Strategy for Future Handling of Data on the NWPPC VAX Computer

- Project White Paper -

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U.S. Department of Energy
Bonneville Power Administration
Division of Fish and Wildlife
Columbia River Inter-Tribal Fish Commission
Idaho Department of Fish and Game
Montana Department of Fish, Wildlife & Parks
Oregon Department of Fish and Wildlife
Pacific States Marine Fisheries Commission
Shoshone-Bannock Tribes
U.S. Fish and Wildlife Service
Washington Department of Fish and Wildlife

Title: Strategy for Future Handling of Data on the NWPPC VAX Computer

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Primary Author: Duane Anderson, PSMFC

Task description

Task 2.4 Evaluate Fish and Wildlife Program data currently stored on the Council's VAX and, in consultation with the Council, determine data sets to be stored, maintained, and/or enhanced. Port applicable files to the StreamNet data system. Specific requirements include: 1) archiving historical findings from the Hydro Assessment Study and Subbasin Planning and 2) maintaining the Council's Protected Areas data set.

Products: 1) Draft (November 30) and final (January 31) strategy for future handling of Council data.
2) Applicable data transferred to StreamNet and/or archived (April 30).

Background

The data on the Northwest Power Planning Councils (NWPPC) VAX computer system evolved from the Pacific Northwest Hydro Assessment Study. The study was designed to '*develop data from which the Northwest Power Planning Council will address new hydroelectric development in the region. The Council plans to determine how much cost-effective hydro is realistic...It also plans to rank hydroelectric sites throughout the region on the basis of their effects on fish and wildlife values and to designate areas to be protected from future hydro development on the basin of fish and wildlife values and hydropower potential*'.[1]

The study was conducted in three parts: an anadromous fish assessment, a non-anadromous assessment, and a hydropower study. The Council managed the anadromous assessment which was conducted by outside contractors, BPA managed the non-anadromous assessment (known as the Pacific Northwest River's Study (PNWRS)) which was conducted by state task forces, and the hydropower database was developed and managed by the Corps of Engineers. Maintenance responsibility for the hydropower database later transferred to the Bonneville Power Administration (BPA).

[1] Pacific Northwest Hydro Assessment Study Work Plan, Northwest Power Planning Council, August, 1984.

The resulting database and analysis culminated in the 1989 Protected Areas Rule through which the NWPPC permanently protected over 44,000 miles of streams from future hydro development.

Current Status

There are two primary databases resulting from the Hydro Assessment Study currently residing on the Council's VAX. The first database is comprised of the data components that make up the Council's Protected Areas system, and the second is the Northwest Hydropower Database System (NWHS) which is currently maintained on the Council's VAX system by contractors at Bonneville Power Administration. The Protected Area system provides the technical foundation for the Council's Protected Areas Rule and, as such, must be maintained in support of that rule.

The StreamNet project (and this white paper) are only addressing the protected areas database. The NWHS is beyond the scope and responsibility of the StreamNet project and will not be addressed in this paper. There are also other datasets on the Council's VAX system that relate to more detailed information on anadromous fish. These datasets were previously moved to the Coordinated Information System and are fully incorporated into the StreamNet system. These datasets will not be addressed in this paper. In addition, each state has maintained and expanded the data bases originally prepared through the Hydro Assessment Study. These state "river information systems" are not standardized regionally and are not housed on the Council VAX. They are not addressed in this paper.

The primary components of the protected areas database include the following:

1. Files comprising the various components of the EPA Reach File.

2. Files comprising the coastal and Puget Sound anadromous distribution data from the original Hydro Assessment study.

3. Files comprising the anadromous distribution data for the Columbia Basin which resulted from an update of the original Hydro Assessment study files for the Columbia Basin during Subbasin Planning.

4. Files containing the actual protected areas designations.

5. Files containing the PNWRS final values classes for resident fish, wildlife, recreation, cultural resources, and natural features.

6. Files for each of the four states with key resident fish and wildlife data resulting from the PNWRS.[2]

Issues and Options

The primary issue is to determine, in consultation with the Council, the final disposition of each set of these files. We believe that there are four options for handling these files:

1. **FULL ACCESS:** Provide full StreamNet maintenance of these files including porting of data to StreamNet, maintenance, distribution, and update.

2. **ARCHIVE ACCESS:** Provide archival services only, with files available through StreamNet in their native, unchanged format.

3. **NO ACCESS:** Determine that the data is not appropriate for either porting or archival services and do nothing with it.

4. **COMBINATION:** Provide full access, archive, or do nothing according to the quality, format, and/or usefulness of individual database components.

