

**Bonneville Power Administration  
Fish and Wildlife Program FY99 Proposal Form**

**Section 1. General administrative information**

**Johnson Creek Artificial Propagation  
Enhancement - O&M and M&E**

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**Bonneville project number, if an ongoing project** 9604300

**Business name of agency, institution or organization requesting funding**  
Nez Perce Tribe

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**Business acronym (if appropriate)** NPT

**Proposal contact person or principal investigator:**

Name	<u>John S. Gebhards</u>
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**Subcontractors.** List one subcontractor per row; to add more rows, press Alt-Insert from within this table

<b>Organization</b>	<b>Mailing Address</b>	<b>City, ST Zip</b>	<b>Contact Name</b>
To be Determined			

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

7.3B, 7.4A, 7.4A.2, 7.4C.1, 7.4O, 7.4O.1

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

ESA Section 10 Permit

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**Other planning document references.**

If the project type is "Watershed" (see Section 2), reference any demonstrable support from affected agencies, tribes, local watershed groups, and public and/or private landowners, and cite available documentation.

**Subbasin.**

Salmon River

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**Short description.**

Development of a native chinook salmon broodstock for rearing in a Nature’s concept production program and release of acclimated smolts to recover the Johnson Creek summer chinook salmon population, with the utilization of on site adult collection/holding and juvenile rearing/acclimation.

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**Section 2. Key words**

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

**Other keywords.**

Nature’s Systems, Acclimated Releases, Hatchery-Wild Interactions, Stock ID, Life History, Ecological Interactions, ESA

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

Project #	Project title/description	Nature of relationship
8909800	Idaho Salmon Supplementation (IDFG)	Long Term Supplementation Evaluation
8909802	Salmon Supplementation Studies in ID (NPT)	Long Term Supplementation Evaluation
9703800	Listed Stock Gamete Preservation (NPT)	Long Term Gamete Preservation

**Section 4. Objectives, tasks and schedules**

***Objectives and tasks***

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<b>Obj 1,2,3</b>	<b>Objective</b>	<b>Task a,b,c</b>	<b>Task</b>
1	Planning/Coordination	a	Develop an Annual Operations Plan (AOP) to address production goals, broodstock acquisition, spawning protocols, incubation strategies, rearing programs, pathology, and facility operations and maintenance.
		b	Finalize Environmental Assessment.
		c	Coordinate with co-managers to facilitate objectives.
		d	With BPA assistance, consult with NMFS regarding this project to recovery planning for salmon River Basin.
		e	Facility Design Completion
2	Implementation	a	Participate with BPA, co-managers, and consultants in design and construction of required facilities on Johnson Creek and at the McCall Fish Hatchery.
3	Operation and Maintenance	a	Install, operate, and maintain a portable weir/trap on Johnson Creek for collection of broodstock.
		b	Assist in Juvenile Production at McCall Fish Hatchery.
		c	Outplant smolts at acclimation facilities on Johnson Creek.
4	Monitoring and Evaluation	a	Develop a Monitoring and Evaluation (M&E) Plan.
		b	Monitor marking methods used with artificial propagation fish.
		c	Evaluate adult release/escapement.
		d	Determine baseline characteristics of natural fish populations in Johnson Creek (timing, size, numbers).
		e	Determine emigration survival (PIT tags).
		f	Monitor natural adult escapement

			(spawning ground surveys, dispersal rates, spawning range).
5	Technology Transfer	a	Prepare and provide quarterly reports stating accomplished activities for project.
		b	Compile, analyze and present an annual report stating all activities for project.
		c	Present reports on project activities and findings at annual BPA/CBFWA Project Review and as requested to other parties.

**Objective schedules and costs**

Objective #	Start Date mm/yyyy	End Date mm/yyyy	Cost %
1	01/1996	12/2024	10
2	01/1998	09/2002	20
3	01/1998	12/2024	40
4	07/1996	12/2029	25
5	01/1996	12/2029	5

**Schedule constraints.**

Availability of salmon for supplementation in 1999 may change the focus of the project to a captive brood stock program instead of supplementation project. Completion of NEPA analysis and ESA requirements is expected in 1998, but could extend into 1999. Completion of NPPC 3-step review/approval process could cause delays in final design and construction of necessary facilities. Final design and construction should begin in 1998 and be completed in 1999 or 2000. However, the availability of qualified engineering design firms and construction firms could set design and construction time lines back into 2000 or 2001.

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**Completion date.**

Supplementation under this project is planned for 5 full salmon generations or 25 years. A decision will be made on or before 2024 whether it is necessary for supplementation to continue under this project.

