PART I - ADMINISTRATIVE

Section 1. General administrative information

Title of project

Grande Ronde Endemic Spring Chinook Supplementation Program Umbrella

BPA project number: 20556
Contract renewal date (mm/yyyy): ☐ **Multiple actions?**

Business name of agency, institution or organization requesting funding

Business acronym (if appropriate)

Proposal contact person or principal investigator:

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NPPC Program Measure Number(s) which this project addresses
6.2 Production, 6.26.2 Other Production Measures, 7.1B Conserve Genetic Diversity, 7.2 7.2D Improve Hatchery Production, 7.3B High Priority Supplementation, 7.4A, 7.4D, 7.4D2 Implement Captive Broodstock, 7.4L Production Facilities

FWS/NMFS Biological Opinion Number(s) which this project addresses
The Biological Opinion for Hatchery Actions states, "USFWS should terminate use of Rapid River stock at Lookingglass Hatchery no later than 1996" and "The USFWS should consider development of indigenous broodstock…"

Other planning document references
Conventional and captive broodstock programs for Snake River spring/summer chinook salmon are supported by the Snake River Recovery Team (SRSR, 1994), NMFS Draft Recovery Plan (1995a), Wy-Kan-Ush-Me Wa-Kush-Wit Plan (Vol.II), Grande Ronde Subbasin Plan (ODFW et al. 1990), Northeast Oregon Hatchery (NEOH) Final Siting Report, NEOH Conceptual Design Report, Genetic Risk Assessment of the Grande Ronde Master Plan (Neeley et al. 1994), Environmental Assessment Grande Ronde Basin Endemic Spring Chinook Salmon Supplementation Program (BPA 1998).

Short description
Implement supplementation program and associated monitoring and evaluation for endemic spring chinook salmon in Catherine Creek and the upper Grande Ronde and Lostine rivers through captive brood and conventional production.

Target species
Snake River spring chinook salmon

Section 2. Sorting and evaluation

Subbasin
Grande Ronde River

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
☒ Anadromous fish ☐ Resident fish ☐ Wildlife	☒ Multi-year (milestone-based evaluation) ☐ Watershed project evaluation	☐ Watershed councils/model watersheds ☐ Information dissemination ☒ Operation & maintenance ☒ New construction ☒ Research & monitoring ☒ Implementation & management ☐ Wildlife habitat acquisitions

Section 3. Relationships to other Bonneville projects

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

Project #	Project title/description
20556	Grande Ronde Endemic Spring Chinook Supplementation Program
8805301	Northeast Oregon Hatchery Master Plan - NPT
9800704	Northeast Oregon Hatchery Master Plan - ODFW
9801001	Grande Ronde Basin Spring Chinook Captive Broodstock Program - ODFW
9202604	Early Life History - ODFW
9801007	Listed Stock Gamete Preservation - NPT
9703800	Captive Broodstock Artificial Propagation - NPT
9800701	Grande Ronde Supplementation - CTUIR
9800702	Grande Ronde Supplementation - O&M/M&E - NPT
9606700	Captive Broodstock Program NMFS - Manchester Marine Laboratory

Other dependent or critically-related projects

Project #	Project title/description	Nature of relationship
9600800	PATH	Analysis to assess status and health of populations.
9202601	Grande Ronde Model Watershed Planning	Oversee habitat restoration in the subbasin.
9402700	Grande Ronde Model Watershed Habitat	Implement habitat restoration in the subbasin.
9405400	Bull Trout Genetics, Habitat Needs, L.H., etc. in Central and NE Oregon	Projects incidentally collects bull trout. Data are taken for tagging, demographic and recapture information.
8909600	Monitor, Evaluate Genetic Characteristics of Supplemented Salmon	Monitor genetics of spring chinook salmon populations in the targeted tributaries.
8402500	Grande Ronde Habitat Enhancement (ODFW)	Improved habitat increases likelihood of Program success.
9608300	Upper Grande Ronde Habitat Enhancement (CTUIR)	Improved habitat increases likelihood of Program success.
9403300	Fish Passage Center	Juvenile hatchery and natural salmon resulting from the Program will provide release and migration data for in-river on migration timing and survival studies.
9702500	Implement the Wallowa County/Nez Perce Tribe Salmon Recovery Plan	Coordinate implementation of the recovery plan with Wallowa Valley stakeholders.
9403900	Wallowa Basin Project Planning	Coordination between various stakeholders (Nez Perce Tribe).

