Northwest Power and Conservation Council

April 26, 2012

MEMORANDUM

TO: Council Members

FROM: Philip Thoennes, Fish and Wildlife Intern
Peter Paquet, Manager, Wildlife and Resident Fish
John Shurts, General Counsel

SUBJECT: Discussion of Protected Areas History and Update on Current Work.

Agenda item 4 at the May, 2012 Council Meeting in Hood River will be a presentation concerning the protected areas portion of the Fish and Wildlife Program and Northwest Power Plan. The purpose of the presentation will be a brief explanatory review of the history of the protected areas, and an overview of the current technical updates to the protected areas database.

Background

In both the *Columbia River Basin Fish and Wildlife Program* and the regional Power Plan, the Council has designated approximately 44,000 miles of streams in the Pacific Northwest as "protected areas." First adopted by the Council in the 1988 amendments to the Fish and Wildlife Program following completion of the Northwest Rivers Assessment Study, protected areas are river and stream segments that the Council recommends be protected from hydroelectric development, concluding that such development would present an unacceptable risk of loss to fish and wildlife species of concern, their productive capacity, or their habitat. Under the protected areas provisions, the Council expects the Federal Energy Regulatory Commission (FERC), while exercising its licensing authority under the Federal Power Act, to account for the Council's protected areas designations to the fullest extent practicable, unless the Commission's legal responsibilities require otherwise. This has proven successful; in the years since the Council first designated protected areas in 1988, FERC has not licensed a new hydroelectric project in a protected area. The Council also expects the Bonneville Power Administration (BPA) not to acquire power from or provide transmission support for a new hydroelectric development in a manner inconsistent with the Council's designation of protected areas.

The protected areas provisions can be found in the Council's most recent 2009 Fish and Wildlife Program as part of the Basinwide Habitat Strategies, Section II(D)(1)(e), and Appendix B, and as

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part of the Council's Sixth Northwest Power Plan. The actual stream reach designations are contained within a narrative database, further described below.

Protected Areas, the Fish and Wildlife Program, and the Northwest Power Plan

In the language of the Northwest Power Act, the Council is to develop "a program to protect, mitigate, and enhance fish and wildlife, *including related spawning grounds and habitat*, on the Columbia River and its tributaries." 16 U.S.C. 839b (h)(1)(A) (emphasis added). Under this explicit Congressional mandate, the protected area designations were adopted by the Council, as their enactment would provide benefit to fish and wildlife, their spawning grounds, or their habitat and would not compromise an adequate, efficient, economical, and reliable power supply. The protected areas themselves do not function as a zoning or regulatory measure, but rather direct other federal agencies, namely BPA and FERC, to consider the protected areas when making licensing and transmission decisions for hydroelectric development projects.

Protected areas also play an important role in the Northwest Power Plan. First, the protected areas list is used as a screen during the development of hydropower supply curve forecasts, as a piece of the larger regional power planning analysis called for in the Northwest Power Act (*see generally* 16 U.S.C. 839b). Second, the formal inclusion of protected areas in the Northwest Power Plan helps the Council to meet the stipulations of Section 4(e)(2) of the Northwest Power Act; that is, to develop a Plan that considers the "protection, mitigation, and enhancement of fish and wildlife and related spawning grounds and habitat" during its development and implementation.

Technical Updates to the Protected Areas Database

The protected areas are formally contained within a narrative database, comprising the final assessments and recommendations of fish and wildlife managers in Oregon, Washington, Idaho, and Montana following the Rivers Assessment Study. Concurrently, the protected areas stream reach designations are stored in a geographic information system (GIS), providing a digital spatial depiction of the data contained within the narrative database. Protected areas data has not been updated, in a technical or substantive way, since approximately 1992, the exception being a technical update of the hydrologic model used in the GIS, from the original 1:250,000-scale hydrologic geometry to a finer-scale 1:100,000 model. Since that time, many new protections and designations have been enacted within the Columbia River Basin and the Northwest, encompassing protections for rivers and streams based on natural resource and habitat considerations, including Endangered Species Act listings for salmon, steelhead, and bull trout, and associated critical habitat designations. These protections will need to be contemplated in any future revision or review of protected areas.