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**Section 5. Budget**

***FY99 budget by line item***

Item	Note	FY99
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Personnel	Suppl. 178,840 + M&E 91,160	270000
Fringe benefits	Suppl. 39,361 + M&E 20,639	60000
Supplies, materials, non-expendable property	Suppl. 80,000 + M&E 20,000	100000
Operations & maintenance	Suppl. 135,000 + M&E 15,000	150000
Capital acquisitions or improvements (e.g. land, buildings, major equip.)	Suppl. 440,000 + M&E 10,000	450000
PIT tags	# of tags: 18000	52200
Travel	Suppl. 47,000 + M&E 16,000 (includes vehicles, per diem, airfare, etc)	63000
Indirect costs	Suppl. 94,500 + M&E 45,500	140000
Subcontracts	Suppl. 14,800 (To be Determined)	14800
Other		
<b>TOTAL</b>	Suppl. 1,024,501 + M&E 275,499	1300000

**Outyear costs**

<b>Outyear costs</b>	<b>FY2000</b>	<b>FY01</b>	<b>FY02</b>	<b>FY03</b>
Total budget	700000	700000	700000	700000
O&M as % of total	67	67	67	67

**Section 6. Abstract**

f. How results will be monitored and evaluated

Johnson Creek, a tributary of the South Fork Salmon River, is located in Central Idaho. The salmon population in Johnson Creek is one of the 39 populations listed under the Endangered Species Act. This population has experienced significant decline in population numbers over the past five decades. Escapement levels in Johnson Creek have declined from a high of 486 redds in 1960 to a low of five (5) redds observed in 1995. Since Snake River chinook salmon are listed as an endangered species we are in an emergency situation.

This project is a small-scale production initiative designed to increase survival of a weak but recoverable population of summer chinook salmon. The goal of this project is to prevent the extinction of the ESA listed Johnson Creek summer chinook population and begin it's rebuilding through supplementation. We intend to achieve this goal by rearing 300,000 chinook salmon smolts in a Nature's concept hatchery program for acclimated releases back into Johnson Creek. This program is addressed in Section 7.4 of the Columbia Basin Fish and Wildlife Program (NPPC 1995). Supplementation under this project is planned for a minimum of 5 full salmon generations or 25 years.

Overall, the project will evaluate the benefits of nature's concepts in rearing and acclimated releases which may include supplementation initiatives such as captive brood

stock and cryopreservation, in conjunction with portable, low capital techniques for holding adults, acclimating juveniles, and the conversion of existing artificial production facilities to produce smolts and or other approaches as necessary to increase the population. A monitoring and evaluation plan coordinated with the ongoing Idaho Salmon Supplementation studies will be used as an adaptive management tool and to gauge the effectiveness of the program relative to its purposes.

## **Section 7. Project description**

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

Show how the proposed work is a logical component of an overall conceptual framework or model that integrated knowledge of the problem. The most significant previous work history related to the project, including work of key project personnel on any past or current work similar to the proposal, should be reviewed. All work should be adequately referenced and listed at the end of this field.

Historically, the South Fork Salmon River (SFSR) was the single most important summer chinook salmon spawning stream in the Columbia River basin (Mallet 1974). Approximately 50% of Idaho's summer chinook salmon redds were counted in the entire SFSR. The SFSR subbasin historically produced a substantial proportion of all Snake River summer chinook salmon production. As recently as 1957, adult summer chinook salmon returns to the SFSR were estimated to range between 10,000 to 15,000 fish. Natural escapement declines in the SFSR subbasin have paralleled those of other Snake River stocks. Reduced spawner numbers combined with human manipulation have resulted in decreased spawning distribution and population fragmentation. Adult seeding levels in the SFSR subbasin is less than 15% of historic levels.

Johnson Creek, a tributary of the South Fork Salmon River, is located in Central Idaho. The salmon population in Johnson Creek is one of the 39 populations listed under the Endangered Species Act. This population has experienced significant decline in population number over the past five decades. Escapement levels in Johnson Creek have declined from a high of 486 redds in 1960 to a low of five (5) redds observed in 1995. Since Snake River chinook salmon are listed as an endangered species we are in an emergency situation. Provisional adult salmon escapement objectives for Johnson Creek are 1,681 fish (SRSRT 1994).

The NPPC (7.4C.1) "recognizes that immediate actions may be required for emergency cases, such as badly damaged populations with decreasing escapements." Unprecedented efforts will be needed to prevent species extinction and preserve fish for the future. NPPC (7.4F) also states, "as weak stocks or populations of salmon and steelhead are identified and assessed, supplementation will be one option to consider to help rebuild these stocks." Artificial propagation programs are one measure to attempt to enhance populations and increase natural production in Snake River tributaries. The NMFS draft recovery plan states that "captive broodstock and supplementation programs should be initiated and/or continued for populations identified as being at imminent risk of

extinction, facing severe inbreeding depression, or facing demographic risks.”

