Bonneville Power Administration
Fish and Wildlife Program FY98 Watershed Proposal Form

Section 1. General administrative information

Title # Resident Fish Stock Status Above Chief Joseph And Grand Coulee Dams

Bonneville project number, if an ongoing project 9700400

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.

Organization	Mailing Address	City, ST Zip	Contact Name
Washington DFW	600 Capitol Way North	Olympia, WA 98501-1091	Craig Burley
Spokane Tribe of Indians, Spokane Tribal Fish & Wildlife	P.O. Box 100	Wellpinit, WA 99040	Keith Underwood
Confederated Tribe of the Colville Reservation, Fish and Wildlife Division	P.O. Box 150	Nespelem, WA 99155	Kirk Truscott
Unidentified subcontractor	NA	NA	NA

NPPC Program Measure Number(s) which this project addresses.
10.8B.26

NMFS Biological Opinion Number(s) which this project addresses.
Does Not Apply

Other planning document references.
Kalispel Natural Resource Department (KNRD). 1997. 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 WildlifeAuthority. Portland, OR.

Subbasin.
Pend Oreille, Spokane, Upper Columbia Mainstem

Short description.
Coordinating, collecting, assessing, and making recommendations based on blocked area fisheries information.

Section 2. Key words

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

Other keywords.

Section 3. Relationships to other Bonneville projects

Project #	Project title/description	Nature of relationship
5528100	Lake Rooselt kokanee net pens	Blocked area coordination
8503800	Colville Tribal fiish hatchery	Blocked area coordination
9001800	Habitat improvements-Lake Roosevelt	Blocked area coordination
9104600	Spokane Tribal hatchery (Galbraith	Blocked area coordination

	Springs) O&M	
9104700	Sherman Creek hatchery O&M	Blocked area coordination
9404300	Lake Roosevelt Monitoring/data collection program	Blocked area coordination
9500100	Kalispel Tribe resident fish	Blocked area coordination
9501100	Chief Joseph kokanee enhancement project	Blocked area coordination
9502800	Assessment of fishery improvements in Moses Lake	Blocked area coordination
9506700	Lake Roosevelt rainbow trout net pens	Blocked area coordination
9700300	Box Canyon Watershed project	Blocked area coordination
8810804	Streamnet	Resident fish and region wide coordination.
9106001	Pend Oreille WetlandsII	Subbasin coordination

Section 4. Objectives, tasks and schedules

Objectives and tasks

Obj 1,2,3	Objective	Task a,b,c	Task
1	Construct a common computer system/database	a	Lease office space
2	Acquire and input/convert blocked area salmonid distribution into system	b	Lease and set up capital equipment for computer system
3	Complete cooperative blocked area distribution pilot project with Streamnet	c	develop system database
4	Conduct migratory salmonid research	d	Organize blocked area salmonid distribution
5	Compile existing information about the Spokane River	e	Input/convert fish distribution data into system.
		f	Analyze salmonid distribution of a selected watershed within the blocked area.
		g	Link central database data to Streamnet's spatial template.
		h	Place upstream and downstream migratratory traps in selected tributaries to Box Canyon Reservoir.
		i	Monitor/maintain traps daily

		j	Compile historical records, creel surveys, fish surveys, habitat inventories etc related to Spokane River

Objective schedules and costs

Objective #	Start Date mm/yyyy	End Date mm/yyyy	Cost %
1	01/1998	12/2003	22.00%
2	3/1998	12/2003	38.00%
3	1/1998	12/1998	11.00%
4	4/1998	12/2003	23.00%
5	1/1998	12/1998	6.00%
			TOTAL 100.00%

Schedule constraints.
It is impossible to identify all constraints and problems that may occur. While we will make every attempt to stay on schedule, unforseen assignments, bad weather, equipment failure, etc. will delay progress.

Completion date.
To be announced based on phases two and three.

