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## PART I - ADMINISTRATIVE

### Section 1. General administrative information

Title of project

Protect & Restore Lapwai Creek

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**BPA project number:** 9901700

**Contract renewal date (mm/yyyy):** 3/2000  **Multiple actions?**

**Business name of agency, institution or organization requesting funding**

Nez Perce Fisheries/Watershed

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**Business acronym (if appropriate)** NPT

**Proposal contact person or principal investigator:**

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**NPPC Program Measure Number(s) which this project addresses**

Section 7.6 - Habitat goals, policies, and objectives; Section 7-7 Cooperative habitat protection and improvement with private landowners; Section 7-8 Implement state, federal, and tribal habitat improvements.

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**FWS/NMFS Biological Opinion Number(s) which this project addresses**

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**Other planning document references**

Bonneville Power Administration, 1997. Watershed Management Program: Final Environmental Impact Statement.

Columbia Basin Fish and Wildlife Authority, 1997. Integrated Watershed Projects: The Process and Criteria for Selecting Watershed Projects for the Columbia Basin Fish & Wildlife Program.

Columbia River Fish & Wildlife Program, 1994. Columbia River Basin Fish & Wildlife Program

CRITFC, 1995. WY-KAN-USH-MI-WA-KISH-WIT, Spirits of the Salmon, Volume I & II. Portland, OR.

Nez Perce Tribe and Idaho Department of Fish & Game, 1990. Clearwater River Subbasin Salmon and Steelhead Production Plan. Power Planning Council & CBFWA. Boise, ID.

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**Short description**

Restore Lapwai Creek to a more healthy and productive system which is capable of sustaining a self-perpetuating population of anadromous and resident fish.

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**Target species**

Targeted species include A-run steelhead, Coho Salmon, and Fall Chinook.

## Section 2. Sorting and evaluation

### Subbasin

Clearwater River Subbasin

### Evaluation Process Sort

CBFWA caucus	Special evaluation process	ISRP project type
Mark one or more caucus	If your project fits either of these processes, mark one or both	Mark one or more categories
<input checked="" type="checkbox"/> Anadromous fish <input type="checkbox"/> Resident fish <input type="checkbox"/> Wildlife	<input checked="" type="checkbox"/> Multi-year (milestone-based evaluation) <input checked="" type="checkbox"/> Watershed project evaluation	<input type="checkbox"/> Watershed councils/model watersheds <input type="checkbox"/> Information dissemination <input type="checkbox"/> Operation & maintenance <input type="checkbox"/> New construction <input type="checkbox"/> Research & monitoring <input checked="" type="checkbox"/> Implementation & management <input type="checkbox"/> Wildlife habitat acquisitions

## Section 3. Relationships to other Bonneville projects

**Umbrella / sub-proposal relationships.** List umbrella project first.

Project #	Project title/description

### Other dependent or critically-related projects

Project #	Project title/description	Nature of relationship
9608600	Clearwater Watershed Coordinator- Idaho Soil and Conservation District	Coordinate all projects within the Clearwater Subbasin
8335000	Nez Perce Tribal Hatchery	Watershed protection and restoration for anadromous fish.
9600600	Clearwater Watershed Coordinator- Nez Perce Tribe	Coordinate all projects within the Clearwater Subbasin
9901600	Protect and Restore Big Canyon Watershed	was in umbrella table
9607711	Restore McComas Meadows/Meadow Creek Watershed	was in umbrella table
9607708	Protect and Restore Lolo Creek Watershed	was in umbrella table
9607709	Protect and Restore Squaw to Papoose Watersheds	was in umbrella table
9607707	Focus Watershed Coordinator	was in umbrella table
20087	Protect and Restore Mill Creek	was in umbrella table
20085	Analyse and Improve Fish Screens	was in umbrella table
20086	Rehabilitate Newsome Creek	was in umbrella table
20084	Protect and Restore the North Lochsa Face Analysis Area Watersheds	was in umbrella table

## Section 4. Objectives, tasks and schedules

### *Past accomplishments*

Year	Accomplishment	Met biological objectives?
1999	Completed a watershed assessment on Lapwai Creek	This is an important pre-cursor to any biological objectives being set up.