The Johnson Creek Artificial Propagation Enhancement project, is part of a cooperative project between NPT, IDFG, SBT, and USFWS (LSRCP program) and is one of the high priority Tribal supplementation projects that has been around since the Early Implementation Plan (EIP) process through the Bonneville Power Administration. It has received a high priority ranking through CBFWA and has been reviewed and recommended through the U.S. v Oregon Production Advisory Committee process. NMFS has deemed the project as critical to recovery of ESA-listed salmon. A Nature’s concept hatchery approach or a captive broodstock approach are possibilities to preserve and recover chinook salmon in Johnson Creek. The NPT, in coordination with IDFG, is responsible for operating supplementation facilities (adult collection and holding, juvenile rearing, and juvenile acclimation and release) identified for implementation of this project on Johnson Creek. This production is in place, in kind mitigation. Supplementation under this project is planned for a minimum of 5 full salmon generations or 25 years.

This project began in 1996 with initial planning, environmental analysis, addressing ESA requirements, development of portable adult collection and holding facilities, and juvenile rearing and acclimation facility needs for Johnson Creek and the McCall Fish Hatchery. Adult trapping and spawning will begin in 1998. Monitoring and evaluation activities have also been conducted since project inception. A monitoring and evaluation plan for this project is currently being prepared by NPT personnel and will be completed by August 1998. This plan will be a modification of the Supplementation M&E Plan prepared for Nez Perce Tribal Hatchery (Steward 1997) and will be closely associated/coordinated with the Idaho Salmon Supplementation studies (Bowles and Leitzinger 1991). The Johnson Creek Supplementation M&E plan will include, but not be limited to, data collection on life history information, baseline population assessment prior to supplementation, ecological interactions, genetics, fish health, adult returns, spawning ground surveys, juvenile releases, juvenile outmigration, survival interaction. The plan will be used as an adaptive management tool and to gauge the effectiveness of the program relative to its purposes.

**b. Proposal objectives.**

1) Implement and coordinate a summer chinook salmon supplementation program on Johnson Creek by integrating Nature’s concept production techniques to develop an indigenous broodstock.

a. The Johnson Creek project intends to produce 300,000 summer chinook salmon smolts annually for final rearing/acclimation into Johnson Creek. To achieve this objective, the following numbers of adult salmon, eggs, and survival rates will be expected (these rates are the same as those achieved at the McCall Fish Hatchery, where most of the rearing will occur) :

**Adult Salmon Trapped:** 188 (94 females) adult salmon trapped; 50:50 sex ratio;

15% pre-spawning mortality; 80 females spawned.

**Egg Take:** 80 females spawned; average fecundity of 4700 eggs/female; 374,400 total green eggs.

**Smolts Produced:** 80% Green Egg to Smolt Survival; 300,800 Smolts produced.

**Smolt to Adult Survival:** 0.10% Smolt to Adult Survival; 300 adult summer chinook salmon.

The projected benefits of this objective are: To increase the number of returning adult summer chinook salmon returning into the Columbia Basin and Johnson Creek as a whole; Increase the number of naturally spawning adult chinook salmon in Johnson Creek; Improve the smolt to adult survival of juvenile chinook salmon reared in supplementation through the use of nature's concepts and acclimated releases.

b. Description of production goals and objectives, broodstock acquisition, spawning protocols, incubation strategies, rearing programs, monitoring and evaluation, pathology, and facility operation and maintenance will be provided in an annual operating plan to be completed in 1998 and 1999.

2) Establish baseline information on Johnson Creek summer chinook salmon population prior to supplementation and monitor and evaluate facilities operated under the supplementation program.

a. Prepare plan for monitoring and evaluation of acclimated releases. This will be achieved by defining a marking protocol and methods for use with artificial propagation fish and will include mass marking and group marks (PIT tags/telemetry). Define adult return release/ escapement protocol.

b. Conduct monitoring to determine baseline characteristics of natural fish populations in Johnson Creek. This will be achieved by: determining juvenile chinook salmon emigration characteristics using a rotary screw trap to assess emigration timing, size and numbers; Determine emigration survival through PIT tag analysis; Monitor natural adult escapement through spawning ground surveys, dispersal rates, and spawning range; and Coordinate with the Idaho Salmon Supplementation project.

3) Maintain consistency with the NPPC's Fish and Wildlife Program and NMFS's Draft Recovery Plan for Snake River Salmon.

4) Enhance natural production of summer chinook salmon in the Johnson Creek to increase the probability of survival for the remaining native populations through use of a locally-adapted broodstock.

5) Maintain the genetic attributes and life history characteristics of the naturally-spawning summer chinook salmon population in Johnson Creek.

- 6) Promote the protection and maintenance of tribal treaty rights.
- 7) Develop new knowledge on the use of Nature's concept supplementation as a means to assist the recovery of endangered species.
- 8) Use acclimation as a means to maximize smolt-to-adult returns and minimize adult straying.
- 9) Provide for efficiency and cost-effectiveness.
- 10) Protect other species and environmental resources.
- 11) Prepare and present reports including quarterly, annual, and on a as needed basis.