Section 5. Budget

FY99 budget by line item

Item	Note	FY98
Personnel		$125000
Fringe benefits	33%	$41,250
Supplies, materials, non-expendable property		$20000
Operations & maintenance		
Capital acquisitions or improvements (e.g. land, buildings, major equip.)		$30,000
PIT tags	# of tags:	
Travel		$12000
Indirect costs	28.7%	$65,507
Subcontracts		$100,000

Other		$11,250
TOTAL		$405,007

Outyear costs

Outyear costs	**FY99**	**FY00**	**FY01**	**FY02**
Total budget	$421,000	$438,000	$438,000	$455,520
O&M as % of total	5.00%	5.00%	5.00%	5.00%

Section 6. Abstract

The Resident Fish Stock Status Above Chief Joseph and Grand Coulee Dams project (NWPPC program measure 10.8B.26) is designed and guided jointly by Washington Department of Fish and Wildlife (WDFW), Kalispel Natural Resource Department (KNRD), Spokane Tribe of Indians (STI), and Confederated Tribes of the Colville Reservation (CCT). The project emphasis is coordinating efforts in collecting and assessing blocked area fisheries information. Implementation of the project will take place in phases. The initial project planning and organization phase was completed in 1997. This phase defined project direction and identified critical components needed for project success. Phase one (1998) will begin implementing critical components identified in 1997. Critical components include; centrally located office space, central computer system/ database, formalized coordination group, input existing fisheries information, and coordinated data collection methodology. The planning phase of the project also identified compiling fisheries information on the Spokane River and assessing migratory salmonids in Box Canyon Reservoir as immediate research needs to be implemented in 1998. Phase two (1999-2001) will develop analysis tools, assess data, fill data gaps, and recommend management efforts. Phase 3 is an ongoing phase beginning in 2002 that will implement management recommendations and monitor and evaluate project recommendations.

Section 7. Project description

a. Technical and/or scientific background.

The Resident Fish Stock Status Above Chief Joseph and Grand Coulee Dams project (JSAP) is a cooperative project between all Washington fisheries management agencies and tribes (Washington Department of Fish and Wildlife, Spokane Tribe of Indians, Kalispel Tribe of Indians, and Confederated Tribes of the Colville Reservation) in the Columbia River Watershed upstream from Chief Joseph Dam (blocked area). Blocked area managers have recognized a need for a coordination project since 1993 when the project was proposed (see figure 1).

Management boundaries throughout the blocked area often are overlapping between the blocked area managers. Understanding that overlapping management

boundaries means very little in terms of system linkages. Despite hydroelectric fish blockages, the blocked area is linked together in a fluvial system that is unique, artificial, and misunderstood. Currently, a great deal of blocked area fisheries information exists but is not available to the managers. Much of the data collected throughout the blocked area is in hard copy form, in file cabinets, unanalyzed. Data collections need to be coordinated so that critical portions of the blocked area are researched. This boundary overlap and system linkage highlights a need for blocked area managers to be involved in management strategies and research that takes place throughout the blocked area.

This project was one of four resident fish projects placed on a pending list for funding in 1997. Original funding projections for the 1997-planning phase of the project, after a four-percent across the board cut, was $56,250. This budget would cover planning and organization of subsequent phases of the project. The project began 1997 partially funded at $17,280. Through the quarterly review process and other accounting processes, money became available to fully fund the project to $56,250 for 1997.

This project has been designed in phases of implementation. The phase completed in 1997 (planning phase) was one of project planning, organization, and coordination. The 1997 planning phase formalized the need, developed a planning/coordination group, and identified critical components for project success. Critical components identified in 1997 include organizing and inputting existing fisheries data, develop an integrated database housed at a central location, central database accessibility to all blocked area managers, and coordination with the Streamnet project. The JSAP will function to standardize the blocked areas stock status and associated habitats, data collection methods, identify data gaps, and fill data gaps.

This project is on schedule to begin phase one of the project in 1998. Phase one includes the design and construction of a common computer system/database. This phase is essential to the success of subsequent phases of the project. During the planning phase of the project (1997) coordination with the Streamnet project took place to maximize efficiency of both projects. Design of the JSAP computer system/database will be consistent with recommendations made by Streamnet staff. Data exchange formats and use of common structures/software will accelerate results for both projects by incorporating Upper Columbia resident fish data into the Streamnet system and using knowledge, expertise, and resources already developed by the Streamnet project in the JSAP. In addition to design and construction of the database, existing salmonid distribution data will be input and converted into the database to test and refine the database in a pilot project with Streamnet. Two projects identified as high priority needs in the planning phase are included in the phase one (1998) Scope of Work. These projects include researching migratory salmonids and organizing existing data on the Spokane River System. Successful completion of Phase one will allow the project to stay on schedule, beginning phase two in 1999. In phase two
a GIS system that is coordinated with the computer system/database will be implemented along with other analysis techniques that will allow managers to assess available data, fill data gaps, and recommend management implementation projects.
The extensive and unique hydroelectric system that exists in the blocked area has created an unnatural ecosystem that is relatively understudied and misunderstood. Despite the habitat fragmentation of the blocked area, the aquatic ecosystem functions are linked

throughout the blocked area. Bonneville Power Administration (BPA) currently funds 12 Resident Fish substitution projects in the blocked area and the basin-wide Streamnet project. This project will act as the glue or coordination for blocked area projects and supply blocked area resident fish data to the Streamnet project.

b. Proposal objectives.