### *Objectives and tasks*

Obj 1,2,3	Objective	Task a,b,c	Task
1	Establish a Lapwai Creek advisory group to address the needs of the creek.	a	Develop Best Management Practices (BMP) for Lapwai Creek Watershed.
		b	Meet monthly to discuss concerns, projects, needs, etc.
		c	Document meetings and work done within the watershed.
2	Gather additional hydrological data on Lapwai Creek.	a	Work with Nez Perce Tribal Water Resources to gather additional channel monitoring data.
		b	Aid in the monitoring of current sights.
		c	Monitor channel substrate.
		d	Determine flow regimes needed for fisheries in Lapwai Creek and tributaries.
		e	Determine required flow releases from Mann's Lake and Winchester Lake.
3	Immediate work to be done within Lapwai Creek riparian zones	a	Fence Lapwai Creek on lands that important to anadromous fish.
		b	Provide off channel watering sights for the livestock.
		c	Re-vegetate streambanks where there is highly erodable and unstable soils.
4	Disseminate information about work in the watershed.	a	Write quarterly and annual reports.
		b	Write proposals for future project years.
		c	Prepare and deliver presentation's to peers and public.

### *Objective schedules and costs*

Obj #	Start date mm/yyyy	End date mm/yyyy	Measureable biological objective(s)	Milestone	FY2000 Cost %
1	3/2000	2/2001		X	10.00%
2	3/2000	2/2001		X	30.00%
3	7/2000	9/2000		X	50.00%

4	3/2000	2/2001		X	10.00%
				<b>Total</b>	100.00%

**Schedule constraints**

Due to incimate weather and land ownership within the watershed there may be some schedule constraints.

**Completion date**

2010

**Section 5. Budget**

**FY99 project budget (BPA obligated):** \$162,000

***FY2000 budget by line item***

<b>Item</b>	<b>Note</b>	<b>% of total</b>	<b>FY2000</b>
Personnel		%43	26,380
Fringe benefits		%10	6,332
Supplies, materials, non-expendable property		%4	2,500
Operations & maintenance		%0	
Capital acquisitions or improvements (e.g. land, buildings, major equip.)		%0	
NEPA costs		%0	
Construction-related support		%0	
PIT tags	# of tags:	%0	
Travel		%4	2,380
Indirect costs		%15	9,184
Subcontractor		%20	12,000
Other	Vehicle costs	%4	2500
<b>TOTAL BPA FY2000 BUDGET REQUEST</b>			<b>\$61,276</b>

***Cost sharing***

<b>Organization</b>	<b>Item or service provided</b>	<b>% total project cost (incl. BPA)</b>	<b>Amount (\$)</b>
Nez Perce Tribal Land Services	Lower instream restoration plan	%38	100,000
Idaho Department of Transportation	Upper instream restortation plan	%38	100,000
		%0	
		%0	
<b>Total project cost (including BPA portion)</b>			<b>\$261,276</b>

***Outyear costs***

	<b>FY2001</b>	<b>FY02</b>	<b>FY03</b>	<b>FY04</b>
<b>Total budget</b>	\$100,000	\$100,000	\$100,000	\$50,000

## Section 6. References

Watershed?	Reference
<input type="checkbox"/>	Adams, Barry & Fitch, Lorne, 1998. Caring for the Green Zone. Pub. No. 1-581.
<input type="checkbox"/>	Columbia Basin Fish and Wildlife Authority, 1997. Intergrated Watershed Projects: The Process and Criteria for Selecting Watershed Projects for the Columbia Basin Fish & Wildlife Program.
<input type="checkbox"/>	Columbia River Fish & Wildlife Program, 1994. Columbia River Basin Fish & Wildlife Program
<input type="checkbox"/>	CRITFC, 1995. WY-KAN-USH-MI-WA-KISH-WIT, Spirit of the Salmon, Volume I & II. Portland, OR.
<input type="checkbox"/>	Harrelson, Cheryl, et al. 1994. Stream Channel Reference Sites: An Illustrated Guide to Field Technique. General Technical Report RM-245.
<input type="checkbox"/>	Kucera, P.A., Johnson, J.H.. 1983. A Biological and Physical Inventory of the Nez Perce Reservation.
<input type="checkbox"/>	Nez Perce Tribe and Idaho Department of Fish & Game, 1990. Clearwater River Subbasin Salmon and Steelhead Production Plan. Power Planning Council & CBFWA. Boise, ID.
<input type="checkbox"/>	Rhodes, Jonathan J. 1997. Field review of Impacts Associated with Actions Taken to Stabilize Banks and Rebuild Rail Line Along Lapwai Creek, Upstream of Lapwai, ID. Portland, OR.
<input type="checkbox"/>	Rosgen, Dave. 1996. Applied River Morphology. Pagosa Springs, CO
<input type="checkbox"/>	Steward, Cleveland. 1996. Monitoring and Evaluation Plan for the Nez Perce Tribal Hatchery.
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