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

The Johnson Creek project relates to the following FWP (NPPC 1994) objectives and measures. Section 2.1 is "the Council system goal is a healthy Columbia Basin..." "To implement this goal, the program will deal with the Columbia Basin as a system; will protect, mitigate and enhance fish and wildlife..." Section 2.2A supports native species in native habitats. It states, "The program preference is to support and rebuild native species in native habitats, where feasible. This means that remaining fish and wildlife habitat should be protected and restored to promote production of native species, especially habitat that supports weak populations of fish and wildlife."

Section 4.1 addresses doubling salmon and steelhead runs without loss of biological diversity. It is illustrated in this section that "Both the potential biological value of weak stocks and the requirements of the Endangered Species Act suggest that the path to doubling must begin with weak populations." In addition, it states "this weak stock priority includes populations listed under the Endangered Species Act, but is not limited to these populations."

The NPPC (Section 7.4C.1) "recognizes that immediate actions may be required for emergency cases, such as badly damaged populations with decreasing escapements." Unprecedented efforts will be needed to prevent species extinction and preserve fish for the future. This project furthers development of FWP Measures 7.4D (Captive Brood Stocks), 7.4F (Portable Facilities for Adult Salmon Collection and Holding, and for Juvenile Salmon Acclimation), and 7.4O (Small-Scale Production Projects).

Artificial propagation programs are one measure to attempt to enhance populations and increase natural production in Snake River tributaries. The NMFS draft recovery plan states that "captive broodstock and supplementation programs should be initiated and/or continued for populations identified as being at imminent risk of extinction, facing severe inbreeding depression, or facing demographic risks." Additionally, this project relates to

the Snake River Recovery Plan (NMFS 1995): 4.1.b, 4.4c. "...develop and implement management plans for Snake River spring/summer chinook salmon conservation hatchery programs which should include: ..., 2. Genetic Management Strategy,..." "The fisheries agencies and Tribes should design and carry out production-scale experiments at appropriate Columbia River Basin hatcheries to test individual release strategies and evaluate smolt quality indices believed to improve smolt quality. The fisheries agencies and the Tribes should develop methods of achieving high quality fish." "Using acclimation ponds and volitional release strategies."

Wy Kan Ush Me Wa Kush Wit: Volume I: 5B-14-22; Volume II: 2-118-127.

"Implement supplementation projects that have met the screening criteria of RASP (1992) and Cuenco et al (1993)", which includes Johnson Creek. "Establish additional programs for each of the subbasin tributary systems to monitor adult escapement and resulting smolt production, and to evaluate (by measuring the number of adults returning) the ability of managers to meet goals set by the Columbia River Management Plan." It is also recommended that the Johnson Creek project release 300,000 smolts annually to assist in rebuilding runs of anadromous salmonids in the Columbia River subbasins.

The Salmon River Subbasin Plan: Objective 5: states "Supplement where needed with genetically appropriate salmon and steelhead in the subbasin using stock specific escapement criteria capable of maintaining stock productivity, survival, and genetic diversity." It further lists the Johnson Creek project as a strategic approach to "Supplement naturally spawning populations with local broodstock to enhance natural production".

#### **d. Project history**

Project Number -BPA- 9604300

Project reports - Both quarterly and annual reports were produced.

Summary of major results achieved - Necessary equipment and land access for adult trapping have been secured. Tentative agreement has been reached with IDFG to utilize McCall Fish Hatchery facilities for the Johnson Creek project. Project planning, monitoring and evaluation, and equipment acquisition have been the primary focus thus far.

Adaptive management implications - As monitoring and evaluation of natural salmon characteristics become available, they will be used to modify the rearing practices in the supplementation program.

Years underway - 1999 will be the fourth year of this project.

Past costs - 1996: \$169,525; 1997: \$691,483; 1998: \$1,800,000 (scheduled).

#### **e. Methods.**

Objective 1: Operations and Maintenance.

The Johnson Creek Artificial Propagation Enhancement project will utilize adult chinook salmon collected in Johnson Creek as a broodstock in a Nature's concept hatchery

program. Adult salmon will be trapped annually beginning in 1998 and will be held onsite or at an existing facility until spawning. A temporary adult weir and trap will be used for collection of adult chinook salmon. Eggs will be transferred to McCall Fish Hatchery and progeny reared to a fall pre-smolt or smolt stage. Juveniles would then be transferred to satellite facilities on Johnson Creek in early spring of 2000 where they would be acclimated as smolts and allowed to voluntarily release near major spawning areas. Description of production goals and objectives, broodstock acquisition, spawning protocols, incubation strategies, rearing programs, monitoring and evaluation, pathology, and facility operation and maintenance will be provided in an annual operating plan to be completed in 1998 and 1999.

*Critical Assumptions:*

We assume that mainstem passage and flow will allow for a net replacement/increase in adult production. Our efforts will be negated without improvements in mainstem passage and acceptable water flows.

*Potential Risks:*

There are several risks associated with any supplementation project. These risks include, but are not limited to: decreases in genetic variability; increased incident of disease transmission; loss of animals because of stress, lack of water supply or other mishaps; change in the age composition of the spawning cohort.