1. Maximize fisheries management efficiency and effectiveness throughout the blocked area by coordinating fisheries projects and management strategies.
2. Central, blocked area fisheries data storage/analysis system.
3. Identify blocked area data gaps.
4. Conduct research to fill data gaps.
5. Recommend management applications for blocked area fisheries bases on research.
6. Coordinate with the Streamnet project.
7. Improve public relations.

c. Rationale and significance to Regional Programs.

The fisheries in the Washington portion of the Columbia River watershed located upstream from Chief Joseph and Grand Coulee dams (blocked area) is managed by four managing agency and tribes. Historically, the blocked area functioned as a fluvial ecosystem physically and biologically. Hydroelectric projects have changed the ecosystem funcion significantly by eliminating anadromous fish runs and changing a mostly fluvial environment to a series of connected lacustrine environments. The connectivity of the lacustrine environments combined with overlapping management boundaries and supplying water for downstream anadromous fish requires management coordination to ensure resident fish are protected. Bonneville Power Administration currently funds 12 resident fish substitution projects in the blocked area. These projects have very little coordination between them. Furthermore, the Streamnet project has no fisheries information for the blocked area. This project will provide Streamnet with blocked area fisheries information. This project is identified in the multi year implementation plan (MYIP), the Kalispel Natural Resource Department (KNRD) Fish and Wildlife management plan, and is listed in the Northwest Power Planning Council's (NWPPC) Fish and Wildlife program (measure 10.8B.26).

d. Project history

This project was one of four resident fish projects placed on a pending list for funding in 1997. Original funding projections for the 1997-planning phase of the project, after a four-percent across the board cut, was $56,250. This budget would cover planning and organization of subsequent phases of the project. The project began 1997 partially funded at $17,280. Through the quarterly review process and other accounting processes, money became available to fully fund the project to $56,250 for 1997. The 1997 annual project progress report is currently in press.

e. Methods.

The methods for this project are to first construct a central computer system that has the ability to store and analyze blocked area fisheries information. Second, input/convert existing fisheries information into the system. Third, analyze the existing data. Fourth, identify critical data gaps or essential blocked area fisheries information that is needed. Fifth, recommend research to fill data gaps. Sixth, recommend management actions based on research projects. Because research projects are unknown at this time describing methodologies is impossible. Research methodologies will be outlined as each project evolves.

f. Facilities and equipment.

Construction of a central computer system is a key to project success. The computer system will be a centrally located hub with the ability to communicate with satellite machines located at agency and tribal offices. This allows managers working on satellite machines to input, analyze, and interpret blocked area fisheries information stored centrally. Central storage and access to blocked area data gives managers the ability to make decisions based not only on local information, but pertinent information that has been gathered throughout the blocked area.

The computer system is scheduled to be developed in phases. Phase one (1998) will be acquiring the bulk of the capital equipment to run the system. The system database will be developed for at least blocked area fish distribution during phase one. Additional database components will be developed on a "as needed" basis throughout phase one and subsequent phases. Phase two will involve development of analysis tools linked to the database such as geographic information systems (GIS).

The computer system will have the following components:

DATABASE SERVER/WORKSTATION

Features:

- Intel 300 Mhz Pentium II w/512K ECC Cache (Expandable to 2 processors)
- ECC Memory System w/ 128MB EDO Buffered expandable to 512MB
- 4 GB Ultra SCSI 3 5400RPM Hard Drive
- 3.5" 1.44MB Diskette Drive
- 12X SCSI CD-ROM
- 3 Com PCI 10/100 Twisted Pair Ethernet
- Slots: Three 32-bit PCI, Two EISA, One PCI/EISA
- Integrated 32-bit PCI, Two EISA, One PCI/EISA
- Integrated 32-bit PCI Graphics w/2MB DRAM
- 104^{+} Keyboard
- 21" monitor
- 56 K data modem

