A Strategic Plan and Vision for StreamNet

FY-06 and Beyond

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This Strategic Plan and Vision document combines a vision statement describing what the StreamNet Project should be and a series of goals and objectives to form a brief strategic plan. This plan is intended to stimulate broad discussion about what products and services the project should provide. This plan is focused on the near term, and will be amended as technology and agency capabilities change. Comments and suggestions should be provided to any project participant (Table 1) or sent to Bruce Schmidt, StreamNet Program Manager, Pacific States Marine Fisheries Commission, 205 SE Spokane St., Suite 100, Portland, OR 97202.

The StreamNet Mission

StreamNet's primary mission, through its connections with the state, tribal and federal fish and wildlife management agencies, is to facilitate the distribution and use of scientifically collected information on fish and aquatic resources and their habitats, and potentially to capture data related to wildlife not captured through other means. The geographic extent of StreamNet includes the Pacific Northwest of the United States, with primary focus on the Columbia Basin.

The StreamNet Vision

StreamNet is a primary component of the flow of fish and aquatic data from field collection and local use to the Columbia Basin and the Pacific Northwest.

Key components of the StreamNet vision

- Development and dissemination of standardized data to support regional decision making, monitoring, planning and High Level Indicators
- Operation of database systems to publicly disseminate selected types of data via the Internet (online data query system and interactive map applications);

- Documentation of all data through a repository of source documents (StreamNet Library);
- Development of data management systems within fish management agencies to facilitate local data collection and use, data flow within the agencies, and dissemination of data to the region;
- Development and application of procedures and tools to facilitate automated conversion of data to regionally consistent formats;
- Operation of a searchable data archive for data sets not conforming to specific regional formats to support other projects under the Northwest Power and Conservation Council (NPCC) Fish and Wildlife Program (FWP); and,
- Assisting the data collection agencies to expand use of information technology and to move toward eventual development of regional distributed database systems.

Project Values

StreamNet places highest value on disseminating objective, scientifically derived information suitable for guiding planning, research, monitoring, management, evaluation and policy making related to fish and aquatic resources. The project believes that the data should be maintained independently from analysis and interpretation and the project does not attempt to draw conclusions or make recommendations.

StreamNet values the efforts expended by field biologists to collect data, and is committed to assisting the fish management agencies in developing local data systems to speed and simplify data entry, which will also improve data flow from the field to the agencies and the region.

StreamNet values efforts to develop regional approaches to data sharing, and is committed to utilizing its existing database systems to feed regional networks and to assist data-collecting agencies to work toward developing distributed database capabilities in the future.

Data Management Principles

StreamNet believes in a number of basic data management principles and encourages resource management and data management entities to consider similar principles and to develop a consistent policy related to data collected or developed under the NPCC FWP, NOAA Fisheries Service and FWS Recovery Planning, and agency management data used in inter-agency and regional processes (e.g. *U.S v Oregon*, PFMC, Pacific Salmon Treaty, Forest Plans, etc.):

1. "Operational" principles.
    a. Cost savings can be achieved by facilitating sharing of staff expertise and applications among programs.
    b. All appropriate data should be spatially referenced so they can be used by GIS applications and mapped.
    c. Data flow pathways should be as short and efficient as possible.
    d. An agreed upon core set of QA/QC principles would help assure data accuracy.
    e. An agreed upon core set of descriptive data (metadata) would enable comparison among data and improve the ability to share and combine data sets.

2. Data "ownership" principles.
    a. Data collected using public funds should be considered public property. StreamNet suggests that data collected with public funds that are not sensitive should be made freely available and shared. We encourage regional entities to develop a data sharing policy that recognizes the rights and responsibilities of funding agencies and their collaborators to publish and share data.
    b. Data collected for management purposes are important, and to the extent possible, agencies should strive to make them available by the next cycle of management decisions or actions.
    c. Data collectors should feel an obligation to share public data prior to publication or use in management decisions, with reasonable assurance of the right for first use or publication.

Goals and Objectives

The following Goals and Objectives for the StreamNet project are intended to guide the StreamNet project over the next few years. As information technology improves, and as data collecting agencies adopt and implement newer technology, these goals will be adjusted to take advantage of the increased capabilities.

Goal 1. Improved data collection in the fish management agencies based on utilization of Information Technology (IT).
    a. Encourage and support efficient electronic capture of data at the field level to speed data entry.
    b. Help the management agencies develop data management systems that facilitate efficient capture of original data, make data available for both local and agency-wide use, and allow automated update of regional data systems.

Goal 2. Data collected by projects funded through the FWP are secured and made publicly available.
    a. Support the concept that data collected by FWP funded projects are to be secured and disseminated.
    b. Provide services to the FWP, including searchable archives, to assist in maintenance and dissemination of fish, aquatic and other data that are not appropriately captured elsewhere.

Goal 3. Fish and aquatic data are available regionally in standardized format.
    a. Identify, obtain and standardize across agencies the highest priority data sets.
    b. Make the high priority data sets accessible in consistent format through the Internet.
    c. Make non-standardized data sets available through a searchable archive.

Goal 4. Regional scale programs are supported with data management expertise.
    a. Provide data management advice and services to FWP funded projects.
    b. Provide data management advice, access to StreamNet data, and data related services to regional scope data programs and initiatives.

Goal 5. Fish and wildlife literature and data source information are secured and made available.

a. Maintain a library of technical documents and references related to PNW fish and wildlife resources
b. Make source documents for all data captured in the StreamNet database available through the StreamNet library.

Goal 6. The StreamNet project is administered within BPA guidelines

a. Guide project direction through a multi-agency Steering Committee.
b. Provide project administration including development of project budgets and proposals, supervision of staff, management of expenditures within budgets, provision of staff development, and preparation and submission of reports.