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## PART II - NARRATIVE

### Section 7. Abstract

Lapwai Creek has historically, and to some extent today, supported an A-run steelhead population but because of natural events, commercial, agricultural, and transportation activities it has been severely impacted negatively. The Nez Perce Tribal Hatchery (NPTH) has also began the outplanting of Coho salmon within the drainage to reintroduce a species that was eliminated by these land practices. The main goal of this proposal is to continue work in re-establishing a healthy watershed that will benefit fish, wildlife, within the watershed. This will be accomplished by working cooperatively with agencies of the region including but not limited to all resources in the Nez Perce Tribe, private landowners, Idaho Department of Transportation, and Camas Railroad. Within section 7.6 of the Columbia River Basin Fish & Wildlife Plan coordinated, cooperative efforts to protect salmon and steelhead habitat within the basins are needed. Our proposal will be organized to meet this section of plan. Passive restoration is not applicable within the watershed due to the land management practices so we will use a Bioengineering approach to accomplish our goals. We will use riparian vegetation to stabilize streambanks and filter sediment entering the riparian zone. A five-year plan will be developed for work within the Lapwai Creek watershed, upon completion of the assessment in 1999. This plan will work toward re-establishing historical fish habitat and increase anadromous fish populations. The rehabilitation of this creek will take at least five years of continuous work that will help re-establish historical fish habitat. We will monitor our impacts by doing Rosgen stream survey's to access hydrological affects, snorkel counts to document juvenile survival, and redd counts to document adult spawning success.

## **Section 8. Project description**

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

Lapwai Creek flows for approximately 28 miles located entirely within the Nez Perce Reservation and flows directly into the Clearwater River (Kucera, et.al., 1983). The cities of Lapwai, Sweetwater, Culdesac and Winchester are all located on the mainstem of Lapwai Creek and contribute to the problems within the watershed. Lapwai Creek was once a free flowing stream but with the establishment of Lapwai Lake (Winchester Lake) the stream flow characteristics were changed dramatically. The flow regimes for the lake and stream are contributing to the problems of dewatering during late summer and thus destroying much of the habitat within the upper reaches of the watershed. There is also a second lake that was created on a tributary of the lower reach of Lapwai Creek. This lake is called Mann's Lake and is an irrigation empoundment that is located on Webb Creek. These two lakes contribute to the low flow problems within the watershed and will be addressed in order to make this a productive habitat for both anadromous and resident fish.

Lapwai Creek has historically, and to some extent today, supported an A-run steelhead population but because of natural events, commercial, agricultural, and transportation activities it has been severely impacted. Highway 95 south parallels its channel causing the stream to be channelized for more than 10 miles. Stream reaches that are not channelized were heavily damaged in the 1996 flood event, which caused riparian vegetation to up-root, gravel's were deposited, stream banks eroded and it was forced out of its original stream channel. Following the flood, dozers and backhoes were allowed to enter the stream channel without restriction or regard for fisheries habitat protection. The flood in combination with stream excavation intended to abate future flood impacts, have compounded the damage done to fisheries habitat. These activities have permanently changed the characteristics of Lapwai Creek. Within the watershed logging, road building, grazing, and flood control activities have created major habitat constraints (CRITFC, 1995). The constraints include sedimentation, low flows, waters quality (temperatures), migration barriers, rearing and spawning habitat, riparian degradation and channel/bank instability (CRITFC, 1995). These problems are evident within the entire watershed with few unaffected reaches and need to be addressed in order to provide the habitat necessary to successfully rehabilitate Lapwai Creek.

At this point there is no coordinated effort to address the problems within the watershed. There are focus watershed coordinators within the Nez Perce Tribe and the state of Idaho. These coordinators are working within the Clearwater Subbasin and do have a wish to work within specific watersheds but have not had the opportunity to do so in the Lapwai Creek Watershed. We will include these individuals as the cornerstones of our work within the watershed. Section 7 of the Columbia River Fish & Wildlife Program directs agencies to work in a cooperative way for the benefit of the resource.

Although flooding is a natural event that is part of all healthy ecosystems, Lapwai Creek can no longer handle high flow events due to the man's attempts to meet only their needs and not the needs of the stream. The flood event of 1996 had an even greater effect on the creek due to man's interference. Lapwai Creek is currently confined to a fragmentary floodplain that has been severed from the historic floodplain by channelization from the highway and the railroad. Historically, Lapwai Creek was sinuous and meandered across the entire floodplain. Floodplain encroachment and fragmentation has had two major effect on the stream that contributes to its instability: 1) the channel confinement within a narrow floodplain forces the channel to make adjustments within the fairly narrow band (only 200 to 300 feet wide in many reaches); 2) flood flows that once were at least partially detained in the floodplain during high flows are now concentrated within the narrow remnant floodplain, increasing the geomorphic work done on the channel during floods (Rhodes, 1997).

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

The restoration of Lapwai Creek to provide healthy habitat for anadromous fish is included within multiple documents including; Nez Perce Tribal Hatchery (NPTH), the Tribal Recovery Program (Spirit of the Salmon), Columbia Basin System Production Plan for Salmon and Steelhead, and the Columbia River Basin Fish and Wildlife Program. Each of these documents will be discussed in this section.