*Treatment Description, Evaluation and Monitoring:*

Treatment will primarily consist of the rearing of 300,000 summer chinook smolts, for acclimated release back into Johnson Creek. Smolts will be reared from the eggs collected from adults salmon that return to Johnson Creek that are trapped using a portable weir/trap facility. Rearing success will be evaluated at each life stage of the juvenile salmon while in the production facilities. Monitoring and evaluation of the overall success of the project will be conducted from the M&E plan.

*Methods for Data Analysis:*

Analysis of juvenile production will be achieved through tracking the survival rates of the animals collected for use as broodstock. This will involve keeping accurate numbers on the total number of adults spawned, green eggs collected, eyed eggs, fry hatched, and smolts released.

*Expected Results:*

Production of 300,000 summer chinook salmon smolts, for final rearing/acclimation into Johnson Creek, will require the following numbers of adult salmon, eggs, and survival rates (these rates are the same as those achieved at the McCall Fish Hatchery, where most of the rearing will occur) :

**Adult Salmon Trapped:** 188 (94 females) adult salmon trapped; 50:50 sex ratio; 15% pre-spawning mortality; 80 females spawned.

**Egg Take:** 80 females spawned; average fecundity of 4700 eggs/female; 374,400

total green eggs.

**Smolts Produced:** 80% Green Egg to Smolt Survival; 300,800 Smolts produced.

**Smolt to Adult Survival:** 0.10% Smolt to Adult Survival; 300 adult summer chinook salmon.

The projected benefits of this objective are: To increase the number of returning adult summer chinook salmon returning into the Columbia Basin and Johnson Creek as a whole; Increase the number of naturally spawning adult chinook salmon in Johnson Creek; Improve the smolt to adult survival of juvenile chinook salmon reared in supplementation and decrease adult straying through the use of nature's concepts in production and acclimated releases.

Objective 2: Monitoring and Evaluation (M&E).

A monitoring and evaluation plan for this project is currently being prepared by NPT personnel will be completed by August 1998. This plan will be a modification of the of the Supplementation M&E plan prepared for the Nez Perce Tribal Hatchery (Steward 1997) and will be closely coordinated with the Idaho Salmon Supplementation study (Bowles and Leitzinger 1991). The final plan will detail the methods required to complete objective 2.

Continual monitoring of environmental conditions will help account for the variation in characteristics exhibited by pretreatment and treatment groups.

The population characteristics/status can be identified and quantified at several life history stages: emigration (summer, fall, spring) from natal streams, survival and timing of smolt movement past a given location (Lower Granite Dam), and adult escapement (lower Granite Dam and or spawning grounds (natal), smolt to adult survival (SAR). Final evaluation ideally dependent on the response of the adult escapements to treatments. The interim evaluation of emigrates, and smolts will be used to indicate initial population responses and test specific hypotheses.

Fall and spring emigrate (pre-smolt and smolts) numbers and timing will be estimated with emigrant rotary screw traps. Traps are operated to sample the summer, fall, and spring emigration periods until icing or water velocity is prohibitive. Capture efficiency is estimated by recapture of marked emigrants transported above traps. Capture efficiencies are monitored as a function of stream flow and water temperature.

Smolt characteristics of natural and hatchery fish (timing and survival) at Lower Granite Dam will be assessed using PIT tag detections. Depending on the release strategy 1500 to 6000 PIT hatchery juveniles will be PIT tagged prior to release into the study stream and an additional 12000 natural juvenile will be PIT tagged prior to or during emigration from Johnson Creek. Multiple release sites, strategies, or locations will be monitored independently. Arrival timing and survival will be analyzed using PTAGIS databases and the SURPH model.

Adult escapement will be monitored directly by weir capture and indirectly by multiple redd count/carcass surveys above the weir. Biological characteristics (arrival date, size, sex, origin, marks) will be recorded and used to assure prescribed escapement above the weir will be obtained. Salmon spawning ground surveys are conducted three to four times to bracket spawning timing, increase redd count accuracy and maximize adult carcass collection. Carcasses are examined and biological information collected. Fish are examined for any marks/tags and measured (fork length and mid-eye to hypural). Scales are removed from carcasses and placed in coin envelopes for ageing. Fish are opened to determine sex and percent spawned. Potential egg deposition is estimated from fecundity of females collected at the weir for use in supplementation.

A monitoring and evaluation plan has been developed to provide safeguards against any potential migration impediment of chinook salmon, steelhead, and bull trout or other impacts on resident fish. The plan contains criteria for determining when facility impacts are significant to salmon, guidelines for corrective actions, and a plan implementation schedule. Snorkel and discrete bank observations will be used to determine if the weir is significantly delaying fish movement. Observations will be made daily both in downstream and upstream locations.

**f. Facilities and equipment.**

The Johnson Creek Artificial Propagation Enhancement project will utilize facilities and equipment in several locations.