The current protected areas spatial database is a relatively coarse hydrographic geometry in detail and refinement relative to current 1:24,000-scale hydrographic data models. The protected areas designations are currently being cross-referenced to a fine scale hydrographic data model, as is commonly used by agencies, scientists, and NGOs. The technical update to the protected areas database will be beneficial, in that it will allow greater compatibility of protected areas designations with other river reach classifications, enabling more detailed and accurate analysis. Council staff, with the assistance of staff at StreamNet, has completed a pilot update in the John Day Subbasin. This pilot was meant to demonstrate a protocol for identifying streams in the fine-

scale hydrographic database that were contemplated by biologists and managers in the original Rivers Assessment Study, screening out those streams that were not considered in the original study, and then migrating the correct protection status to the correct stream. The pilot study proved successful, and the effort to continue the protocol in the rest of the Basin is ongoing.

Northwest Power and Conservation Council
Protected Areas

"A Geospatial and Analytical Update"

May 8, 2012

Hood River, Oregon

Image: Bonneville Dam construction, United States Army Corps of Engineers

- Northwest Rivers Study begun in 1983, at the request of the Council.[1]

- States, tribes and agencies conducted analyses of :

  Anadramous Fish, **Resident Fish**, **Wildlife**, **Natural Features**, **Cultural Features**, and **Recreation**.

- Summing these criteria, streams were ranked:
  - Class I : Outstanding
  - Class II : Substantial
  - Class III : Moderate
  - Class IV : Limited
  - Class V : Unknown

1: Pacific Northwest Rivers Study pamphlet, 1988.

- By 1988, OR, WA, ID, and MT submitted final Rivers Study Reports to the Council.

- The Rivers Study Reports, along with the Hydro Assessment Study and public comments, were used to inform future protected areas designations. [2]

2: *Id.*

Study Conclusions

1) High value of some streams cannot be compensated by mitigation, outweighing any potential hydropower benefits.
2) The Council is charged with protecting fish and wildlife while assuring the Northwest an adequate, efficient, economical, and reliable power supply .[3]
3) Protecting the aforementioned values of these streams is consistent with mitigation efforts and maintaining a "…reliable power supply."[4]
4) *Therefore*, prohibition on hydropower development in said streams is warranted and defensible.

3: Pacific Northwest Electric Power Planning and Conservation Act 16 USC §839b(h)(5) [Northwest Power Act, §4(h)(5), 94 Stat. 2709]
4: NPCC, Columbia River Basin Fish and Wildlife Program (Section II (D)(1)(e)) and Appendix B, 2009

Protected Areas List Adoption

- The protected areas were recommended by managers as a measure for inclusion in the Fish and Wildlife Program.
- Protected Area List formally adopted in 1988[5], including technical corrections in 1989[6], a 1990 amendment summary[7], and proposed amendments in 1992.[8]
- Protected areas have been retained in each Fish and Wildlife Program since adoption.
- No additions, amendments, or modifications in ~20 years.

5: NWPPC, Document 88-22
6: NWPPC, Document 89-19
7: NWPPC, Document 90-10
8: NWPPC, Documents 92-09, 92-26

- Additionally, the Council used its regional power planning authority to designate areas *outside* Columbia Basin in order to avoid intensifying extra-basin development,[9] and to help expedite the permitting process where appropriate.