The Nez Perce Tribal Hatchery's primary goal is to supplement fish numbers to help re-establish natural populations of salmon in the Clearwater subbasin until natural production has stabilized at sustainable levels (Steward, 1996). A majority of 1.5 million fall chinook reared at Cherrylane facility will be released as subyearling smolts directly in to the lower mainstem Clearwater River. The remaining smolts will be diverted to the Lapwai Creek satellite facility where they will be held to imprint on the local water supply after which they will be released into Lapwai Creek (Steward, 1996). These supplementation activities rely heavily on quality of the habitat and the water quality. Our work within the Lapwai Creek watershed is designed to meet the needs of NPTH and improve anadromous and resident fish habitat.

The second regional document is Wy-Kan-Ush-Mi-Wa-Kish-Wit, The Spirit of the Salmon, which is the fish restoration plan of the four Columbia River Tribes. The goals for fish restoration focus on putting fish back into the rivers and tributaries but one of the goals emphasizes using strategies that rely on natural production and healthy river systems to achieve the restoration activities of the tribes (CRITFC, 1995). Putting fish back into river and stream systems alone are not enough to restore their populations, they need a healthy system to return, spawn, and rear in. Our proposal will mitigate (in place, in kind) by re-establishing a healthy stream and watershed ecosystem.

The Clearwater River Subbasin Salmon and Steelhead Production Plan (CRP) discusses the habitat protection needs, constraints and opportunities for establishing production objectives, and anadromous fish production plans. Lapwai Creek is classified within the document as a class 3 stream, by habitat degradation standards, which means that there is up to a 20% reduction in natural production capacity that has occurred due to high sediment levels (CRP, 1990). Our work within the watershed is designed to address this issue and implement plans that will help increase the natural production capacity by at least 10% in the short term (within 5 years) and an additional 10% in the long term (beyond 5 years). We are also working to address other concerns within the watershed listed in section 7. We will begin addressing the data gaps identified within the Columbia River Fish & Wildlife Plan to further our baseline information before work is done in the watershed. The habitat objectives include protecting and/or enhancing habitat in streams used or potentially used by anadromous fish to enable optimum production and to provide adequate streamflows for the spawning, incubation, rearing and migrating life stages of anadromous fish (CRP, 1990).

The final regional plan is the Columbia River Basin Fish & Wildlife Program (CRBFWP). Habitat restoration is a large part of the plan because habitat quality improvements are needed to increase the productivity of many stocks. Reduced habitat quality results in lower survival during critical spawning, incubation, rearing and migration periods, even when population densities are low (CRBFWP, 1994). The improvement of habitat will allow greater juvenile and adult survival at each freshwater stage. Anadromous fish spend from one to three years of their life cycle in freshwater as juveniles and several months as adults. During these freshwater stages human activities have the greatest impact on the survival of these populations (CRBFWP, 1994). The Council believes the best approach to watershed restoration is for activities to be cooperative between federal, state, private and tribal agencies. "Furthermore, if watershed restoration is to be successful, instream restoration should be accompanied by riparian and upslope restoration. Positive actions taken to rehabilitate watersheds in the interest of rescuing and restoring salmon and steelhead stocks will result in long-term benefits to other basin resources dependent on watershed health", (CRBFWP, 1994). Lapwai Creek has been so severely damaged by the activities within the watershed that the habitat concerns throughout the watershed must be addressed. We will look at addressing all habitat areas within the watershed and creating a plan that will contribute to the rehabilitation of Lapwai Creek and its tributaries.

### **c. Relationships to other projects**

There are current efforts that have begun within the watershed between Idaho Department of Transportation (IDT) and Nez Perce Tribal Water Resources (NPWR) to correct some of these problems. These plans are being designed primarily for flood control but there is a fisheries aspect to the planning. The work is being contracted with Geomax, an environmental engineering firm from Spokane, WA. This firm is being used to provide consistency throughout the watershed plan is doing both the upper watershed and the lower watershed design. They were contracted with IDT in the upper reaches and NPWR in lower section.

We have also begun a cooperative agreement with the Center for Environmental Education at Washington State University in Pullman, WA. This agreement is being initiated through watershed assessments and will expand to include their staff to assist with project design and information dissemination. The assessment model is designed to develop and document scientifically based understandings of the natural and cultural ecology of the area, to provide management recommendations and to establish the groundwork for planning, and monitoring & evaluation of restoration activities in the watersheds. While many people currently understand the need for watershed assessments, little agreement exists about what methodology should be used. Three assessment models are commonly referred to as standards in the Pacific Northwest: The Revised Federal Guide for Watershed Analysis (1995); The Washington Forest Practices Board's Standard Methodology for Conducting Watershed Analysis (1997); and Non-Point Source Solutions Oregon Watershed Assessment Manual (1997). All three of these methodologies provide procedures for level 1 analysis, with limited or no procedures for level 2 analyses. None of the three, include any significant analysis of cultural, social or economic factors impacting the history and potential for watershed management and restoration. This agreement is allowing us to develop an assessment that will address these needs by taking pieces of the three methodologies and including omitted information to develop a comprehensive watershed assessment model.