The Johnson Creek project is primarily conducted out of the Nez Perce Tribe's office in McCall, Idaho. This office currently houses NPT Fisheries personnel from three other BPA funded projects. The office facilities are adequate for all administrative and personnel needs. There are some equipment storage concerns that need to be addressed.

Field operations located on Johnson Creek (65 miles from the McCall office) consist of a portable adult weir and trap, adult/juvenile transportation vehicle and tanks, juvenile rotary screw trap, a travel trailer, and other support equipment and vehicles. These facilities and equipment are adequate for field operations during the early stages of the project. The following items are necessary for the long term operation of the project. Onsite adult holding and spawning facilities are needed on Johnson Creek. These facilities will eliminate the need to transport adult fish from Johnson Creek to the McCall Fish Hatchery facility on the South Fork Salmon River (45 miles), reducing stress on these fish and increasing survival. A long term adult weir and trap site needs to be established that is adjacent to the adult holding and spawning facilities. Additional support facilities such as an additional travel trailer, secure storage facilities, electrical service, a domestic and fish water supply and waste facilities (septic system and refuse disposal) are needed at the same location as the adult trapping, holding and spawning facilities.

The portable, picket style weir/trap is located on Johnson Creek about five miles upstream from the mouth. It spans approximately 200 feet, is constructed of aluminum

and steel, and is installed at a 45 degree angle to stream flow. It was designed, engineered, and constructed by River Masters Engineering to ensure optimal fish passage performance. The weir/trap requires 24-hour monitoring by NPT personnel. To facilitate this a travel trailer and two GSA fleet vehicles are necessary. An additional trailer will need to be purchased to adequately house the necessary personnel that operate the adult trap/weir and the outmigrant trap.

The McCall Fish Hatchery in McCall, Idaho will be utilized for rearing progeny collected from adult salmon from Johnson Creek. These existing facilities have adequate egg incubation and early rearing capabilities to accommodate the Johnson Creek project. However, the McCall Fish Hatchery does not have sufficient smolt rearing space to meet the goals of the Johnson Creek project. Additional smolt rearing facilities are needed at the McCall Fish Hatchery. This need is being addressed in 1998. Design of these facilities will begin in 1998 and construction may begin in 1998 or 1999 and will most likely be completed in 1999 or 2000.

Smolts for the Johnson Creek project will be transported back to the Johnson Creek to the acclimation facilities for final rearing and release. The acclimation facilities will be operated by NPT personnel. Since the acclimation facilities are scheduled to be designed in 1998 and constructed in 1998 or 1999, it is impossible to ascertain any deficit in these areas. Future use will bring about adaptations and comments on these new facilities.

**g. References.**

Bowles, E. and E. Leitzinger. 1991. Salmon supplementation studies in Idaho rivers: Experimental design. Project 89-098. IDFG. Boise, ID.

Cuenco, M.L., T.W.H. Backman, and P.R. Mundy. 1993. The use of supplementation to aid in natural stock restoration, p. 269-293. In J.G. Cloud and G.H. Thorgaard [ed.] Genetic conservation of salmonid fishes. Plenum Press, New York.

Hard, J.J., R.P. Jones, Jr., M.R. Delarm, and R.S. Waples. 1992. Pacific salmon and artificial propagation under the Endangered Species Act. U.S. Dept. Commer., NOAA Tech. Memo. NMFS-NWFSC-2, October 1992. 56p.

Mallet, J. 1974. Inventory of salmon and steelhead resources, habitats, use and demands. Job Performance Report. Idaho Fish and Game. Boise, Idaho.

NMFS. 1995. Proposed recovery plan for Snake River Salmon. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Portland, OR.

NPPC. 1994. Columbia River Basin Fish and Wildlife Program. Northwest Power Planning Council. Portland, OR.

RASP (Regional Assessment of Supplementation Projects). 1992. RASP summary report series. December 1992, Parts I-IV. Bonneville Power Administration, Portland,

Oregon.

SRSRT. 1994. Snake River Salmon Recovery Team: Final Recommendations to National Marine Fisheries Service. Portland, OR.

Steward, C.R. 1996. Monitoring and evaluation plan for the Nez Perce Tribal Hatchery. Nez Perce Tribe Department of Fisheries Resource Management, Lapwai, ID. Prepared for the U.S. Department of Energy, Bonneville Power Administration. Contract No. 87B136809, Project No. 83-350. 224p.

Wy-Kan-Ush-Me Wa-Kush-Wit, Spirit of the Salmon. 1995. The Columbia River Anadromous Fish Restoration Plan of the Nez Perce, Umatilla, Warm Springs and Yakima Tribes. Columbia River Intertribal Fish Commission. CRITFC 1995.

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

Permits necessary to perform activities outlined in this proposal (i.e., capture, rearing, and release of listed fish used in supplementation projects) will be obtained through consultation with National Marine Fisheries Service (NMFS).