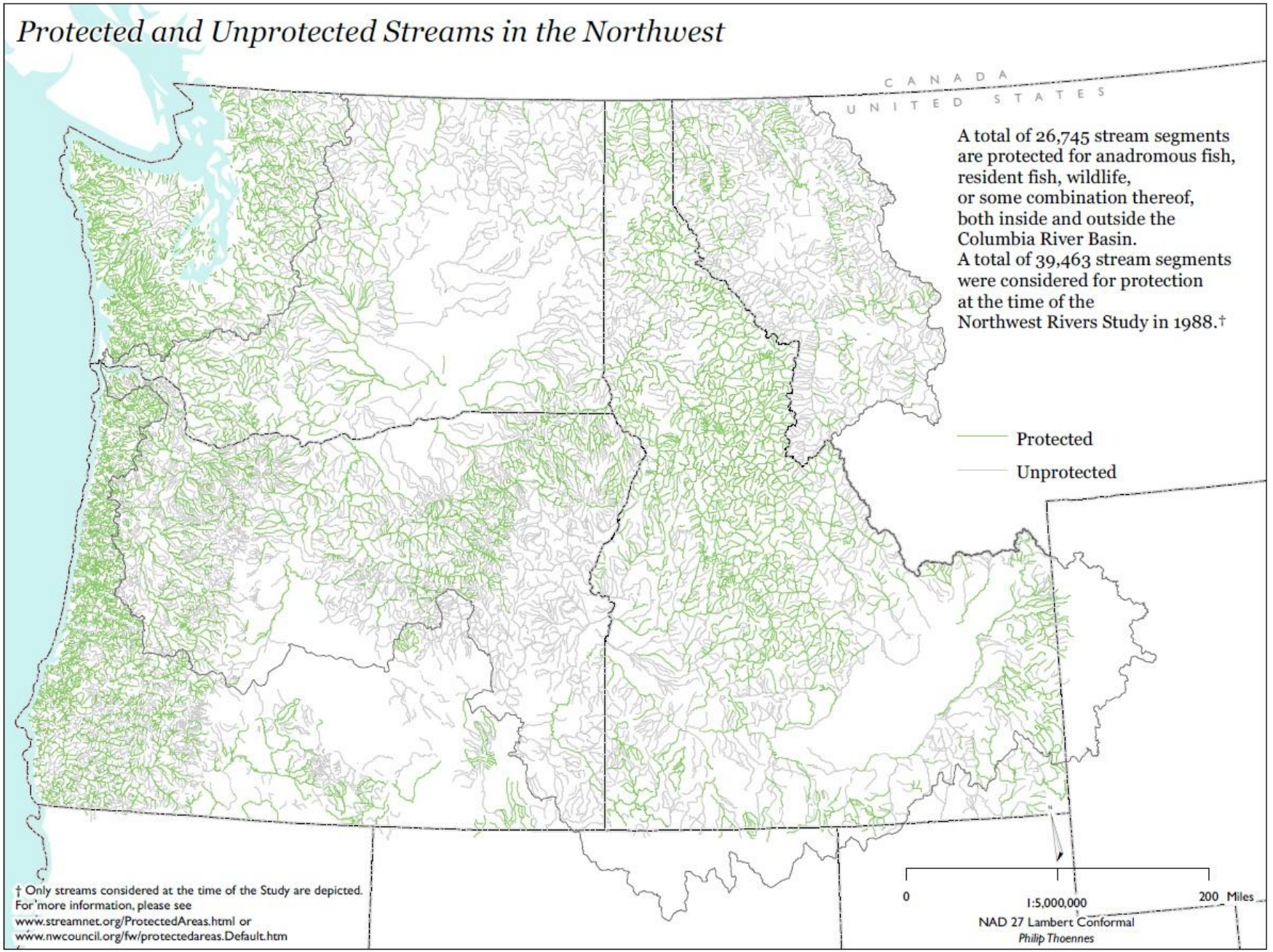
- The Council is called upon to consider protection, mitigation, and enhancement of fish and wildlife when developing and implementing its Regional Conservation and Electric Power Plan.[10]

9: *See supra* Note 3 at §839b(d)(1)[Northwest Power Act §4(d)(1) 94 Stat. 2706]
10: *Id.* at §839b(e)(2) [Northwest Power Act §4(e)(2) 94 Stat. 2707]

- Inclusion in a protected area does not technically prohibit hydroelectric development at a site. However, the Council:
  - Calls on FERC not to license new hydroelectric development in a protected area, and
  - Calls on BPA not to acquire electricity from such a project should one be licensed by FERC, nor to allow access to the Intertie in a way that would undermine protected areas policy.[11]

- The relationship between the Council's protected areas and FERC's licensing process has been successful…no hydropower projects have been constructed within a designated protected area.

