Attachment 1

Northwest Power and Conservation Council

April 8, 2005

MEMORANDUM

TO: Council Members

FROM: Peter Paquet, Council Staff
Stewart Toshach, NOAA Fisheries Staff

SUBJECT: Data Management – Northwest Environmental Data-Network (NED)

ACTION: None Required

BACKGROUND:

Attached you will find the statement of work (Attachment 1) for activities related to the NED project that focuses on development and implementation of a regional data management network for fish, wildlife and water data. This product was produced in response to the Council's request to review proposed data management projects associated with the data management placeholder in the FY 05 budget. The statement of work is intended to assist in carrying out the activities described in the Memorandum of Understanding (MOU) on data management between NOAA Fisheries, the Council and a number of state and federal regional entities. Staff will brief the Council on key elements of the plan, with particular focus on those areas that have implications for other Council processes such as provincial objectives.

Attachment 1

NORTHWEST ENVIRONMENTAL DATA-NETWORK

FFY 05 SCOPE OF WORK

1.0 Purpose and Rationale

The purpose of this Scope of Work is to describe Northwest Environmental Data-network (NED) work tasks for the first year (FFY05) of Phase II effort to develop NED. It follows the Phase I effort that involved the completion of a regional information study, *Recommendations for a Comprehensive and Cooperative Columbia River Information Management System*[1], and subsequent efforts to develop a Northwest Environmental Data-network Memorandum of Understanding (MOU).

The Scope of Work:

- Is limited to the support of improved data management for fish, habitat and water quality as outlined in the Northwest Environmental Data-network MOU.

- Identifies tasks that could be completed by work groups within NED, depending on the interests and time availability of members, and tasks that need to be completed by the NED Project Team as a whole.

- Is consistent with the steps outlined by Science Applications International Corporation in their recommendations – with a particular focus on supporting identified subject area groups. These groups have contemporary data network sharing and management issues. There is a strong emphasis on protocols and standards and in working with existing regional data entities. Some data will be more efficiently managed if common data management protocols and approaches were used across the different subject area groups. To make progress on this goal the work plan identifies tasks for cross subject area work groups.

- Has been developed to complement related but independent regional data protocol and data framework efforts, for example those concerning the Pacific Northwest Aquatic Monitoring Partnership, federal salmon recovery programs and the currently proposed Pacific Northwest Regional Geographic Information Council PNW-RGIC (formerly the Inter-Organizational Resource Information Coordinating Council). See Attached Figure I.

[1] Recommendations for a Comprehensive and Cooperative Columbia River Information Management System, *April 30, 2003.* Submitted to the Northwest Power Planning Council (NPPC), by Science Applications International Corporation (SAIC)

2.0 Core Project Team Tasks

Core Project Team Tasks are those that must be completed by the Project Team as a whole or by ad-hoc groups made up of Project Team members.

2.1 Support the establishment and coordinate the efforts of the subject area and cross subject area work groups as detailed in Section 3.0 and 4.0 below.

2.2 Develop Organizational and Administrative Arrangements for Regional Data Network.

2.2.1 Identify and facilitate development and adoption of organizational and administrative arrangements to improve regional data sharing and networking.

2.2.1 Identify and coordinate available staff resources (assigned, in-kind or through contracts).

2.3 Promote the use of and educate data collection and management entities on the importance of using consistent regional data management protocols in agencies and entities with responsibility for collecting and managing NED related data.

2.3.1 Encourage the use of NED-developed or adopted data standards and protocols in agencies internal and external business practices – such as in contracting and program implementation.

2.3.2 Develop/identify training & educational programs to promote understanding and advantages of data standards deployment.

2.4 Maintain a pilot NED web site (3 months).

2.4.1 Provide access to regional data networking, and other data management protocols as they become available for habitat, water quality and fish data via the World Wide Web. The information could include a regional data dictionary and provide public access to NED reports and materials. Data topics include: project reporting, salmon status and trend, effectiveness monitoring non-anadromous species, upland species, and related information (e.g., power planning) and other research.

2.5 Identify sources and a mechanism for funding.

2.5.1 Identify an equitable method and a process for funding regional data network projects.

2.6 Identify regional requirements for spatial and metadata framework compliance.

2.6.1 Collaborate with Federal, State and other entities and especially PNW-RGIC to identify any applicable spatial and metadata framework requirements/guidance applicable to the Northwest region.

2.6.2 Document any obligations that are necessary to meet spatial and metadata reporting requirements and make these requirements available to data collectors and users. (Note this task is now expected to be completed by RGIC so may be removed from this work plan.)

2.6.3 Identify, maintain and support framework elements for data collection and management protocols that are consistent with State, National and other protocols. (Note this task is now expected to be completed by RGIC so may be removed from this work plan.)

2.7 Maintain a regional data network resource plan.

2.7.1 Maintain a plan to identify and stage the steps necessary to achieve improvements in regional data quality, quantity and access.