Section 4. Objectives, tasks and schedules

Past accomplishments

Year	Accomplishment	Met biological objectives?
1995	Collected spring chinook parr from Grande Ronde for rearing to captive broodstock	Yes for Catherine Creek and Lostine River. Fell ~400 short for upper Grande Ronde.
1996	Developed comprehensive captive broodstock management plan	
1996	Prepared application and received NMFS ESA Section 10 permit 1011	
1996	Collected spring chinook parr from Grande Ronde for rearing to captive broodstock	Yes for Catherine Creek and Lostine River. No fish collected for upper Grande Ronde.

1997	Captive brood building constructed at Bonneville Hatchery	
1997	Modified ESA Permit 1011 to include conventional smolt production	
1997	Operated 3 weirs in Grande Ronde to estimate population size and collect endemic spring chinook adults for conventional broodstock	Few fish captured at weirs. No meaningful population estimate.
1997	Collected spring chinook parr from Grande Ronde for rearing to captive broodstock	Met targets at all tributaries.
1998	Developed comprehensive management program integrating captive and conventional brood production.	
1998	Operated 3 adult weirs in the Grande Ronde tributaries to collect endemic spring chinook adults for conventional broodstock	Collected enough fish to provide population estimates. Did not retain enough fish to spawn.
1998	Prepared application and received ESA Permit	
1998	Collected spring chinook parr from Grande Ronde for rearing to captive broodstock	Met targets at all tributaries.
1998	Preserved gametes and spawned fish at Bonneville and Manchester.	Spawned 119 1994 brood year and 1 1995 brood year females. Transplanted eggs to Irrigon Hatchery (LSRCP) for incubation. Cryopreserved semen from all males not used to fertilize eggs.

Objectives and tasks

Obj 1,2,3	Objective	Task a,b,c	Task
1	Prevent extinction of endemic spring chinook salmon populations in the Grande Ronde River.	a	Implement conventional and captive brood hatchery components of the Program
		b	Develop and utilize endemic broodstocks for supplementation of spring chinook salmon in the Grande Ronde River
2	Develop an understanding of local spring chinook salmon biology to aid in recovery	a	Investigate critical life history patterns and habitat use that may affect success of the supplementation program

3	Assess effectiveness of captive and conventional components of the supplementation programs in recovering salmon populations.	a	Monitor adult escapement in targeted and non-targeted tributaries to determine effectiveness of supplementation.
		b	Monitor juvenile abundance, growth and survival rates.
4	Continue planning for implementation, monitoring and evaluation, and management of the Grande Ronde Endemic Spring Chinook Supplementation Program	a	Coordinate, facilitate and conduct meetings among comanagers for Technical Oversight Teams, Annual Operations Plans, and Monitoring and Evaluation planning .
		b	Implement adaptive management and determine future plans for the Program among comanagers to ensure objectives are met.
		c	Plan for delisting of spring chinook salmon and revisit mitigation goals as provided under LSRCP as appropriate.

Objective schedules and costs

Obj #	Start date mm/yyyy	End date mm/yyyy	Measureable biological objective(s)	Milestone	FY2000 Cost %
				Total	0.00%

Schedule constraints

Completion date
Ongoing

Section 5. Budget

FY99 project budget (BPA obligated):

FY2000 budget by line item

Item	Note	% of total	FY2000
Personnel		%0	
Fringe benefits		%0	
Supplies, materials, non-expendable property		%0	
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		%0	
Indirect costs		%0	
Subcontractor		%0	
Other		%0	
TOTAL BPA FY2000 BUDGET REQUEST			$ 0

Cost sharing

Organization	Item or service provided	% total project cost (incl. BPA)	Amount ($)
Data are unavailable to provide cost share analysis. Substantial cost sharing in the form of personnel, facilities and expertise among projects occurs because of the integrated nature of the projects under this umbrella.		%0	
		%0	
		%0	
		%0	
Total project cost (including BPA portion)			$ 0