Lapwai Creek has been selected as a satellite facility to outplant fall Chinook within the Nez Perce Tribal Hatchery (NPTH) plans. There is also a permanent hatchery sight located on Sweetwater Creek, which is a tributary to Lapwai Creek. The Sweetwater facility incubated fall and spring Chinook and coho salmon for release into many streams including Lapwai and its tributaries.

The final relationship is within the watershed program itself that includes many projects within the Clearwater Subbasin. These projects contain issues that are common throughout the subbasins. The projects that are to be included within the watershed program are:

- Clearwater Subbasin Focus Watershed Program – Coordinate multiple jurisdictions and government agencies efforts to protect, restore, and enhance fisheries habitat in the Clearwater River subbasin. Coordinate among federal, state, and local government agencies and private landowners in cooperation with the Idaho Soil Conservation Commission Focus Program. Project development will emphasize but not be restricted to lands co-managed by federal agencies and the Nez Perce Tribe in the Clearwater River subbasin. Manage implementation projects to enhance or restore fisheries habitat in selected watersheds.
- Lolo Creek Watershed – Coordinate with Clearwater National Forest to improve spawning and rearing habitat through road obliteration/erosion control activities, coordinate with Potlatch Corporation, State of Idaho, Clearwater National Forest, and private landowners to determine riparian protection/grazing exclusion areas, off-site watering development, and cattleguard placement, and perform monitoring and evaluation of riparian areas as a result of fencing and road obliteration/erosion control.
- Squaw and Papoose Creek Watersheds – Improve spawning and rearing habitat through road obliteration/erosion control activities, and perform monitoring and evaluation of road obliteration and sediment reduction procedures.
- Big Canyon Creek Watershed – Complete watershed assessment to justify further work within the watershed, and coordinate with private landowners within proposed work area.
- Meadow Creek Restoration–Idaho – Increase understanding of meadow restoration through academic graduate work by comparing low impact vs. aggressive mechanical

restoration methods within Meadow Creek and Red River in the South Fork Clearwater River.

- Mill Creek- Construct fence to protect critical spawning habitat within the Mill Creek Watershed.
- Newsome Creek – Obliterate roads to reduce sediment delivery to the stream, and monitor channel morphology.
- North Lochsa Face – Improve spawning and rearing habitat through road obliteration/erosion control activities, and perform monitoring and evaluation of road obliteration and sediment reduction procedures.
- Fish Screens – Analyze and Improve fish screens on pumps and diversions within the 1855-treaty territory of the Nez Perce Tribe.

**d. Project history** (for ongoing projects)

There are current efforts within the watershed between Idaho Department of Transportation (IDT) and Nez Perce Tribal Water Resources (NPWR) to correct some of these problems. NPWR received FEMA money to begin addressing the problems caused by the flood event of 1996 and prevent reoccurrence of the problems in future years. These plans are being designed primarily for flood control but there is a fisheries aspect to the planning. This work is planned to begin in the summer of 1999. Although the IDT was scheduled to begin work on the upper watershed during the summer of 1998, no work has begun. In a watershed rehabilitation framework, the uplands and upper watershed is to be restored before any work can be done in the lower reaches due to changes in the hydrological patterns caused by work in the upper watershed. The Nez Perce Fisheries/Watershed Program began working in Lapwai Creek in 1997 with small amounts of revegetation contracted with Nez Perce Salmon Corp. The project was dropped in 1998 because of the work the IDT proposed work in the upper watershed. We again proposed activities to begin in 1999 but because of a lack of a proper watershed assessment in the watershed we spent our funding to complete the assessment. The assessment is being done in cooperation with the Center for Environmental Education at Washington State University and our watershed department, as well as other fisheries personnel within the tribe. The assessment will be completed the spring of 1999.

**e. Proposal objectives**

1. Establish a Lapwai advisory group to address needs within the watershed.

Product:

- Meet monthly with a interdisciplinary team.
- Document meeting information and include the information in quarterly and annual reports.

2. Gather additional hydrological data on Lapwai Creek.

Product:

- Further the baseline data within the watershed.
- Establish permanent data collection sights to monitor changes over time.