- NT Server 4.0
- APC UPS Backup 650
- Mouse & Mouse Pad
- MS Office 97, Professional edition

CENTRAL OFFICE SATELLITE MACHINES

Features:

- Intel 266MHz Pentium II Processor w/MMX Technology
- 32MB EDO DRAM
- Internal 512K L2 Secondary Write-Back Cache
- AccelGraphics Permedia 2 AGP 8MB Video Card
- 3.2 Ultra ATA hard drive
- 3.5" 1.44MB Diskette Drive
- Slots: three 32-bit PCI, one 16-bit ISA, one PCI/ISA, and one AGP
- 12X CD-ROM
- 104^+ Keyboard
- 56 K data modem
- 3COM PCI 10/100 Twisted Pair Ethernet Adapter
- Mouse and Pad
- Windows NT Workstation 4.0
- 19"monitor
- MS Office 97, Professional edition
- APC UPS Backup 650

SATELLITE OFFICES MACHINES

Features:

- Intel 266MHz Pentium II Processor w/MMX Technology
- 32MB EDO DRAM
- Internal 512K L2 Secondary Write-Back Cache
- AccelGraphics Permedia 2 AGP 8MB Video Card
- 3.2 Ultra ATA hard drive
- 3.5" 1.44MB Diskette Drive
- Slots: three 32-bit PCI, one 16-bit ISA, one PCI/ISA, and one AGP
- 12X CD-ROM
- 104^+ Keyboard
- 56K data modem
- 3COM PCI 10/100 Twisted Pair Ethernet Adapter
- Mouse and Pad
- Windows NT Workstation 4.0
- 19"monitor
- MS Office 97, Professional edition

- APC Office Backup UPS
- External storage (Zip drives)

OFFICE SPACE NEEDS

A central computer system that can freely be accessed by all blocked area agencies and tribes requires a central location. This central location will have offices, meeting space, workspace, field storage, and the central computer system. Blocked area managers agreed the most appropriate place for the central office is Spokane. Spokane is centrally located, close to a major airport, and has reliable power, phone, and internet/e-mail access. Additionally, Spokane is an attractive place to live that will enable the project to hire a qualified database administrator at a competitive rate. The project is scheduled to select office space and begin moving in January 1998.

g. References.

Bonar, S.A., M. Divens, and B. Bolding. 1997. Mehtods for sampling the distribution and abundance of bull trout/dolly varden. Washington Department of Fish and Wildlife: Fish Management Program Report RAD97-05. Olympia, WA.

Espinosa, A. 1988. Clearwater Stream Survey Methodology. Clearwater National Forest, Orofino, Idaho.

Hankin, D.G., and G.R. Reeves. 1988. Estimating total fish abundance and total habitat area in small streams based on visual estimation methods. Canadian Journal of fisheries and aquatic sciences. 45:833-844.

IRICC Fish/Hydrography Strike Team. 1996. Stage I Common data standards for aquatic inventory and stream identification.

Kalispel Natural Resource Department (KNRD). 1997. 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 WildlifeAuthority. Portland, OR.

Rosgen, D.L. 1994. A classification of natural rivers. Catena, Elseiver publications, Amsterdam.

Timber Fish and Wildlife (TFW). 1994. Ambient monitoring program manual. TFW-AM9-94-001, Olympia, WA.

Underwood, K.D., and J.P. Shields. 1996. Lake Roosevelt fisheries and limnological research 1995 annual report. U.S. Department of Energy, Bonneville Power Administration contract No. DE-8179-88DP91819. Portland, OR.

Washington Department of Fish and Wildlife (WDFW): Fisheries management division. 1995. Genetic diversity units and major ancestral lineages of salmonid fishes in Washington. WDFW Report No. RAD 95-02. Olympia, WA.

Washington Department of Fish and Wildlife: Fisheries management division. 1993. Guidelines for using lake and stream survey forms. WDFW form No. 699.

Section 8. Relationships to other projects

This project will be related to all blocked area resident fish substitution projects sponsored by blocked area managers. Information gathered in the projects will be stored and analyzed in the central computer system. This project will also serve to coordinate data collection methodologies for blocked area fisheries research. This project has, and will continue to work closely with the Streamnet project for methodologies, technical information/equipment, data exchange formats, and data sharing.

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.