2.7.2 Identify options, tasks and likely cost of completing the plan.

2.7.3 Use the CBCIS/NED Project Team December 2003 Report and the Science Applications International Corporation as the initial planning documents.

3.0 Cross Subject Area Work Groups

Different subject area groups have some data sets or data needs with a high degree of commonality. Consistent landscape level data management can therefore be advanced by bringing representatives from the discrete subject areas together, in cross subject area work groups to develop collective solutions. NED will sponsor workshops and other activities to bring together subject area experts to jump start work on products that cannot be completed by any individual agency or entity and which cross subject area boundaries. The major objective is to identify a minimum set of data elements and any other protocols that would be necessary to ensure the success of all subject area groups.

3.1 Temporal and Spatial Data Elements Work Group (Lead Joy Paulus)

3.1.1 Convene a 2-3 day workshop with key regional technical leaders to develop a draft set of regional standards for spatial definitions. Work collaboratively with existing regional spatial groups to develop common data definitions for spatial attributes used in reporting project or site locations.

3.1.2 Create a work group to develop geographically based language and data attributes for reporting project or site location. Create minimum standards and common language. Explore model language (e.g. EPA E-Map) that can be used as a starting point.

3.2 Project Description and Performance Data Management Work Group (12 months)

3.2.1 Convene a work group to support the ongoing development and use of consistent data protocols for reporting of project level data across all groups.

3.3 Technology for Data Discovery and Sharing Work Group (12 months)

3.3.1 Develop or identify protocols and rules for sharing data using open standards protocols such as “web mapping services”.

3.3.2 Identify existing sites and link using ISO Web Map Service standard or other agreed on standards.

3.3.3 Evaluate the adaptation of the Pacific Northwest Water Quality Data Exchange model for sharing tabular data sets other than water quality.

3.3.4 Explore options for creating a regional metadata server, including the SAIC proposal, and the bullets above.

NED Contract task (if needed):
Develop document and provide a detailed design, a work plan, and specifications (including a detailed description of any skills and costs) necessary for the development, testing and deployment of a regional pilot level metadata server. The scope, scale and needs of the pilot metadata server will be defined by the NED Technology for Data Discovery and Sharing Work Group.

The contractor will specify and document:

1) A design: including an architecture, specifications of needed software and hardware and network capacity and descriptions of skills and experience staffing
2) A detailed work plan defining all needed inputs and steps with estimates of the time and cost needed to complete the pilot level effort and operate it for one year after deployment.

To the maximum extent possible the design would be based on off-the-shelf technology. The starting point for this effort by the NED Technology for Data Discovery and Sharing Work Group is the SAIC proposal for a regional metadata server.

3.3.5 Convene a 2-3 day workshop to identify, define and document needed regional open standards protocols.

4.0 Subject Area Data Work Groups

Many subject areas have unique data management needs requiring direct input from the subject area specialists. NED will work with groups and subject area specialists to promote common approaches to development and use of consistent data management protocols, including data elements and reporting indicators – see below. Data quality assurance and quality control methods unique to each subject area are an important task for each group to develop.

4.1 Salmonid Monitoring and Research Data Work Group. Lead - Stewart Toshach

4.1.1 PNAMP Monitoring groups. Provide part time coordination to support improved data sharing across the PNAMP Effectiveness, Watershed Status and Trend, and Fish Population monitoring groups.

4.1.2 Subbasin Pilots – Track Status and Trend Monitoring pilot data management efforts. Continue to facilitate the use of consistent approaches to data management in these and subsequent pilots.

4.1.3 Phase II of PSCRF Project Monitoring. Help to coordinate and facilitate the adoption of consistent project description and performance protocols – see element 3.2 above.

4.1.4 Identify data management protocols used and needed for salmonid hatchery and harvest data sets.

4.2 Subbasin Planning Data Work Group. Lead – Peter Paquet

4.2.1 Facilitate an action plan for compiling current subbasin planning information for areas other than Oregon to ensure that it is archived & accessible. (6 months)

4.2.2 Facilitate the development of draft standards and protocols for ongoing reporting of Sub-Basin planning for projects, status and trends and effectiveness monitoring. (6 months)

4.3 Water Quality Data Work Group. Lead - TBD

4.3.1 Facilitate and promote the adoption of the PNWWQDE formats and protocols and technologies within the region.

4.3.2 Catalogue nationally developed protocols and systems for water quality data management.

4.3.3 Evaluate the viability of conducting training for these guidance documents.

4.3.4 Identify participating agency programs (i.e. NW State agency and EPA 305 (b) and 303 (d) programs) that would benefit from either NED work products, or other national protocols, such as the Revised Guide for Water Quality Data Elements. List any key activities in those programs for 2005 as part of the identification task.

4.3.5 Identify individuals with expertise in this area, and include them in the NED web site.

4.4 Regional Upland/Riparian Habitat Data Work Group. Lead Tom O'Neil

4.4.1 Facilitate compilation of consistent data definitions for riparian and upland species. (12 months)

4.4.2 Describing and defining habitat features (defined as data attributes) will contribute to an improved understanding of data for use in management. A consistent approach to data management is needed for all habitats within the Pacific Northwest landscapes.