Artificial Production projects identified in the FWP that integrate with this proposal are: 9703800 - Listed Stock Gamete Preservation (NPT).

Monitoring and Evaluation projects identified in the FWP that will complement this proposal are: 8909800 - Idaho Salmon Supplementation Monitoring (IDFG); 8909802 - Salmon Supplementation Studies in Idaho (NPT). The Johnson Creek project will serve as a treatment stream for ISS. M&E data collection efforts will be cooperative to suit the needs of both projects.

U.S. Forest Service, Boise National Forest, Cascade Ranger District is the primary land management agency where many of the supplementation and monitoring and evaluation activities will occur. They will be involved in the preparation of the necessary permits required to conduct these activities on National Forest System lands.

## **Section 9. Key personnel**

### **John S. Gebhards, Project Leader (1 FTE)**

Nez Perce Tribe Department Fisheries Resource Management

#### **EDUCATION**

B.S. in Geology, University of Puget Sound, 1988

20 hours Graduate Fisheries Courses, University of Idaho, 1991-1993

#### **TECHNICAL EXPERIENCE**

Project Leader, Nez Perce Tribe, McCall, ID, May 1997 - Present.

Project: Johnson Creek Artificial Propagation Enhancement Project

Biological Scientist, US Forest Service, Rocky Mountain Research Station, Boise, ID, Jan 1995 - April 1995

Project: Technology Transfer Group, Regions 1 and 4

Biological Scientist, USDA Forest Service, Payette National Forest, McCall, ID, May 1989 - Dec 1994.

Project: Krassel Ranger District's Biological Monitoring Leader

Biological Technician, Idaho Department of Fish and Game, McCall, ID, May 1984 - April 1989.

Project: McCall Fish Hatchery Summer Chinook Spawning and Rearing

Duties: project implementation, management and coordination, budget preparation and management, contract and subcontract preparation and management, report writing, personnel supervision, tribal representation in meetings with IDFG, NMFS, BPA, NPPC, CBFWA, and private consultants, data analysis, computer modeling, public speaking and presentations, and proposal development.

Skills: spawning adult salmonids, fish culture activities, field data collection and laboratory analysis of fresh water benthic macroinvertebrates and fish, boat electrofishing, back pack electrofishing, seining, gill netting, screw trapping, adult weirs and traps, hook and line, transect stream survey methodology, snorkel, redd surveys, life history research, diet analysis, water chemistry analysis, mapping, reach descriptions, GPS, GIS, database analysis, fish handling and identification, boat operation and maintenance, PIT tagging.

**Vacant, Assistant Project Leader (1 FTE)**

Nez Perce Tribe Department Fisheries Resource Management

**Vacant, Monitoring and Evaluation Project Leader (1 FTE)**

Nez Perce Tribe Department Fisheries Resource Management

**Roy Edward Larson, Director of Production (.15 FTE)**

Nez Perce Tribe Department Fisheries Resource Management, Lapwai, ID office

**EDUCATION**

M.S. in Veterinary Science, University of Idaho, 1972

B.S. in Agriculture, University of Idaho, 1970

**PUBLICATIONS**

Larson, R.E. and Mobernd, L. 1992. Nez Perce Tribal Hatchery Master Plan and appendices. Bonneville Power Administration. Project No. 83-350. Contract No. DE-AI79BP36809.

Larson R.E. and Jose, J.R. 1988. A report of the 1987 - 88 mid-winter supply survey for the Nez Perce Tribe

Klontz, G.W., Chacko, A.J. and R.E. Larson. 1979. Epidemiology of respiratory diseases

in juvenile spring chinook salmon. University of Idaho, Fisheries Resources, College of FWR Sciences Bulletin.

Larson, R. E. 1977. Kelp meal as a diet supplement for salmonids. Proceedings of 38<sup>th</sup> Northwest Fish Culture Conference, p. 28.

Dulin, M.P., Huddleston, T., Larson, R.E. and Klontz G.W. 1976. Enteric Redmouth Disease. University of Idaho, Fisheries Resources, College of FWR Sciences Bulletin.

#### TECHNICAL EXPERIENCE

Production Director - Nez Perce Tribe Lapwai, ID Oct 1990 - Present.

Project: Nez Perce Tribal Hatchery, North East Oregon Hatchery, Johnson Creek Supplementation Project, Fall Chinook Acclimation Facilities, Sturgeon Research, Early Action Watershed Projects.

Production Biologist - Nez Perce Tribe Lapwai, ID Sept 1987 - Sept 1990

Project: Nez Perce Tribal Hatchery, Imnaha Master Plan, Subbasin Planning

Licensed General Contractor - Private Business, Sitka AK Oct 1984 - Sept 1987

Hatchery Manager - Northern Southeast Regional Aquaculture Association, Sitka AK, Sept 1980 - Oct 1987

Project: Medvedjie Central Incubation and Rearing Facility for spring chinook, chum and coho salmon.