3. Immediate work to be done within Lapwai Creek riparian zones.

Product:

- Fence off sections of the stream.
- Create off sight watering locations for livestock.
- Revegetate portions of the channel where short-term stabilization needs to occur.

4. Disseminate information about work in the watershed.

Product:

- Write four quarterly reports on project progress as they become due.
- Write end of the year final project report.
- Necessary presentations to the public and project peers.
- Update, finalize Agreements to be used for the restoration work within the Lapwai Creek Watershed.

## **f. Methods**

Lapwai Creek is a 28-mile stream that includes many different landowners and managers. The creek starts with Winchester Lake, a man made recreation area managed by the State of Idaho. The riparian corridor is owned and managed by private tribal and non-tribal members, the Nez Perce Tribe, and U.S. Department of Parks at the mouth, which flows into the Clearwater River. This “checker board” ownership causes many different challenges within the watershed and because of this there is a need for a group of people who will represent the various entities. The Lapwai Creek advisory group will be designed to meet this need.

The Lapwai Creek advisory group will be established to address the many different challenges within the watershed. Due to the diverse nature of the watershed we will ask to have a representative from the private land individuals, Idaho DOT, a member for the elders, a member from Nez Perce Tribal Land Services, and Water Resources, a representative from the Nez Perce Fisheries/Watershed, the co-coordinator from the state of Idaho, and from the Nez Perce Tribe, and any other group that has a vested interest in the watershed. All meetings will be open to the public and we will create an information sheet that will discuss what is happening in the watershed that will be available to those individuals who want to be informed. We are also going to use our quarterly and annual reports to keep our work documented and on schedule according to this and other proposals.

Hydrological data will be gathered using Rosgen stream monitoring methodology. This methodology involves monitoring multiple aspects of the stream including substrate, channel classification, longitudinal profiles, cross sectional profiles, and width to depth ratios (Rosgen, 1996). All of the data collected must be done over an extended period of time and at a permanent sight to establish trends. This monitoring will show us if the work being done within the watershed is having any affect on the overall health of the stream. Substrate will be monitored in two main ways. The first technique will measure the amount of cobble embeddedness within the substrate. With this measurement you can determine whether if the amount of sediment coming through the system is effectively flushed out by stream flows. The second technique is to measure the type of substrate within the system. This will allow you to classify the stream and determine what the proper functioning level of the stream should be. The Rosgen classification system involves placing the particle sizes into categories from 1-6, one being bedrock and the size decreasing to six which is a silt/clay substrate (Harrelson, et.al. 1994). The next technique, channel classification, developed to put rivers and streams into categories based on geomorphic differences. This process lead to a four level system of inventory and assessment that vary from a broad geomorphic characterization down to very specific descriptions (Rosgen, 1996). The next component of this model is a longitudinal profile measurement. A longitudinal survey establishes the elevation of the existing water surface, channel bottom, bankfull stage, floodplains, and terraces. It then determines their slope through the study reach (Harrelson, et.al. 1994). Measuring channel cross-sections is the next area of the Rosgen model. A cross-section is the location for measuring channel form, stream discharge, particle size distribution, and other long-term work (Harrelson, et.al. 1994). The final area of interest is width/depth ratio. This is the key to understanding the distribution of available energy within a channel, and the ability of various discharges occurring within the channel to move sediment (Rosgen, 1996). Each of these components contribute to giving a good picture of what is happening within the watershed and helps to identify limiting factors within the watershed.

Fish recovery success will be determined using information gathered by the Nez Perce Fisheries Research division. This data is collected using temporary weirs and adult traps which will count and compare adult returns. Additionally, parr densities and redd counts will be used to evaluate spawning success. The information gathered will allow us to determine if adults are reaching the watersheds and how successful they are spawning within the watershed. This will allow us to focus our efforts in the watersheds that are prioritized by the NPTH.

We have also identified reaches that have spawning activities by steelhead in them. These reaches also have grazing that happens in the same reach causing increased stress on the adults and redd destruction by cattle and horses crossing the creek. Our plans are to fence the stream to better control the livestock within their pasture. The need for livestock to water will be addressed by working with landowners to develop a watering system outside of the riparian area. We will also work with the landowner to determine

the amount of riparian area we can exclude from year round grazing. Our hope is that we can design a grazing management plan that will benefit both fish and livestock. Good range management practices imitate the natural system and foster healthy native plant communities. The four key principles of good range management are: balance animal demand with the available forage supply, distribute livestock evenly, avoid or minimize grazing the range during fragile or vulnerable periods, and provide effective rest after grazing (Adams, B & Fitch, L., 1998).

