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# Protocols for the Inventory and Monitoring of Fish, Wildlife, and their Habitats in the Pacific Northwest

*Briefing Paper and Statement of Work  
for*

*Volume 1: Protocols for Inventory and Monitoring of Salmon Habitat*

*Volume 2: Protocols for Counting Salmonids*

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**Issue and Background:** Federal, state, tribal, provincial, county, and other entities have statutory obligations for the management of fish and wildlife in the Pacific Northwest. Many fish and wildlife species have been listed as threatened or endangered, and the recovery consequences are profound with respect to the economy and way of life of citizens and businesses in the region. Land-use and urbanization, transportation, hydroelectric development, salmon hatcheries and harvest, and related human activities all affect fish and wildlife conservation, planning, and long-term prospects. The economic impacts are in the billions of dollars. The various Recovery Teams, watershed groups, and multi-state/international programs all require access to high-quality fish and wildlife data for their effectiveness.

Fish and wildlife data systems in the Pacific Northwest are evolving towards a decentralized, distributed access system. It will require substantial efforts and funding to systematically compile, archive, and provide access to the data. Currently, the region has ad-hoc distributed data sets that need a coherent structure, standards, protocols, and shared responsibility. Aspects of this issue are described in the Independent Scientific Review Panel's report, "Review of Databases Funded through the Columbia Basin River Fish and Wildlife Program" (<http://www.nwcouncil.org/library/isrp/isrp2000-3.pdf>).

This *Statement of Work* highlights efforts under a larger project on data protocols. The larger project is focused on delivering a robust set of protocols for the regionally-consistent acquisition of fish and wildlife information. Efforts described in this *Statement of Work* are aimed at organizing and recommending specific techniques for data collection. The data collected through the protocols recommended under this project will aid in providing a consistent foundation for plans to restore, protect, and monitor the health and biological capacity of aquatic and terrestrial habitats in the Pacific Northwest. With the concerted investments being placed in fish and wildlife habitat, there is an increasing desire to evaluate aspects of management-, restoration-, and mitigation-based projects. By linking projects with the protocols developed through this work, users will be better able to maximize their inventory, biological assessment, and monitoring investments.

Final products from the overall project are envisioned to include 5 volumes:

*Volume 1: Protocols for Inventory and Monitoring of Salmon Habitat*

*Volume 2: Protocols for Counting Salmonids*

*Volume 3: Protocols for Inventory and Monitoring of Wildlife Habitat*

*Volume 4: Protocols for Counting Wildlife*

*Volume 5: Protocols for Inventory and Monitoring of Estuarine/Nearshore Habitat*

**Work to be conducted under this project:**

Under this *Statement of Work*, we propose to develop and deliver *Volumes 1 and 2*. Specific aspects of Volumes 1 and 2 follow.

***Volume 1: Protocols for Inventory and Monitoring of Salmon Habitat***

Substantial work towards Volume 1 has already been undertaken. Johnson et al. 2001, (“Inventory and Monitoring of Salmon Habitat in the Pacific Northwest”, <http://www.wa.gov/wdfw/hab/sshiap/dataptcl.htm>) have recently completed a review of 492 salmon habitat protocols, and identified a subset of protocols for use by volunteers and management/researchers. We will build upon this important work by more closely cross-referencing the habitat variables (n=48) with 1) the data needs of habitat project types (n=77), and 2) project permit data needed to address regulatory obligations (e.g., ESA, Clean Water Act, state environmental quality statutes, etc). The key reason for this follow up work will be to highlight the specific subset of habitat variables where data is consistently *required* across the Pacific Northwest from those situations where the data is better described as *desired* or *optional*. A public and scientific review process will then be conducted, under NWPPC cover, with a final set of recommended protocols being adopted thereafter.

Final products for Volume 1 will reflect a 3-ring binder of complete protocols (hard copies) as well as Internet (web-based) and CD-ROM versions of the protocols. Copies of final materials will be housed, and made accessible, via the Columbia River InterTribal Fish Commission (CRITFC) SteamNet library. Digital products will be added to the NWPPC, WDFW, CRITFC, SteamNet, and others web sites.

***Volume 2: Protocols for Counting Salmonids***

While a large number of fish counting protocols exist, they have not been consistently organized, reviewed, or published as part of an entire package. We will first assemble the existing protocols and examine them against the *Essential Elements of Protocols* (see Johnson et al. 2001, p. 10). For *Volume 2*, we will assemble protocols that reflect methods of fish counting, e.g., gill netting, minnow trapping, electro-fishing, seine netting, snorkel counts, upstream/downstream counts, dam counts, egress channels, live and dead spawner surveys, smolt trapping, hook and line sampling, snorkel netting, sonar counts, trawl, hydroacoustics, remote video, and video transect. As with *Volume 1*, we will closely cross-reference the fish counting methods with 1) the data needs of project types, and 2) project permit data needed to address regulatory obligations (e.g., ESA, state environmental statutes, etc). A final subset of protocols will highlight methods for consistently gathering fish count data across the Pacific Northwest. A public and

scientific review process will then be conducted, under NWPPC cover, with a final set of recommended protocols being adopted thereafter.

Final products for Volume 2 will reflect a 3-ring binder of complete protocols (hard copies) as well as Internet (web-based) and CD-ROM versions of the protocols. Copies of final materials will be housed, and made accessible via the SteamNet library. Digital products will be added to the NWPPC, WDFW, CRITFC, SteamNet, and web sites.

**Timeline:** Work on *Volume 1* will be conducted from February 1 – May 31, 2002. Work on *Volume 2* will be conducted February 1 – December 31, 2002.

**Geographic Scope:** The geographic scope of the overall project includes the freshwater, terrestrial, and nearshore marine areas of Oregon, Washington, British Columbia, Idaho, and Montana. The protocols will also find important applications in California and Alaska. The majority of funding for work on *Volume 5* (estuarine and nearshore marine) will largely come from sources outside of the Columbia Basin.

**Budget Requested: \$118,035**

Funding for the preparation and delivery of *Volumes 1 and 2* is being requested by the Washington Department of Fish and Wildlife (WDFW) and the Columbia River InterTribal Fish Commission for this project (CRITFC). The Department of Fisheries and Oceans (British Columbia) is a project partner on this effort, and is providing an in-kind match of \$9,000 to this effort.

WDFW - Fish & Wildlife Bio 2 (1.75 FTE)	10 mo @ 7000/mo	70,000
- Fish & Wildlife Research Sci 1	1 mo @ 5000/mo	5,000
- Supplies		5,000
- Indirect (overhead) \$80,000 x 0.252%		<u>20,160</u>
	Total WDFW:	\$100,160
CRITFC - Library Technician	5 mo @ 2630/mo	13,150
- Indirect (overhead) \$13,150 x 0.359%		<u>4,725</u>
	Total CRITFC:	\$17,875
DFO – Fish Data Systems Team Leader	1.5 mo @ 6000/mo	<u>9,000</u>
	Total DFO	\$9,000 (in-kind)
	Total Project:	\$127,035
	<i>Total Funds Requested:</i>	<i>\$118,035</i>