Project Leader - Northern Southeast Regional Aquaculture Association, Juneau AK, Apr 1980 - Sept 1980.

Project: Salmon Creek Central Incubation and Rearing Facility for pink, chum and coho salmon.

Research Technician I - University of Idaho Fish Disease Lab, Moscow ID Jul 1976 - Apr 1980.

Project: Fish health management and fish disease diagnostics

Duties: Provide direction, supervision and management of NPT Fisheries Production program. Co-author Nez Perce Tribal Hatchery Master Plan and Imnaha Master Plan. Responsible for integrating production needs into the multi-species recovery and restoration program of the Nez Perce Tribe. Write proposals for funding. Coordinate project development, production and ESA issues with State, Tribal and Federal agencies. Contract supervision on NPT Fisheries Production projects.

Skills: Twenty two years of experience managing fish culture, fish health, multiple species and innovative supplementation techniques to restore and recover weak or endangered species. Eleven years experience developing the Nez Perce Tribe anadromous and resident fish production programs and coordinating tribal production activities under the Northwest Power Planning Act. Fifteen years experience developing and overseeing contracts for various funding agencies. Twenty two years of experience supervising technical and professional fisheries staff.

#### **Dave Johnson, Production Coordinator (.2 FTE)**

Nez Perce Tribe Department Fisheries Resource Management

#### EDUCATION

M.S. in Biology, Northern Arizona University, 1982

B.S. in Biology, Northern Arizona University, 1979

## PUBLICATIONS

- Johnson, D.B. and S. Sprague. 1996. Preliminary monitoring and evaluation results for coho salmon outplanted in the Clearwater River subbasin, Idaho, 1995. Nez Perce Tribe Department of Fisheries Resources Management, Lapwai, Idaho.
- Johnson, D.B., R.E. Larson and C. Steward. 1995. Supplement to the Nez Perce Tribal Hatchery master plan. Department of Fisheries Resources Management, Nez Perce Tribe, Lapwai, Idaho.
- Johnson, D.B. 1990. Indian Tribes of the Northern Region: A brief history, description of hunting and fishing treaty rights and fish and wildlife management programs. U.S.D.A. Forest Service, Northern Region Office, Missoula, Montana.
- Murphy, P.K. and D.B. Johnson. 1990. Nez Perce Tribal review of the Clearwater River Lower Snake River Compensation Plan. Department of Fisheries Resources Management, Nez Perce Tribe, Lapwai, Idaho.
- Johnson, D.B. 1987. Preliminary assessment and selected reference information for the proposed Zuni Pueblo warmwater fish hatchery. Report submitted to the Zuni Agency.

## TECHNICAL EXPERIENCE

- Production Coordinator - Nez Perce Tribe Lapwai, ID Oct 1997 - Present.  
Project: Nez Perce Tribal Hatchery, North East Oregon Hatchery, Johnson Creek Supplementation Project
- Senior Monitoring and Evaluation Biologist - Nez Perce Tribe, Lapwai ID Oct 1993 - Oct 1997.  
Project: Nez Perce Tribal Hatchery
- District Fish Biologist - North Fork Ranger District, Clearwater National Forest, Orofino, ID. May 90 - Oct 1993  
Project: Staff leader for fish, wildlife and watershed programs.
- Assistant to Fisheries Program Manager - US Forest Service, Northern Region, Regional Office, Missoula, MT. Jan 1989 - May 1990.  
Project: Snake River Basin Adjudication, technology transfer.
- Area Fisheries Biologist - Bureau of Indian Affairs, Albuquerque Area Office, Albuquerque, NM Mar 1987 - Dec 1988.  
Project: Technical assistance in fisheries to 14 Indian Tribes
- Fisheries Biologist - Nez Perce Tribe, Lapwai, ID. May 1984 - Mar 1987.  
Project: stream surveys, steelhead ecology, production planning

Duties: Assist in developing departmental direction, project and budget development and coordination, contract and subcontract review, report writing, NEPA document preparation, personnel supervision, tribal representation in meetings with interagency quorums, and private consultants, public speaking and presentations.

Skills: Fifteen years of experience conducting field work, and providing management direction on fisheries and watershed projects. Responsible for providing and coordinating analysis of effects, including hatchery production, on aquatic habitat and biota sufficient to meet NEPA and ESA requirements. Responsible for overseeing development and completion of NPTH M&E Plan. Eleven years of experience working in the Snake River

basin, specifically in the Clearwater Subbasin, on issues related to hatchery and natural production, interagency coordination, ESA, and Nez Perce Tribal fishing rights.

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

Technical information will be distributed through quarterly and annual progress reports to Bonneville Power Administration, submittal of findings to scientific journals, LSRCP program review workshops, CBFWA Project Review Workshops, Section 10 Permit Reports, Biological Assessments, Biological Opinions, NEPA documents, Brood Year Production Reports, Final Design Reports, and Construction Memorandums. Project cooperators meet regularly to exchange information and discuss project adaptations.