

**Bonneville Power Administration**

**Fish and Wildlife Program FY98 Watershed Proposal Form**

**Section 1. General administrative information**

**Title** **Evaluate And Manage Fisheries Within The Pend Oreille River Watershed**

**Bonneville project number, if an ongoing project** 8011

**Business name of agency, institution or organization requesting funding**  
Kalispel Tribe of Indians

**Business acronym (if appropriate)** KNRD

**Proposal contact person or principal investigator:**

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**Subcontractors.**

<b>Organization</b>	<b>Mailing Address</b>	<b>City, ST Zip</b>	<b>Contact Name</b>
WDFW	600 Capitol Way North	Olympia, WA 98501-1091	Craig Burley
IDFG	600 S. Walnut P.O. Box 25	Boise, ID 83707	Eric Leitzinger

**NPPC Program Measure Number(s) which this project addresses.**  
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**NMFS Biological Opinion Number(s) which this project addresses.**  
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**Other planning document references.**  
Kalispel Natural Resource Department, Fish and Wildlife Management Plan

Resident Fish Manager’s Caucus. 1997. Multi-Year implementation plan for resident fish protection, enhancement and mitigation in the Columbia River Basin. Columbia Basin Fish and Wildlife Authority. Portland, OR.

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**Subbasin.**

Pend Oreille

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**Short description.**

Evaluate the physical and biological aspects of fisheries throughout the Pend Oreille Watershed. Base the management applications on scientific evaluation results.

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**Section 2. Key words**

Mark	Programmatic Categories	Mark	Activities	Mark	Project Types
	Anadromous fish		Construction	X	Watershed
X	Resident fish		O & M	*	Biodiversity/genetics
	Wildlife	*	Production	*	Population dynamics
	Oceans/estuaries	*	Research	*	Ecosystems
	Climate	*	Monitoring/eval.	*	Flow/survival
	Other	X	Resource mgmt	*	Fish disease
			Planning/admin.	*	Supplementation
		*	Enforcement	*	Wildlife habitat enhancement/restoration
			Acquisitions		

**Other keywords.**

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**Section 3. Relationships to other Bonneville projects**

Project #	Project title/description	Nature of relationship
9700400	Joint Stock sessment	will be using coordinated data collection/storage/analysis tools
9500100	Kalispel Tribe Resident fish	Experience, expertise, and equipment developed and acquired throughout the resident fish project will be used here.
9700300	Box Canyon Watershed project	Many of the lakes to be evaluated exist within the Box Canyon Watershed.

## Section 4. Objectives, tasks and schedules

### *Objectives and tasks*

<b>Obj 1,2,3</b>	<b>Objective</b>	<b>Task a,b,c</b>	<b>Task</b>
1	Prioritize waterbodies within the Pend Oreille River Watershed for evaluation	a	Measure concentrations of nutrients in selected lakes.
2	Evaluate the physical and biological aspects of the selected waterbodies	b	Inventory biological community of each waterbody; phytoplankton, macrophytes, zooplankton, macroinvertebrates, amphibians, and fish.
3	Recommend management applications based on evaluations	c	Evaluate and map the morphology of the waterbody.
4	Implement management applications	d	Outline successful management applications for each lake based on evaluations.
5	Construct a low capital, cold water, incubation and rearing facility connected to Kalipsel Largemouth bass facility.	e	Identify management options and needs for the entire Watershed.
6	Monitor and evaluate management applications.	f	Prescribe management applications for each waterbody based on management needs and evaluations.
		g	Implement management applications
		h	Research the feasibility of potential coldwater additions to the largemouth bass hatchery.
		i	Make necessary additions to bass hatchery enabling it to incubate and rear coldwater species.
		j	Monitor and evaluate the success of management applications.

### *Objective schedules and costs*

<b>Objective #</b>	<b>Start Date mm/yyyy</b>	<b>End Date mm/yyyy</b>	<b>Cost %</b>
1	1/1998	3/1998	1.00%
2	3/1998	10/2001	34.00%

3	3/1999	3/2002	5.00%
4	4/1999	12/2010	35.00%
5	7/1998	7/2000	20.00%
6	4/1999	12/2010	5.00%
			TOTAL 100.00%

**Schedule constraints.**

Funding is the only likely constraint of this project

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**Completion date.**

2010+

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**Section 5. Budget**

***FY99 budget by line item***

<b>Item</b>	<b>FY98</b>	<b>FY99</b>
Personnel	28,000	\$50,000
Fringe benefits	9,800	\$17,500
Supplies, materials, non-expendable property	15,000	\$20,000
Operations & maintenance	0	\$0
Capital acquisitions or improvements (e.g. land, buildings, major equip.)	20,000	\$70,000
PIT tags	# of tags: 0	\$0
Travel	1,500	\$2,000
Indirect costs	10860	\$26,320
Subcontracts		60,000
Other		
<b>TOTAL</b>		\$245,820