11: *Id.* at §839b(h)(10)(A) [Northwest Power Act §4(h)(10)(A) 94 Stat. 2710]


Protected and Unprotected Streams in the Northwest
CANADA
UNITED STATES
A total of 26,745 stream segments are protected for anadromous fish, resident fish, wildlife, or some combination thereof, both inside and outside the Columbia River Basin.
A total of 39,463 stream segments were considered for protection at the time of the Northwest Rivers Study in 1988.†
Protected
Unprotected
† Only streams considered at the time of the Study are depicted. For more information, please see www.streamnet.org/ProtectedAreas.html or www.nwcouncil.org/fw/protectedareas.Default.htm
0
1:5,000,000
200 Miles
NAD 27 Lambert Conformal
Philip Thoennes

The Council exempted certain projects from prohibition, namely:[11]

- Facilities licensed by FERC as of August 10, 1988
- Relicensing such facilities
- Modifications to existing hydroelectric facilities
- Addition of generation to a non-hydro dam or diversion, if it existed as of the date protected areas status was granted.
- "Transition Projects," for which application or permits were sought from FERC before August 10, 1988.

11: *See supra* Note 4 at Appendix B

Technical Updates to Protected Areas

Due to the outmoded format of the data now constituting the protected areas database, now is the time to begin:

- Technical updates to the protected areas database.
- Discussions with state and tribal fish and wildlife managers regarding methods and future work.

- Prior to the Fish and Wildlife Program amendment process, technical updates were begun in 2010, and are ongoing.

- John Day Subbasin used as a pilot case with which to demonstrate update procedure.

Data Formats and Compatibility

Rivers Study Tabular Data

- Managers originally identified streams using 1:250,000 scale hydrography (established by EPA).

- Paper maps used as base for protection identification.

- Identification consists of:
  - Narrative: *e.g.* 'Hood R. between Odell Cr. and Ditch Cr.'
  - Stream Segment: River Reach Number (RRN)

Figure 3. Map of upper Flathead River drainage.

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- Many streams do not appear on 1:250k maps.
- Managers added streams by hand when necessary.
- Unfortunately…
  - Identification is based on *segments*, rather than whole streams.
  - New segments will change the order of upstream segments, requiring reclassification.[12]

…This makes transferring the original data to a more detailed dataset very difficult.

12: StreamNet PNW Reach File FAQs (http://www.streamnet.org/pnwr/faqs.htm)

- Due to changes in hydrographic mapping approaches in different states, the stream segment model (RRN) is no longer usable, but has been replaced with a whole stream routing approach.

- StreamNet has transferred the original tabular data to a 100k database.

- Whole stream route identified by Latitude/Longitude Identification (LLID), which is used in the 100k database.

- 100k Database
  - Includes both stream segments (RRN) and whole streams (LLID).
  - RRN to LLID is a many-to-one relationship.
  - This database preserves a link to the original tabular data, but can also be linked to more detailed data models.

- *Some states have moved to a simpler data format, which does not reflect the same architecture as the 100k database. This means basin-wide efforts are constrained to the least common denominator, that is, working with the simplest data model.*

- Mixed Scale Hydrography
  - Stream identification is based on whole streams (LLID).
  - No reference to the stream segments used in the tabular database (RRN).
  - Uses a 24k scale basis, so has a complex stream geometry relative to the 100k database.

- To transfer the protected areas data from the 100k database to the 24k database, a protocol needed to be tested.

- Transfer of Protection Status
  - To simplify the transfer of protection status and avoid errors, it is necessary to thin the universe of streams in the 24k database.
    1. Identify *only* those streams that were considered for protection in the original Rivers Study.
    2. *Create a protocol* for transferring the correct protection status to a stream in the 24k database.

- This protocol was successfully demonstrated in the John Day Subbasin, and will be implemented for the rest of the protected areas data on a priority basis.

- The Council established a formal exception process, contained within §1300 of the 1987 and 1994 Fish and Wildlife Programs,[13] but is no longer contained in the Fish and Wildlife Program.[14]
- The exception process was designed to allow projects with "exceptional fish and wildlife benefits" to proceed.
  - Fish and wildlife benefits were to be corroborated by appropriate state agencies and tribes.
  - Exceptions were granted on a case-by-case basis, and did not alter the protection status of the stream where the project was to be located.

13: *See supra* Note 5 at 6-8.
14: *See supra* Note 4.

This effort is ongoing, in conjunction with staff at StreamNet.

For more information, contact Philip Thoennes or Peter Paquet, Northwest Power and Conservation Council, (503) 222-5161.