Outyear costs

	FY2001	FY02	FY03	FY04
Total budget				

Section 6. References

Watershed?	Reference
☐	Appleby, A. and K. Keown. 1995. History of White River spring chinook broodstock and captive brood rearing efforts, in (Flagg, T. and C. Mahnken, eds.) An assessment of the status of captive broodstock technology for Pacific salmon. BPA…
☐	BPA (Bonneville Power Association). 1998. Grande Ronde basin endemic spring chinook supplementation program. Environmental Assessment DOE/EA-1173. Portland, Oregon.
☐	Currens, K., J. Lannan, B. Riddel, D. Tave, and C. Wood. 1996. Responses of the Independent Science Panel to questions about the interpretation of genetic data for spring chinook in the Grande Ronde basin. US v. OR Dispute Resolution Document.
☐	DeHart, D. 1996. Application for an emergency permit for scientific purposes and to enhance the propagation or survival of endangered Grande Ronde River Basin spring chinook Oncorhynchus tshawytscha under the Endangered Species Act. May 1996.
☐	Flagg, T.A., and C. Mahnken,. 1995. An assessment of the status of captive broodstock technology for Pacific salmon. Draft Report to Bonneville Power Administration. Contract DE-AI79-93-BP55064. Project 93-56. Portland, OR.
☐	NMFS (National Marine Fisheries Service). 1995a. Proposed recovery plan for Snake River Salmon. U. S. Department of Commerce, National Oceanic and Atmospheric Administration, Portland, Oregon.
☐	NMFS. 1995b. Biological Opinion for 1995 to 1998 hatchery operations in the Columbia River basin. Section 7 Consultations. U. S. Department of Commerce, National Atmospheric and Oceanic Administration, Silver Spring, Maryland.
☐	Neeley, D., K. Witty, and S. P. Cramer. 1994. Genetic Risk Assessment of the Grande Ronde River Master Plan. Nez Perce Tribe. Lapwai, Idaho.
☐	NPPC (Northwest Power Planning Council). 1994. 1994 Columbia River Basin Fish and Wildlife Program. Northwest Power Planning Council, Portland, Oregon.
☐	Oregon Department of Fish and Wildlife, Nez Perce Tribe and Confederated Tribes of the Umatilla Indian Reservation. 1990. Grande Ronde River Subbasin Salmon and Steelhead Plan. Columbia Basin System Planning. NPPC, Portland, Oregon.
☐	Smith, C.J., and P. Wampler. 1995. Dungeness River chinook salmon rebuilding project, Progress Report, 1992-1993. Northwest Fishery Resource

	Bulletin, Project Report, Series No. 3. Washinton Department of Fisheries, Olympia, WA.
☐	SRSRT (Snake River Salmon Recovery Team). 1994. Final recommendations to the National Marine Fisheries Service. Portland, Oregon.
☐	USACOE (U. S. Army Corps of Engineers). 1975. Lower Snake River Fish and Wildlife Compensation Plan. U. S. Army Corps of Engineers Special Report. Walla Walla, Washington.
☐	Witczak, D. 1995. Dungeness chinook restoration project - data accumulation 1993 - 1995. Washington Department of Fish and Wildlife, Olympia, WA.
☐	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 Yakim Tribes. Columbia River Intertribal Fish Commission.

PART II - NARRATIVE

Section 7. Abstract

The Grande Ronde Endemic Spring Chinook Supplementation Program (Program) was initiated in 1995 as a conservation measure in response to severely declining runs of spring chinook salmon in the Grande Ronde Basin.

The **goal** of this Program is to assist in preventing extinction and rebuilding of listed natural chinook salmon populations "in-place, in-kind" by supplementing natural production. Our main **project objectives** are to: prevent extinction of endemic spring chinook salmon populations, develop an understanding of basic biology for local populations, assess effectiveness of the hatchery program in using supplementation for recovery and continue to plan for implementation, monitoring and evaluation of the Program and consequences of delisting. The Program was integrated by comanagers to respond to changing challenges and conduct intensive monitoring and evaluation as effectively and efficiently as possible. Conventional and captive components of the Program are **supported** by measures 7.1B, 7.2, 7.2D, 7.3B, 7.4A, 7.4D and 7.4D2 of the Columbia Basin Fish and Wildlife Program, the Biological Opinion for Hatchery Actions, and the Snake River Salmon Recovery Team.

Combined conventional and captive brood propagation techniques have been implemented as the **most scientifically sound** blend of techniques to achieve our goal. The captive brood component was implemented to minimize demographic risk of extinction. The conventional component was implemented to balance the captive component and increase production and reduce the genetic risk of artificial selection.

