$2,400	
Total Services and Supplies				\$12,550
D. Non-Expendable Property				
Total Non-Expendable Property				\$0
E. Total Direct Cost				\$200,990
F. Total Indirect Cost - 20.6% of A through C				\$41,404
G. Total Cost				\$242,394

Montana Fish, Wildlife and Parks StreamNet Project, FY 2002 Budget

A. Personnel	<u>Detail</u>	<u>Rate</u>	<u>Amount</u>	<u>Totals</u>
Project Manager/Fish Biologist	0.175 FTE, 364 hours @ \$26.00*	\$ 26.00	\$ 9,464.00	
Programmer/Analyst II	0.135 FTE, 281 hours @ \$19.60*	\$ 19.60	\$ 5,507.60	
Programmer/Analyst II	0.5 FTE, 1040 hours @ \$19.60	\$ 19.60	\$ 20,384.00	
Programmer/Analyst II	0.9 FTE, 1872 hours @ \$17.00	\$ 17.00	\$ 31,824.00	
Programmer/Analyst I	0.4 FTE, 832 hours @ \$15.00	\$ 15.00	\$ 12,480.00	
Programmer/Analyst I	0.5 FTE, 1040 hours @ \$14.00	\$ 14.00	\$ 14,560.00	
	Subtotal		\$ 94,219.60	
	Fringe Benefits	29.00%	27,324	
	Total Personnel			\$121,543
B. Travel				
	Airfare		3,000	
	Per Diem		875	
	Vehicle Rent		0	
	Mileage		0	
	Misc. - parking, etc.		0	
	Total Travel		\$3,875	
C. Services and Supplies				
	<u>Details</u>			
	Contracted Services		\$ 2,723.00	
	Input data			
	130 hours @ \$11.78/hr, plus 27% benefits,			
	plus overhead to the NRIS			
	Total Services/Supplies		\$2,723	
D. Capital Outlay (>\$3000)				
	none this year		0	
	Total Capital Outlay			\$0
E. Total Direct Cost				
				\$128,141
F. Indirect Cost (A through C X rate)				
		0.212		\$27,166
G. Total Cost, StreamNet subproject				
			\$155,307	

* grade increases

Oregon Department of Fish and Wildlife StreamNet Project, FY 2002 Budget

A. Personnel	<u>Detail</u>	<u>Number</u>	<u>Rate</u>	<u>Amount</u>	<u>Totals</u>
	NRS-3 (Supv. F&W Bio.)	10	\$4,475.11	44,751	
	I.S.S 5 - DBM	10	\$4,124.90	41,249	
	Office Specialist 1	0.5	\$2,104.00	1,052	
	I.S.S. 4 - GIS Spec.	10	\$3,616.00	36,160	
	NRS-1	12	\$2,534.40	30,413	
	Librarian Tech 3	3	\$2,252.00	6,756	
	NRS-2	9	\$2,653.90	23,885	
	Office Coordinator	2	\$3,122.00	6,244	
	NRS-3 (Supv. F&W Bio.)	1	\$4,186.00	4,186	
	NRS 1	1	\$2,619.00	2,619	
	NRS-2	2	\$2,746.00	5,492	
	Support staff (500 hours)	500	\$10.00	5,000	
	Subtotal			207,807	
	Fringe Benefits		38.00%	78,967	
	Total Personnel				286,774
B. Travel					
	Airfare			1,000	
	Per Diem			2,000	
	Vehicle Rent			700	
	Mileage			345	
	Misc. - parking, etc.			100	
	Total Travel			4,145	
C. Services and Supplies	<u>Details</u>				
	Office Supplies			1,010	
	Software misc			500	
	Training & manuals			1,500	
	GIS license annual fee			2,800	
	Corvallis GIS license fee			2,400	
	Computer maintenance			2,000	
	Postage			100	
	Utilities (gas, electric, water, phone)			4,935	
	Fax Machine			240	
	Copy Machine			1,000	
	Duplication Charges			1,000	17,485
D. Capital Outlay (>\$3000)	none this year			0	
	Total Capital Outlay				0
E. Total Direct Cost					308,404
F. Indirect Cost (A through C X rate)			0.245		75,559
G. Total Cost, StreamNet subproject				383,963	

U S Fish and Wildlife Service StreamNet Project, FY 2002 Budget

A. Personnel	<u>Detail</u>	<u>Number</u>	<u>Rate</u>	<u>Amount</u>	<u>Totals</u>
Pastor		0.192308	0	10,776	
	Subtotal			<u>10,776</u>	
	Fringe Benefits		14.00%	<u>1,509</u>	
	Total Personnel				12,285
B. Travel					
Airfare	RT Portland, OR to Boise, ID			200	
Per Diem	6 nights			720	
Vehicle Rent	Boise rental			100	
Mileage				0	
Misc. - parking, etc.				<u>36</u>	
	Total Travel				1,056
C. Services and Supplies <u>Details</u>					
				0	
				<u>0</u>	
	Total Services/Supplies				0
D. Capital Outlay (>\$3000) none this year					
	Total Capital Outlay			0	0
E. Total Direct Cost					
					13,341
F. Indirect Cost (A through C X rate)					
			0.284		3,789
G. Total Cost, StreamNet subproject					
				<u><u>17,130</u></u>	

Washington Department of Fish and Wildlife StreamNet Project, FY 2002 Budget

A. Personnel	<u>Detail</u>	<u>Number</u>	<u>Rate</u>	<u>Amount</u>	<u>Totals</u>
Leslie Sikora	Data Manager	12	4,683.25	56,199	
Larry Brown	Programmer	3	4,322.00	12,966	
Gil Lensegrav	Tabular Data Compiler	12	2,938.50	35,262	
Bob Woodard	Asst. Data Manager	12	4,350.00	52,200	
Michelle Smith	Tabular Data Compiler	12	3,281.75	39,381	
Martin Hudson	GIS Data Manager	3	4,771.00	14,313	
Cindy Burns	GIS Data Compiler	2.5	3,727.00	9,318	
	Subtotal			219,639	
	Fringe Benefits		22.73%	49,919	
	Total Personnel			269,558	269,558
B. Travel					
	Airfare			900	
	Per Diem			1,779	
	Vehicle Rent			0	
	Mileage			1070	
	Misc. - parking, etc.			0	
	Total Travel			3,749	3,749
C. Services and Supplies					
	<u>Details</u>				
	Phones			1,413	
	Copying			100	
	Media, printer supplies			250	
	Plotter supplies			800	
	Computer lease			516	
	Training (software short courses)			370	
	Plotter maintenance			600	
	ArcINFO licenses			5,200	
	Total Services/Supplies			9,249	9,249
D. Capital Outlay (>\$3000)					
	Total Capital Outlay			0	0
E. Total Direct Cost					
					282,556
F. Indirect Cost (A through C X rate)					
			0.252		71,204
G. Total Cost, StreamNet subproject					
				353,760	353,760