**g. Facilities and equipment**

The facilities and equipment to be included in this program includes:

- Computer – Pentium II- 400 MHz, 128 SDRAM, 6.4 GB, 32x CD-ROM, 15” monitor, and multimedia capabilities.
- Vehicle – Use of a four-wheel drive GSA vehicle to get equipment and personnel into areas of work.
- Survey equipment – We will be using both laser and conventional levels to complete our stream monitoring activities. The supporting equipment for the monitoring will include cam-line measuring tape, regular measuring tape, measuring rod, and data collection form.
- Facilities – Use of the office in Lapwai with access to both professional and support staff. We will also have use of office equipment to accomplish the objectives within this project.

**h. Budget**

The *Protect and Restore Lapwai Creek Watershed Project* has been decreased in the budget until the assessment is complete in 1999. In the current proposal we are going to address both continuing current baseline data collection and do work within reaches of the watershed where needed. An explanation of each budget section is given below for the 2000-year budget.

PERSONNEL: Salaries have been calculated using the pay schedule for the Nez Perce Tribe, and are based on estimated time frames to complete the proposed work per objective. The project crew will consist of four employees, the project leader, a technician II, and a technician I. From past experience, it is expected for this crew to need four weeks to complete of the immediate work on Lapwai Creek. The project leader will be involved in the project longer because of the advisory group and other responsibilities. The project leader, and the technician will primarily complete all consulting with advisory group in the watershed.

FRINGE BENEFITS: Fringe benefits are calculated using the Nez Perce Tribal standards. Fringe benefits equal 14% of tax-exempt employees (tribal) and 24 % of non-tax exempt employees (non-tribal).

SUPPLIES, MATERIALS, NON-EXPENDABLE PROPERTY: All costs are estimated on the amount of proposed work and past experience on what will be need to complete the job. Most of the field supplies, and the program already owns materials. This category included all in-house and field needs to include; office supplies (paper, pens, etc.), gloves, 2 field vests, 2 seeders, 2 string boxes, ATV ramp, and film.

TRAVEL: This section covers lodging costs and field per diem for all training and on-the-ground work, as well as trips to both Boise and Portland for meetings about any of our projects within the watershed department.

INDIRECT COSTS: Indirect costs are based on Nez Perce Tribal standards. This cost equals 22.9% of personnel, travel, vehicles, and supplies and materials.

SUBCONTRACTOR: This section includes the cost for fencing materials that are subcontracted through a supplier in Grangeville, ID. We also have access to the Washington State University Center for Environmental Education that is included in the subcontract line item.

OTHER (VEHICLE COSTS): This cost includes two vehicles to be leased from GSA and estimated costs for vehicle and ATV's repairs and service. Two vehicles will be needed to transport employees, ATV's, supplies, and materials.

## Section 9. Key personnel

**Felix M. McGowan**  
**Nez Perce Tribal Watershed Coordinator**  
**1.0 FTE**

**Education:** 1994 – B.A. in Biology – Gonzaga University Spokane, WA

**Current Responsibilities:** Coordinate all activities within the Nez Perce Fisheries, wildlife, water resources, and cultural resources. These activities are to include habitat, research, and production as it relates to watershed management, coordinate with cooperating agencies, work with interdisciplinary teams, inventory and evaluate habitat conditions, and coordinate riparian protection and restoration efforts.

**Relevant Training:**

- Riparian Proper Functioning Condition Training, 1998, Bureau of Land Mgmt.
- Integrated Ecosystem Watershed Management Workshop, 1998, OSU
- Road Obliteration Training, 1998, USDA Forest Service
- Introduction to GIS with ArcView 3.0a. 1998, BIA
- Applied Fluvial Geomorphology, 1998, Wildland Hydrology
- Coldwater Fish Culture, 1998, U.S. Fish & Wildlife Service

**Previous Employment:**

- May 1997 – present: *Nez Perce Tribal Fisheries/Watershed*  
Nez Perce Watershed Coordinator
- August 1994 – April 1997: *North Idaho College*  
Multicultural Academic Advisor

**Expertise:**

- Felix has a broad educational base in the natural sciences that allows an understanding of different natural processes. The training he has received over the past year has greatly increased his understanding in fisheries and hydrological sciences. These are two of the most important sciences involved in watershed work.

**Relevant Job Completions:**

- 1) Squaw Creek Stream Survey, 2) Squaw Creek Road Obliteration, 3) Lapwai Creek Watershed Assessment, 4) Johnson Creek Restoration Review, 5) Big Canyon Creek Watershed Assessment.

**Ira Jones**  
**Clearwater Subbasin Focus Coordinator**  
**Habitat/Watershed Manager**  
**1.0 FTE**

**Education:** University of Montana, Missoula, MT

**Major:** Wildlife

**Attendance:** September 1973- June 1974

**Current Responsibilities:** Planning and implementation of Early Action Watershed Projects, analyze programs, laws, policies related to watershed management, facilitate development of criteria to identify critical fisheries habitat, develop a system to apply criteria to watershed for project development and administration, prepare and plan documents for watershed habitat coordination, provide educational presentation and workshops for watershed management and proposal development, and provide assistance to project proponents with proposal development, implementation, monitoring and assessment.