The Program **is expected to produce** substantial adult returns to the target tributaries starting in 2002. We expect 200 adults to return per tributary when our smolt releases

reach 200,000. As returns increase, production for the captive component will diminish and the conventional component will increase.

Cooperative multi-agency, multi-project **monitoring and evaluation** of the effects of the Program on the salmon populations will be accomplished through yearly assessment of the adult populations at weirs and on spawning grounds, and resulting juvenile production, growth and juvenile migration performance. Success of conventional and captive hatchery components in augmenting natural production will be intensively monitored under criteria in the captive brood/conventional ESA permit as part of the comprehensive monitoring and evaluation plan developed by comanagers.

Section 8. Project description

a. Technical and/or scientific background

The Grande Ronde River basin once supported large runs of chinook salmon with estimated escapements in excess of 10,000 as recently as the late 1950's. Declines in natural escapement in the basin have paralleled those of other Snake River stocks. Catherine Creek, and the Lostine and upper Grande Ronde rivers were historically three of the most productive populations in the Grande Ronde basin. Escapement levels in these three tributaries rivers dropped to alarming low levels in 1994 and 1995. Continuing poor escapement levels and declining population trends indicate that Grande Ronde River basin spring chinook salmon are in imminent danger of extinction. Without assistance, continued declines appear likely, with progeny-per-parent ratios that have been below 1.0 (replacement) for the past eight completed brood years in the natural environment. Managers are in an emergency situation where dramatic and unprecedented efforts are needed to prevent extinction and preserve options for use of endemic fish stocks for future artificial propagation programs.

The initial management plan under the Lower Snake River Compensation Plan (LSRCP) emphasized mitigation using hatchery supplementation from Lookingglass Hatchery with stocks not endemic to the Grande Ronde River in five streams in the basin: Lookingglass and Catherine creeks, and the Wallowa, upper Grande Ronde, and Lostine rivers. We have shifted emphasis of the chinook salmon program in the Grande Ronde River from mitigation to conservation. Our short-term goal is to prevent extinction and allow for the possibility of recovery of endemic stocks. Ultimately, recovery of these populations is dependent on improved juvenile and adult survival through mainstem dams and reservoirs. The Grande Ronde Spring Chinook Salmon Program (Program) was developed to accomplish the short-term goals with two complimentary components.

With the initiation of the captive brood program (DeHart 1996), the Oregon Department of Fish and Wildlife, U. S. Fish and Wildlife Service, and Nez Perce Tribe began development of broodstocks from endemic populations for genetic conservation and natural production enhancement. This decision was based on increased emphasis on natural production and endemic stock recovery, consultations and requirements resulting

from the ESA-listing of Grande Ronde spring chinook salmon populations, lack of success using non-local hatchery stocks for supplementation in the Grande Ronde River, and preferred strategies for use of artificial propagation identified in the NMFS draft recovery plan (NMFS 1995a).

Captive breeding has been used extensively in recovery efforts for fishes and other vertebrates, but only recently has this approach been attempted for Pacific salmon. Similar broodstock programs are underway for Sacramento Winter Chinook Salmon, Redfish Lake Sockeye Salmon (BPA 9107300), Salmon River Spring Chinook Salmon (BPA 9900100), White River Chinook Salmon (Appleby and Keown 1995), and Dungeness Chinook Salmon (Smith and Wampler 1995, Witczak 1995). The knowledge and experience gained in these other programs as well as the results of the captive broodstock comprehensive review conducted by NMFS (Flagg and Mahnken 1995) were used to develop the culture, research, and monitoring and evaluation for the Oregon captive brood component.

Concurrent with early development of the captive brood component, the Confederated Tribe of the Umatilla Indian Reservation joined comanagers to initiate the second component of the Program. The conventional component was designed to increase adult returns with less genetic risk than the captive brood component. The conventional component collects returning adults at each tributary and proceeds as a traditional program. The demographic costs of the conventional component of the Program are higher than that of the captive, and success is more dependent upon improved juvenile and adult survival through mainstem reservoirs and dams. Hatchery progeny-per-parent ratios higher than natural may slow population decline, but unless progeny-per-parent ratios are improved to greater than 1.0, this component will not provide a meaningful contribution toward increases in natural production, and eventual recovery.