A secondary issue is the compatibility of these data, which were compiled using 1:250,000 enhanced hydrography, with the newer 1:100,000-scale river reach system. This issue only applies to data that will be afforded "full access" as described above. The options are:

1. **FULL INTEGRATION:** Cross-reference the 1:100,000-scale and 1:250,000-scale hydrography, attach data to the higher resolution, reconcile end-of-reach problems through a manual review.

2. **PARTIAL INTEGRATION:** Cross-reference the 1:100,000-scale and 1:250,000-scale hydrography, attach data to the higher resolution. Do not attempt to reconcile end-of-reach problems.

3. **APPEARANCE OF INTEGRATION:** Access the data through the same interface but do not integrate with the higher resolution hydrography.

4. **NO INTEGRATION:** Do not cross-reference data. Access data through a separate interface.

[2] In large part, these files are <u>not</u> standardized between states and do not have identical structures. There are, however standardized summary values for species/habitat value and for public use value.

Recommendation or Action Taken

Our recommendation for providing access to these files is the following:

1. Port all files described in bullets 1-5 above to StreamNet for maintenance, distribution, and update ("full access" option). (Currently, all of these data have been ported and are available on StreamNet's web site at www.streamnet.org. A detailed list of the actual VAX datafiles which have been ported is shown below in Table 1.) Enhance data access and query options in future years as necessary and as resources become available.

2. Provide archival copies of most data files described in bullet 6 above as native dbase files available for download using FTP ("archive access" option). The reason for this approach is that the various files are not standard between states and porting them to a standard StreamNet data system without considerable manipulation and reformatting would not be possible. Furthermore, most of the data in these files is quite dated and of limited value at this time. These data do, however, have historical significance and should be preserved. See Table 2 for a list of these files.

3. Evaluate the extent to which summary values (species value, habitat value, etc) are standard across the states. Port standardized files to StreamNet's web site as per #1 above.

Table 1. Listing of specific data files from System 1032 which have been ported to StreamNet.

Table Name	**Contents**
BASIN	Subbasin codes related MAIN reach file
CONSTRAINT	Anadromous production constraints identified during Subbasin Planning
COUNTY	County codes related to MAIN reach file
FISH	Presence absence data from original hydro assessment study
FISH2	Enhanced presence absence data for the Columbia Basin from Subbasin Planning
MAIN	The Council modified 1:250K EPA River Reach file, also contains the final values classes from the PNWRS
MAP	1:100K map codes related MAIN reach file
PROTECT	The protected areas designations by EPA river reach

Table 2. Listing of specific data files from System 1032 which we propose to archive in DBASE format and make available for download.

Table Name	Contents
IDFISH	Idaho resident fish data from PNWRS
IDWILD	Idaho wildlife fish data from PNWRS
MTFISH	Montana resident fish data from PNWRS
MTWILD	Montana wildlife fish data from PNWRS
ORFISH	Oregon resident fish data from PNWRS
ORWILD	Oregon wildlife fish data from PNWRS
WAFISH	Washington resident fish data from PNWRS
WAWILD	Washington wildlife fish data from PNWRS

Our recommendation for addressing the scale issue is as follows:

1. In the near-term (one-two years) make no effort to integrate data with the 1:100,000-scale hydrography.

2. In the mid-term (three-five years), provide access through a separate interface or, if this proves feasible, through an "appearance of integration" approach, that is, access the data through the same interface but do not integrate with the higher resolution hydrography. This could be moved to a near-term action if time and resources permit. However, there is no immediate need to do this.

3. In consultation with the Council, determine if there is adequate policy rationale for merging the protected areas designations with the 1:100,000-scale hydrography. If so, utilize the "full integration" option, that is, adapt the protected areas designations to the 1:100,000-scale, taking every effort to ensure accuracy of the original protected areas designation at the new resolution. This would require a significant level of effort and therefore must be factored into a future year's work plan. (An alternative would be to simply retain the protected areas files as a historical record and conduct a new protected areas analysis using the most current data. This would require a policy call on the part of the Council. For planning purposes it is assumed that this will not happen in the near-term.)

Conclusion

By following this course we believe that Fish and Wildlife Program-related data currently housed on the Council's VAX could be effectively managed by the StreamNet project with the exception of the Northwest Hydropower Database System. With the exception of providing archival copies of the resident fish and wildlife datasets, the StreamNet project has, we believe, already accomplished this task.

This paper does not address the issue of whether the Council should abandon maintenance of the Hydro Assessment data currently housed on the Council VAX. That is a decision

for the Council and is beyond the scope of this paper. However, except for the Northwest Hydropower Database System, all of the Council's hydro assessment study data is, or soon can be, available through the StreamNet system. Should the Council decide to cease maintenance, i.e., to transfer maintenance to StreamNet, a Council decision will be required regarding the location of the official version of the data underlying the Protected Areas Rule. StreamNet is capable of maintaining the official version should this be the will of the Council.