**Previous Employment:**

- March 1997 – present: *Nez Perce Tribal Fisheries/Watershed Habitat/Watershed Manager*
- June 1986 – March 1997: *United States Forest Service, Region 1 Tribal Government Program Manager*
- December 1980 – June 1986: *United States Forest Service, Region 1 Facilities Manager*
- July 1974- October 1979: *United States Forest Service, Region 1 Fire Cache Work Leader*

**Relevant Job Completion:**

- Coordinated National, Multi-Regional, and Regional Civil Rights Conferences, 2) Facilitated treaty rights workshops with host tribes and multi-governmental agencies, 3) Organized and conducted Tribal Relations Training primarily for management level from the U.S. Forest Service, Tribes, Bureau of Land Management, and bureau of Indian Affairs, 4) Introduced, implemented, and managed the Inter-tribal Youth Practicum for career in natural resources and leadership within the Forest Service Regions 1, 5, 9, and 10. 5) Developed an intergovernmental Personnel Act (IPA) position to work with the Salish Kootenai College to teach environmental science courses and develop a four-year natural science curriculum at the college. This three-year position and the program developed into a four-year accredited degree program in the fall of 1996.

**We are also going to use staff from the Center for Environmental Education at Washington State University in our work within the watershed. The following individuals are the lead personnel from the university.**

Shulin Chen

Department of Biological Systems Engineering, Washington State University  
Matching Funds Contribution

**Education:** 1991 – Ph.D. Cornell University, Ithaca, NY  
1981 – B.S. The Agricultural University of Hebei, Baoding, China

**Current Responsibilities/ Relevant Job Completions:** Dr. Chen is in charge of both teaching and research projects for Washington State University. His teaching responsibilities include water quality, watershed management, natural systems for wastewater treatment, and aquacultural engineering. While his research projects include natural systems for agricultural wastewater treatment for USDA, a problem solving tool for mitigating the impact on water quality of management practices in small rural watersheds for USGS, wet detention pond for highway runoff control for NCHRP, and systems approach for watershed management for USDA.

**Previous Employment:**

- October 1995 – present Assistant Professor, W.S.U.
- November 1992 – Sept. 1995 Research Assistant Professor, L.S.U.
- January 1990 – Nov. 1992 Post-doctoral Researcher, L.S.U.

**Expertise:**

- Dr. Chen brings an expertise in water quality and management issues. This expertise will be used to review water quality information and help to apply this data to our work within this project. He also has expertise in environmental engineering that will help us in the design of instream and riparian structures.

**Darin Saul**

**Director, Center for Environmental Education at Washington State University**

**Matching Funds Contribution**

**Education:** 1996 – Ph.D. Washington State University, Pullman, WA.  
 1991 – M.A. Portland State University, Portland, OR  
 1987 – B.A. University of Washington, Seattle, WA

**Current Responsibilities/Relevant Job Completions:** Dr. Saul is the Director for the Center for Environmental Education and our lead coordinator with WSU. He is currently working on the assessment model that will be used for Watershed Assessments completed by the Nez Perce Tribe. His experience in scientific writing and past watershed management publications will be invaluable in our efforts to establish a comprehensive document.

**Experience:**

- Director, Center for Environmental Education. 1996 – present
- Project Manager, Developing a Research Track 1997 – present  
In General Education Curriculum.
- Associate Director, WSU Pre-service Teacher 1996 – present  
Environmental Literacy Project.
- Coordinator, Environmental Projects Program 1995 – 1996
- Adjunct Faculty at WSU 1997 – present
- Instructor and Teaching assistant 1990 - 1997

**Publications:**

- *A Next Step for Environmental Education: Thinking Critically, Thinking Culturally.* Accepted at the Journal of Environmental Education. Submitted February 1997.
- *Paradise Creek Watershed Water Quality Management Plan.* Co-written with Bruce Davis and the Paradise Creek Management for Washington Department of Ecology.
  - “Intercultural Identity in James Welch’s *Fools Crow* and *The Indian Lawyer*.” American Indian Quarterly. Winter 1996, 1-6.

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

Technology transfer will be accomplished through four different mediums. The first and most important is the use of Streamnet to document work done within the watershed. The second medium is through the tribal fisheries newsletter, Salmon Tales. This is a newsletter that is distributed within the northwest to both tribal and non-tribal groups. The final two areas are through public reviews required by BPA and also the quarterly and annual reports that have to be written to fulfill our contract obligations.

**Congratulations!**