We have designed our Program to first address the most serious risk to persistence, that of extinction. The use of captive brood is designed to reduce the probability of extinction. We have developed a sliding scale which adjusts the proportion of the artificial production from both conventional and captive sources, depending upon the most imminent risk, demographic (extinction) or artificial selection (genetic). Implementation of the scale results in the proportion of the hatchery production from captive brood decreasing (and that of conventional increasing) as the number of adults returning increases and the demographic risk of extinction becomes smaller.

The development of captive chinook salmon programs and the use of hatchery fish for supplementation in recovering endangered anadromous salmonids are contentious issues in the scientific community. Therefore, we have implemented a detailed, intensive monitoring and evaluation plan for the Program at both the hatchery production level and in the natural environment. Because of the high costs associated with implementation of the Program, particularly the captive brood component, that uses prolonged, intensive aquaculture to produce adults, we must continually evaluate our Program to ensure maximum effectiveness and efficiency.

The NPT and CTUIR are primarily responsible for operating weirs for population monitoring and adult collection and juvenile acclimation facilities on Catherine Creek, and the upper Grande Ronde and Lostine rivers. ODFW is responsible for operating freshwater captive brood rearing facilities at Bonneville Hatchery. NMFS is responsible for the saltwater rearing of the captive brood at Manchester Marine Laboratory in Washington. At Lookingglass Hatchery, ODFW is responsible for holding and spawning conventional adults and incubation and rearing of conventional and captive fish until transfer to acclimation facilities. NPT is primarily responsible for cryopreservation of semen and fertilization for the conventional component, while ODFW is responsible for the captive component. LSRCP facilities and personnel at Irrigon Hatchery cooperate in egg incubation and early rearing of fish in this Program.

Monitoring and evaluation activities are shared. ODFW is responsible for monitoring of early life history of juveniles in all three target tributaries. All comanagers cooperate extensively in monitoring and evaluation of the conventional and captive components of the hatchery production and monitoring adult returns on the spawning grounds.

b. Rationale and significance to Regional Programs

This Program is one of the first developed using an integrated, dual component approach to prevent extinction of an anadromous salmonid species in the Columbia River basin. Our goal is to prevent extinction of the populations and provide adequate fish in the future to reverse the decline in stock abundance and increase the likelihood of population persistence.

Conventional and captive brood components of the Program are supported by recommendations from the Snake River Recovery Team (Snake River Salmon Recovery Team 1994), Northwest Power Planning Council Fish and Wildlife Program (Northwest Power Planning Council 1994) and the National Fisheries Service draft recovery plan (NMFS 1995a). This Program addresses numerous objectives identified in the 1994 Fish and Wildlife Program including 7.1B (conservation of genetic diversity), 7.2 (improvement of existing hatchery production, 7.3B (implementation of high priority supplementation projects), 7.4A (evaluation and implementation of new production initiatives) and 7.4D (implementation of captive broodstock programs). The NMFS draft recovery plan recommends the use of captive broodstock and conventional supplementation programs for severely depressed populations, and specifically advocates its use for Grande Ronde spring chinook salmon and the use of Lookingglass Hatchery. It further recommends the use of endemic broodstock at Lookingglass Hatchery to supplement natural production in the Grande Ronde River. The Program is consistent with subbasin and system plans to restore spring chinook salmon runs in the Snake River. Development of local broodstocks was recommended by an Independent Scientific Review Panel (Currens et al. 1996) under the *U. S. v. Oregon* Grande Ronde Chinook Salmon dispute resolution in 1996.

This Program is based upon the scientific principle that preservation of within and between population variations in genetic characteristics are essential for long-term fitness and persistence of the metapopulation in the Grande Ronde River .

This Program targets "in-kind, in-place" supplementation in the Grande Ronde River. To document baseline and recovery data for returns of hatchery and natural adult salmon to target tributaries and collect broodstock in the most efficient manner, we will operate adult collection facilities in areas targeted for supplementation and monitor spawning areas. To ensure that the Program will return chinook salmon "in place", we will operate acclimation facilities in targeted tributaries. Cooperative monitoring and evaluation efforts by all comanagers will ensure that artificial production is being completed effectively and efficiently, and that resulting artificial production is contributing to a reduction in the probability of extinction.