Goal 7. Regional scope data are managed and shared consistently among entities

a. Actively participate in and support regional scale data sharing initiatives.
b. Actively encourage and participate with regional-scope entities to develop a data sharing policy promoting sharing data prior to publication while protecting the rights of data collecting entity regarding use of the data. Possible provisions could include: Data originators should share data widely but with exclusive rights to publish articles, reports, recommendations or summaries based on that data for a specified period of time, and an additional period during which data originators are given review and junior author status in publications authored by someone other than the data collector.

Specific milestones for addressing these goals and objectives are listed in the annual Statement of Work, which is available through the BPA Pisces system or in the StreamNet Reports and Publications section at http://www.streamnet.org/about-sn/project_management.html.

Operating Environment

StreamNet has functioned in an environment where most fish, wildlife and habitat data are collected by independent agencies to meet their own missions and mandates. Since fish management agencies often do not have a specific mission or resources to share data after they have been used for their original purpose, such work can be of lower priority for the agencies. StreamNet acquires, standardizes and disseminates a subset of these data for these agencies.

Various programs are emphasizing regional sharing and analysis of data and illustrate the need for local data to be available on a wider basis. Several regional scale efforts (i.e., Pacific Northwest Aquatic Monitoring Partnership (PNAMP), Collaborative Systemwide Monitoring and Evaluation Project (CSMEP)) are working to design and recommend regionally consistent approaches to monitoring fish, wildlife and habitat. The Northwest Environmental Data-network (NED) is currently working to establish regional data standards in preparation for developing a regional approach to data delivery, and the PNAMP Data Workgroup is pursuing data sharing approaches among PNAMP workgroups (StreamNet serves on the steering committees for both PNAMP and NED). The Endangered Species Act (ESA), the 2000 Federal Columbia River Power System Biological Opinion RPA 198, the NPCC's Independent Scientific Review Panel (ISRP) all emphasize the need for regional scale data. All of these efforts require data sharing across agency lines, and StreamNet serves to fulfill that need for the fish management agencies.

A number of other data projects also acquire and consolidate data from multiple sources, differing primarily in the specific types of data they address. Coordination among these projects will most likely constitute the initial building blocks of any regional data sharing system, and StreamNet is already collaborating to determine means of linking data between systems.

StreamNet has functioned within this environment to assist the state, tribal and federal fish management agencies to provide standardized regional dissemination of a specific suite of fish and aquatic resource data categories. The project has developed a program and approach that can be expanded to additional types of data. It pioneered the on-line query of various data types from a large relational database. StreamNet does not do any field sampling to create data and is reliant on agency sampling programs for the data it consolidates, standardizes and disseminates.

Data Management Approach

StreamNet currently operates on a centralized or data repository model, where data are obtained from other sources, re-formatted to a regionally consistent standard, and entered into a database. This approach has proven to be very effective, particularly in light of the current capabilities of data systems in the source agencies.

Over time, we anticipate increasing emphasis on distributed database technology, where data are housed by the source agency and served in standard formats to the web for automated data acquisition. This approach maintains the source agency as the primary data steward and avoids issues with updating a central database. It requires greater adoption of data standards among agencies, increased database infrastructure within the agencies, and public hosting of data on the web. Over the long term, we envision each agency maintaining its own web enabled database systems in consistent formats, making distributed data delivery possible on a regional basis. Until that capability is established, StreamNet will continue to work on a data repository model, while encouraging and assisting the agencies toward expanding their IT capabilities.

Constituents and Services

StreamNet currently serves two broad constituencies: The management agencies that originate much of the region's fish, wildlife and habitat data, and entities with a regional perspective that depend on data from multiple sources across the basin. The nature of the services needed by these constituencies is different.

Services for management agencies

For the management agencies (the data originators), StreamNet-supported staff within the agencies provide data management services to consolidate specific data types from across the agency, assist and advise agency staff on data related issues and database design, translate agency data to fit the regional format, assist with georeferencing agency data, hosting data websites for the agency, and shouldering the workload of responding to requests for data. Future efforts may increase emphasis on providing tools and interfaces to speed up and improve the quality of data entry at the field level, and promote adoption of modern information technology as a means of improving efficiency of data flow internally and to the region.

The StreamNet Library serves the data collecting agencies by providing document tracking and delivery services for state, federal, and tribal management agencies. They provide consulting on organizing office collections for many of these agencies and researchers and provide reference and literature research services. The library also hosts library databases and creates custom query screens available via the Internet, e.g., http://www.fishlib.org/catalog/johnsoncreek.htm.

Services for regional data-using entities

For entities with regional scope that need data from multiple agencies, StreamNet serves as a primary conduit for specific types of fish and aquatic resource data and source documentation. StreamNet acquires data from within the management agencies, converts the specific data types to a regionally consistent format, performs QA/QC procedures on the data, and makes the data publicly available via on-line tabular data query and interactive map interfaces. Current data types represent a subset of the potential types of data that already exist or are being developed that could be obtained, standardized and made available to the region.

StreamNet also provides advice and assistance to clients, primarily projects associated with the NPCC FWP, including custom data development, locating specific requested data, assistance with mapping data, storage of data references and fish and wildlife related literature, literature searches on index/abstracting services, archiving data sets, assistance with data system and database design, assistance with Geographic Information Systems (GIS), and assistance with developing regional scope data programs.

More information on the background of the StreamNet Project, current and past work statements and past performance reports are available on the Reports and Publications page of the StreamNet website at http://www.streamnet.org/about-sn/project_management.html. Access to data in the StreamNet databases is available through the project's home page, www.streamnet.org.

Table 1. Contact information for current (March, 2006) key personnel in the StreamNet Project.

Name	Position	Phone	Email
Steering Committee			
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Project Staff Members (partial list)			
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