4.4.3 Develop a consistent set of hierarchical habitat definitions for fish and wildlife that can be applied to marine, freshwater, riparian, and upland habitats throughout the Pacific Northwest.

4.4.3.1 Develop a list, by agency/organization, of current habitat characteristics or elements and related data definitions being used for fish and wildlife in the Pacific Northwest.

4.4.3.2 Establish a comprehensive list of defined habitat data terms and identify where the terms are used by agencies or organizations.

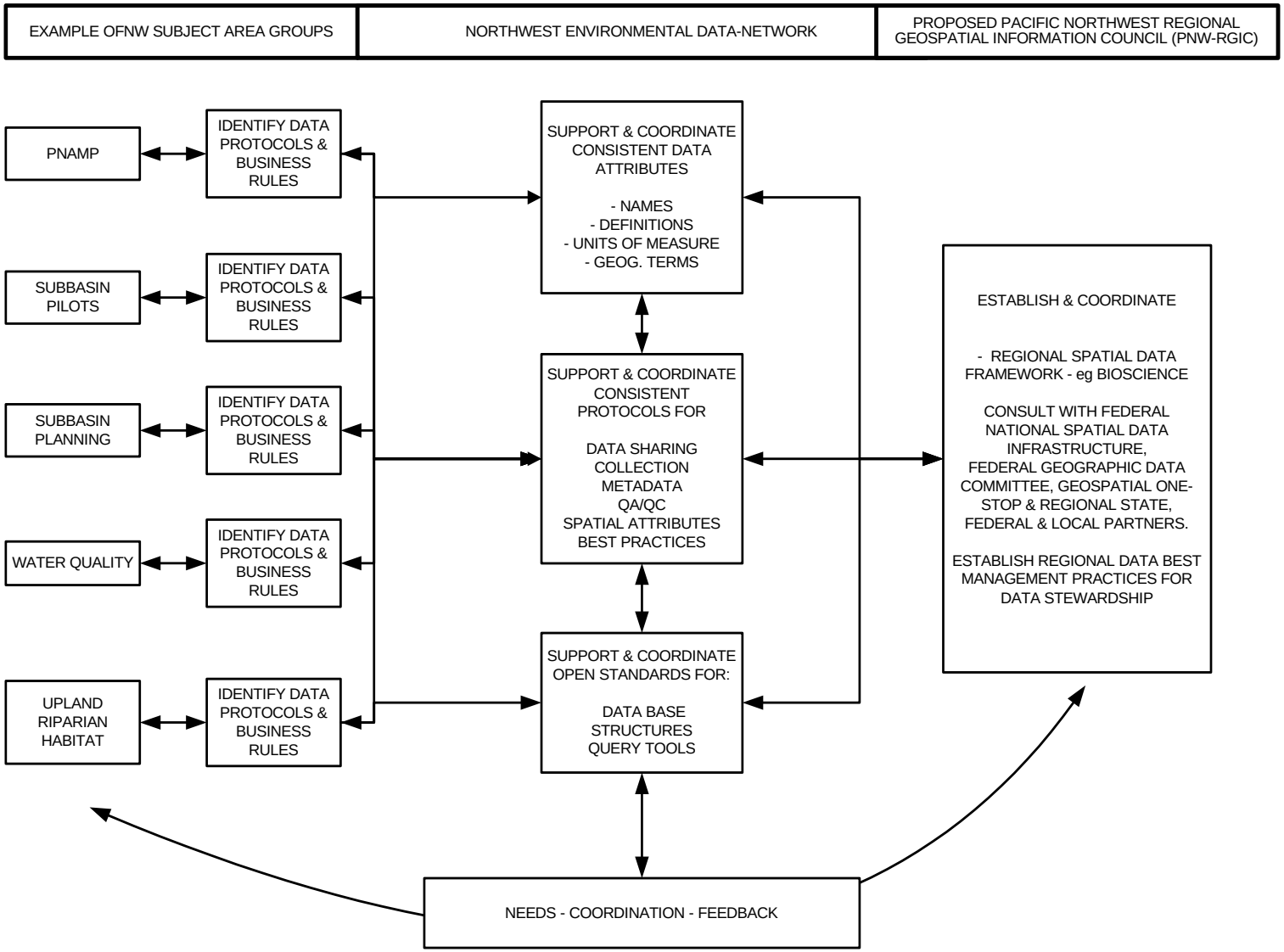
4.4.3.3 Work to identify where differences are substantive of semantic and work to resolve apparent differences in the use of definitions and terms.

4.4.3.4 Develop cross-walks to the comprehensive list above.

5.0 Period of Work

It is expected that while completion of all these tasks will require an 18 to 24 month period, significant progress can be made over one year

FIG. I EXAMPLE OF DATA PROTOCOL & STANDARDS ROLES OF NW SUBJECT AREA GROUPS , NED AND PNW-RGIC



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