Mitigation and production goals for the Grande Ronde subbasin spring chinook salmon, as stated in the LSRCP and *U.S. v. Oregon* Columbia River Fish Management Plan (CRFMP) are presently not achievable. The co-managers view the initiation of this Program as an essential first step towards developing broodstocks of appropriate origin. These broodstocks may then assist in meeting long-term mitigation, production, and harvest goals.

c. Relationships to other projects

The Grande Ronde Endemic Spring Chinook Salmon Program includes all artificial and natural production and monitoring and evaluations for spring chinook salmon populations within the Grande Ronde River basin.

The captive brood component is a large-scale adaptive management program that examines three different strategies to rear naturally-produced fish to adulthood: 1) accelerated pre-smolt rearing/post-smolt freshwater rearing, 2) natural pre-smolt rearing/freshwater post-smolt rearing, and 3) natural pre-smolt rearing with post-smolt seawater rearing.

The conventional component is an extension of the LSRCP Program. The LSRCP has, for the time being, switched its main focus for spring chinook salmon from mitigation (using Rapid River stock) to conservation (endemic Grande Ronde River stocks). This switch from mitigation to conservation requires collection, holding and spawning of endemic adults that is being funded under BPA.

Accomplishing the objectives of the Program depends on the controversial and equivocal success of using hatchery fish to prevent extinction, increase natural production and eventually mitigate for losses due to hydroelectric dam construction and operation. Results from this Program will be crucial for evaluating the potential use of hatchery fish to prevent extinction in other areas with other species (e.g. summer steelhead stocks in the Snake River basin). With the switch to emphasis on conservation and rebuilding natural production, more intense monitoring of natural production is required.

Monitoring and evaluation information collected by this Program and generated by other projects (e.g. LSRCP) will provide significant contributions to knowledge of captive brood programs for spring chinook salmon and the use of hatcheries for conservation and restoration of natural salmon production in the Pacific Northwest. The captive brood component of the Program shares data with other captive salmon programs in the Upper Snake River basin and the Pacific Northwest. The captive broodstock component is one of the first such programs in the Columbia Basin and, together with the conventional component, are both completely coordinated with the Lower Snake River Compensation Plan. Eggs produced from spawned captive brood and conventional are the major source for Grande Ronde River smolt production under LSRCP.

1) 8805301 Northeast Oregon Hatcheries Master Plan – Planning of new production facilities.
2) Lower Snake River Compensation Plan. Lookingglass Hatchery serves as the source hatchery for the spring chinook salmon program for the Grande Ronde River satellites. Spawning of adults and rearing and incubation of progeny of the conventional component of the Program all occur at Lookingglass Hatchery. Substantial sharing of personnel, facilities and expertise between LSRCP and BPA projects is required to allow the Program to function efficiently and effectively.

Additional projects provide contributions to increase likelihood of success of the Program, evaluation data, or provide opportunities for cooperative data collection on species to targeted for collection by BPA projects (bull trout).

3) 8909600 Monitor, Evaluate Genetic Characteristics of Supplemented Salmon (NMFS): Monitor genetics of populations in the targeted and non-targeted tributaries of the Grande Ronde River.
4) 9702500 Wallowa/Nez Perce Salmon Habitat Recovery (NPT): Improved habitat increases likelihood of Program success.
5) 8402500 Grande Ronde Habitat Enhancement (ODFW). Improved habitat increases likelihood of Program success.
6) 9608300 Grande Ronde Habitat Enhancement (CTUIR). Improved habitat increases likelihood of Program success.
7) 9402700 Grande Ronde Model Watershed Habitat Projects. Juveniles produced by Program will provide information on habitat utilization and juvenile production.
8) 9403300 Fish Passage Center. Juvenile hatchery and natural salmon resulting from the Program will provide release and migration data for in-river information on migration timing and survival.
9) 9600800 PATH-Participation by State and Tribal Agencies. Naturally-produced juveniles will provide data for a life cycle model.
10) 9405400 Bull Trout Genetics, Habitat Needs, L.H., Etc. in Central and NE Oregon (ODFW/USFS): The Program incidentally collects bull trout and provides tagging, demographic and recapture data to this project.

d. Project history (for ongoing projects)