***Outyear costs***

<b>Outyear costs</b>	<b>FY2000</b>	<b>FY01</b>	<b>FY02</b>	<b>FY03</b>
Total budget	\$245,000	\$245,000	\$245,000	\$245,000
O&M as % of total	15.00%	15.00%	15.00%	15.00%

**Section 6. Abstract**

This project addresses watershed needs by focusing on fisheries management throughout the Pend Oreille River Watershed. Pend Oreille River Watershed fisheries management

has suffered because the changed environmental conditions have caused statewide regulations to be poor management strategies. Fisheries management strategies for specific bodies of water will be approved by all appropriate managing agencies and linked to management goals and objectives for the entire subbasin. Project outcomes include; improved fisheries management throughout the watershed, improved conditions and protection for sensitive species, more efficient and effective utilization of specific waterbodies, and improved angler satisfaction. Outcomes will be seen immediately after management applications are implemented and will continue for the duration of the project. Management applications will be vigorously monitored to ensure objectives for each waterbody and the watershed are achieved.

## **Section 7. Project description**

### **a. Technical and/or scientific background.**

The majority of waterbodies in the Pend Oreille River watershed have similar management strategies regardless of physical and biological conditions of the waterbody. Fisheries management throughout the Pend Oreille Watershed is relatively ignored. Many lakes, streams, rivers, and sloughs exist in the watershed. This project will have nearly immediate benefits throughout the watershed. Other resident fish substitution projects focus on improving fluvial habitat conditions and natural reproduction. Habitat and natural reproduction projects are long term remedies to problems and will take many years to see positive impacts. This project will supply short term as well as long term benefits to fisheries throughout the watershed.

### **b. Proposal objectives.**

1. Prioritize waterbodies throughout the watershed for fisheries management.
2. Inventory and evaluate physical and biological conditions of prioritized waterbodies throughout the watershed.
3. Inventory and evaluate management objectives and strategies for specific waterbodies and the watershed.
4. Recommend and implement a fisheries management plan for the watershed that addresses specific waterbodies throughout the watershed.
5. Improve the fisheries throughout the watershed.
6. Improve angler satisfaction.
7. Reduce angling pressure on naturally reproducing populations such as bull trout.

### **c. Rationale and significance to Regional Programs.**

The proposed project would allow more efficient and effective management of waterbodies. Angling pressure will be reduced in sensitive areas (currently being enhanced by FWP projects) due to updated regulations and improved angler satisfaction.

### **d. Project history**

This is a new project proposed for watershed funding in 1998.

**e. Methods.**

Management recommendations will be based on research done in each waterbody and compared to results found in similar waterbodies. Research will be conducted in four phases: 1) Research past management objectives and strategies for the waterbody (e.g. stocking density, species stocked, time of year stocked, size of stocked fish, fishing regulations, CPUE, etc.). 2) Sample the existing ecology. Preliminary ecological studies of the waterbody can reveal relatively accurate estimations of the carrying capacity of the waterbody (Bennett, 1971). The size of the fish will change based on fish density in the waterbody. To accurately characterize the ecology, macroinvertebrate and zooplankton populations must be sampled while fish are present. Without the presence of fish, macroinvertebrate and zooplankton populations will increase, possibly leading biologists to conclude significantly higher carrying capacity. 3) From the research conducted, recommend management direction and regulations for specific waterbodies in a larger watershed context. 4) After management recommendations are implemented, monitor each waterbody to determine if management objectives are met.

Estimating fish populations and life history strategies will be done using electrofishing, gill netting, snorkeling, radio tracking, purse seines and hydroacoustics based on specific waterbody type. Random sampling strategies on each waterbody will be designed to estimate total number of fish in each waterbody, percentage of each species in the assemblage by number and mass, and density of fish (fish/acre and pounds/acre). Sampling strategies for each waterbody will be used in preliminary studies and monitoring studies.

Zooplankton and populations will be sampled using a Clarke-Bumpus or vertical plankton tow. Zooplankton will be quantified by density (pounds/acre). Because fish production seems to be related to surface acre (Bennett, 1971), zooplankton density will be calculated on a per surface acre basis. Species composition will be of a quantitative nature, and any identification will be incidental. Samples of each tow will be kept and fixed for later identification if it is determined to be necessary. The main objective of sampling zooplankton is estimating the density of food. Bennett (1971) states that fish populations in most lake environments are limited by food.

Macroinvertebrate populations will be sampled using vertical plankton tows, Clarke-Bumpus plankton tow, Hess sampling, kick samples, stove pipe sampling, littoral transect sweeps, and dredging where feasible. Again, for this research the main objective is estimating the available food biomass for fish. Taxonomic classification to any level below family is unnecessary.