Comanagers have been working together since the 1970's to mitigate for losses of fish and wildlife resulting from construction and operation of mainstem dams. Congress authorized the Lower Snake River Fish and Wildlife Compensation Plan (LSRCP) as part of the Water Resources Development Act of 1976. In the Grande Ronde Subbasin, the intent of LSRCP was to use hatcheries to compensate for an estimated 48% loss of chinook salmon. In 1980, U.S. Congress passed the Pacific Northwest Electric Power Planning and Conservation Act. This act mandated mitigation for fish and wildlife lost due to mainstem dams and charged the Northwest Power Planning Council (NPPC) with the development of a comprehensive Fish & Wildlife program. Throughout the 1980's, Fish and Wildlife management continued to focus on mitigation. Salmon hatcheries were constructed and juvenile production goals developed that would translate into a total adult return of 5,820 spring chinook salmon. The intent was to supply additional adult returns for harvest, hatchery broodstock and to enhance natural production. The Northeast Oregon Hatcheries Project was initiated in 1987 to contribute to the NPPC's doubling goal for adult returns to the Columbia River Basin.

Despite the initiation of the LSRCP Program, Grande Ronde spring chinook salmon have continued to decline. In May 1992, the Grande Ronde River spring chinook salmon were listed as threatened under the federal Endangered Species Act. Numerous factors are thought to contribute to the decline of salmon in the Grande Ronde subbasin, in addition to construction and operation of mainstem dams. Overharvest and habitat degradation associated with timber, agriculture, and urban development, have affected local salmonid populations.

Fisheries management for the Grande Ronde River subbasin has shifted from predominantly mitigation to recovery of listed stocks. Additional recovery efforts for these populations require basic biology and ecology information to achieve effective management that will enhance natural production of salmon. The risk of extinction for some local populations of spring chinook salmon is high. Therefore, we are utilizing hatchery technologies with both conventional and captive brood components to stave off extinction of salmon in the Grande Ronde subbasin.

e. Proposal objectives

Grande Ronde Spring Chinook Salmon

1) Prevent extinction of endemic spring chinook salmon populations in the Grande Ronde River.
2) Develop an understanding of local spring chinook salmon biology to aid in recovery.
3) Assess effectiveness of captive and conventional components of the supplementation programs in recovering salmon populations.

4) Continue planning for implementation, monitoring and evaluation, and management of the Grande Ronde Endemic Spring Chinook Supplementation Program.

f. Methods

We will continue to implement conventional and captive brood hatchery components of the Program in order to prevent extinction of endemic spring chinook salmon populations in the Grande Ronde River. We will continue develop and use endemic broodstocks for supplementation, usually by releasing progeny as smolts into target tributaries. We will investigate critical life history patterns and habitat use to develop an understanding of local spring chinook salmon biology and ecology that could affect success of supplementation. In order to assess effectiveness of captive and conventional components of the supplementation programs in recovering salmon populations, we will monitor adult escapement in targeted and non-targeted tributaries. We will also monitor juvenile abundance, growth and survival rates of progeny to determine success of the Program. We will continue planning for implementation, monitoring and evaluation, and management of the Grande Ronde Endemic Spring Chinook Supplementation Program by coordinating, facilitating and conducting meetings among comanagers for Technical Oversite Teams, Annual Operations Plans, and Monitoring and Evaluation planning. We will implement adaptive management and determine future plans for the Program among comanagers to ensure objectives are met. We will plan for delisting of spring chinook salmon and revisit mitigation goals as provided under LSRCP when as appropriate.

g. Facilities and equipment

Facilities and equipment necessary for each component of the project is detailed in each specific proposal under this umbrella.

h. Budget

Detailed in specific proposals.

Section 9. Key personnel

Detailed in specific proposals.

Section 10. Information/technology transfer

Information will be transferred through a variety of means including, but not limited to :
Research Reviews
Reports – monthly, quarterly, annual
ESA annual reports
ESA Permits
Technical manuscripts

Technical presentations
Hatchery effectiveness workshops
Public presentations (schools, sportsman groups and civic groups)
CBFWA and BPA project reviews
NMFS Recover Plan updates

At the field biologist level, communication will occur frequently depending upon requirements. Multi-agency management and oversight teams (for example the Conventional Component Spring Chinook Salmon Technical Oversight Team), have been established for fast, efficient and comprehensive communication among agencies and to facilitate decision making.

Congratulations!