Description of the waterbody morphology will take place in the form of written description of the riparian area, depth, littoral zone, nutrient concentrations, area, and macrophyte community.

Once management recommendations for a specific waterbody are being implemented, a rigorous monitoring schedule will begin to make improvements in management recommendations and determine success or failure of the project. In addition

to monitoring fish and invertebrate populations, creel surveys will describe fishing pressure, angler satisfaction, and CPUE will be examined.

**f. Facilities and equipment.**

The KNRD field office and associated equipment and personnel will be used for implementation of this project.

**g. References.**

Ashe, B.L., K.L. Lillengreen, J.J. Vella, L.O. Clark, S. Graves, M.R. Barber, G.J. Nenema, Jr., and A.T. Scholz. 1991. Assessment of the fishery improvement opportunities on the Pend Oreille River. Upper Columbia United Tribes Fisheries Center. BPA Annual report Contract No. DE-A179-88BP39339.

Banneheka, S.G., R.D. Routledge, I.C. Guthrie, and J.C. Woodey. 1995. Estimation of in-river fish passage using a combination of transect and stationary hydroacoustic sampling. *Canadian Journal of Fisheries and Aquatic Sciences* 52:335-343.

Barber, M.R., B.L. Renberg, J.J. Vella, A.T. Scholz, K.L. Woodward and S. Graves. 1990. Assessment of the fisheries improvement opportunities on the Pend Oreille River. Upper Columbia United Tribes Fisheries Center, Annual Report 1990.

Behnke, R.J. 1972. The rationale of preserving genetic diversity: examples of the utilization of interspecific races of salmonid fishes in fisheries management. *Proceedings of the Annual Conference Western Association of Fish and Wildlife Agencies* 52:559-561.

Bennett, D.H. and M. Liter. 1991. Water quality, fish and wildlife characteristics of Box Canyon Reservoir, Washington. Department of Fish and Wildlife Resources College of Forestry, Wildlife and Range Sciences University of Idaho, Section 3: Fish Completion Report 1989-1990.

Bennett, G.W. 1971. Management of lakes and ponds, Second edition. Van Nostrand Reinhold Company. New York. NY.

Brandt, S.B., and K.J. Hartman. 1993. Innovative approaches with bioenergetics models: Future applications to fish ecology and management. *Transactions of American Fisheries Society* 122:731-735.

Carey, T.G., and G.I. Pritchard. 1995. Fish health protection: A strategic role in Canadian Fisheries Management. *North American Journal of Fisheries Management* 15:1-13.

Espgren, G.D., and E.P. Bergersen. 1990. Quantitative sampling of fish populations with a mobile rising. *North American Journal of Fisheries Management* 10:469-478.

Garner, P. 1997. Sample sizes for length and density estimation of 0+ fish when using point sampling by electrofishing. *Journal of Fish Biology* 50:95-106.

Goodman, B. 1991. Keeping anglers happy has a price, ecological and genetic effects of stocking fish. *BioScience*:294-298.

Hansen, M.J., D. Boisclair, S.B. Brandt, S.W. Hewett, J.F. Kitchell, M.C. Lucas, and J.J. Ney. 1993. Applications of bioenergetics models to fish ecology and management: Where do we go from here? *Transactions of American Fisheries Society* 122:1019-1030.

Northwest Power Planning Council. 1994. Columbia River Basin Fish and Wildlife Program 94-55.

Resident Fish Manager's Caucus. 1997. Multi-Year implementation plan for resident fish protection, enhancement and mitigation in the Columbia River Basin. Columbia Basin Fish and Wildlife Authority. Portland, OR.

Simonson, T.D., J. Lyons. 1995. Comparison of catch per effort and removal procedures for sampling stream fish assemblages. *North American Journal of Fisheries Management* 15:419-427.

## **Section 8. Relationships to other projects**

This project is related to the projects listed in Section three. The projects listed in section three are designed to meet long range implementation goals, this project is designed to see immediate benefits. This project will involve Idaho Department of Fish and Game, Washington Department of Fish and Wildlife, and the Kalispel Natural Resource Department in improving existing angler opportunities and developing non-existing opportunities that will minimize or reduce potential threats to sensitive populations. Providing opportunities and improved management strategies that protect sensitive populations will go a long way in protecting investments made in projects listed in Section three.

## **Section 9. Key personnel**

People working on this project will require a wide range of professional requirements and skills. All people (including subcontractors) working on this project will meet or exceed specific qualifications needed to implement this project as outlined by the Kalispel Tribe of Indians.

## **Section 10. Information/technology transfer**

Information will be in the form of annual reports, scientific reports, web pages, Streamnet, and public presentations.