GRANDE RONDE BASIN SPRING CHINOOK CAPTIVE BROODSTOCK PROGRAM OPERATION AND MAINTENANCE, MONITORING AND EVALUATION, AND FISH HEALTH MONITORING

9801001

SHORT DESCRIPTION:

Develop and implement captive broodstock programs and associated monitoring and evaluation and fish health for spring chinook salmon populations in Catherine Creek, the upper Grande Ronde and Lostine rivers. This program is designed to reduce probability of extinction and preserve the genetic resources in these populations. This is an essential initial step in developing broodstocks of appropriate origin that will assist in the recovery and in meeting long-term mitigation goals for spring chinook salmon in the Grande Ronde basin. Construction of a facility at Bonneville Hatchery will be completed with FY97 funds by October 1997 and modifications as scheduled at Lookingglass Hatchery for FY98. Program implementation includin

SPONSOR/CONTRACTOR: LSRCP/ODFW/NPT

FWS: Lower Snake River Compensation Plan Program/Oregon Department of Fish and Wildlife/Nez Perce Tribe

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SUB-CONTRACTORS:

Sub-contractors will be used for construction but have not been chosen yet.

GOALS

NPPC PROGRAM MEASURE:

6.2, 6.26.2

RELATION TO MEASURE:

Measure 6.2 states "Take actions to rebuild population numbers for weak, wild and naturally spawning populations as quickly as possible. This would include combinations of a variety of techniques such as: the proper use of artificial propagation to prevent extinction and further loss of genetic diversity. "This project responds directly to recommendations in measure 6.2 and 6.26.2.

BIOLOGICAL OPINION ID:

The biological opinion for Hatchery Actions (page 67, Section 10.B.3 and 4) 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 at Lookingglass Hatchery to assist in recovery of listed fish ... Lookingglass Hatchery should be operated to prevent extinction of local populations."

OTHER PLANNING DOCUMENTS:

Captive broodstock programs for Snake River spring/summer chinook salmon are supported by Snake River Recovery Team recommendations (SRSR, 1994)and NMFS (1995a) draft recovery plan. NMFS draft recovery plan states "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" and further states "considering the critical low abundance of Grande Ronde spring/summer chinook salmon Lookingglass Hatchery should be operated to prevent extinction of local populations." Wy-Kan-Ush-Me Wa-Kush-Wit Plan (Volume II page 116) states "Immediately begin a Lostine River spring chinook captive broodstock program to provide up to 250,000 yearling smolts for supplementation of Wallowa River tributaries."

TARGET STOCK	LIFE STAGE	MGMT CODE (see below)
Grande Ronde River spring chinook	Egg-parr-smolt-adult	S(L)W
Catherine Creek spring chinook	Egg-parr-smolt-adult	S(L)W
Lostine River spring chinook	Egg-parr-smolt-adult	S(L)W

BACKGROUND

Stream name:
Catherine Creek, Lostine River, Grande Ronde River

Subbasin:
Grande Ronde

Stream miles affected:
Entire drainages

Land ownership:
public and private

HISTORY:

This captive broodstock program was initiated in the Grande Ronde basin in 1995 when spring chinook juveniles were collected from Catherine Creek, the upper Grande Ronde and Lostine rivers. These fish were reared until the yearling smolt stage and then were transferred to temporary facilities at Bonneville Hatchery and some to the Manchester Marine Laboratory. We completed a comprehensive plan for the captive broodstock program and were issued a NMFS ESA Section 10 permit in 1996. We collected parr from the Lostine River and Catherine Creek in 1996 and these fish are currently being reared at Lookingglass Hatchery with a scheduled transfer to Bonneville and Manchester in early summer. The captive broodstock production facility design is nearly completed with construction scheduled to begin April 1, 1997. Manchester Marine Lab is also scheduled for modification in FY97 to accommodate the Grande Ronde program. Funding for operation and maintenance, monitoring and evaluation, and fish health monitoring in FY97 was provided by the USFWS under the LSRCP. For FY98 we are requesting funds for Lookingglass Hatchery Modification (Project Number 9604400) and for Operations and Maintenance, Monitoring and Evaluation, and Fish Health (Project Number 9801001).

BIOLOGICAL RESULTS ACHIEVED:

1994 Broodstock:

In August and September of 1995 the first spring/summer chinook parr were collected for the Grande Ronde Basin Captive Broodstock Program. At that time 498, 110, and 499 parr were collected from Catherine Creek (CC), the upper Grande River (GRR) and the Lostine River (LR), respectively. These fish were then ponded by stock at the Lookingglass Hatchery and held for approximately 10 to 12 months. Time spent at Lookingglass Hatchery depended primarily on their stage of development and whether or not the fish were destined for fresh or salt water rearing. Fish destined for fresh water rearing were sent to Bonneville Hatchery; fish sent to Manchester Marine Lab are being reared in sea water. As fish at Manchester reached maturity they were moved to Bonneville Hatchery where they are being held until they mature and are spawned, and/or die.

Of the original fish collected, 419, 72 and 391 fish from Catherine Creek, the upper Grande Ronde River and Lostine River respectively, were still alive as of December 31, 1996.

Fish maturity and spawning activities:

Fish were checked for maturity in August 1996 after all stocks had been transferred to Bonneville and Manchester. Out of 671 fish examined at Bonneville, 76 were mature 40/299 Catherine Creek, 9/99 Grande Ronde, and 27/273 Lostine River. Out of 313 fish examined at Manchester, 20 were mature; 15/163 Catherine Creek and 5/150 Lostine River. No Grande Ronde fish were held at Manchester. In addition to live fish detected as mature during scheduled sorting and examination procedures, all mortalities were also checked throughout the year for maturity. Twenty mortalities were found to be mature prior to sorting live fish for maturity in August. Of the mature mortalities, 12 were Catherine Creek stock (8 freshwater reared and 4 saltwater reared), and eight were Lostine River stock (1 freshwater reared and 7 saltwater reared). Twenty-three fish which had been found to immature during the maturity sorting in August were found to be mature when examined after they died (1 Catherine Creek, 15 Grande Ronde River, and 7 Lostine River). A total of 67, 24, and 47 males from the Catherine Creek, upper Grande Ronde River, and the Lostine River, respectively, had matured as of December 31, 1996.

At maturity, sperm was taken from the males and stored via cryopreservation. A total of 50, 7, and 33 males have had sperm cryopreserved from the Catherine Creek, upper Grande Ronde River, and Lostine River stocks respectively as of December 31, 1996.

1995 broodstock:

In August 1996 the second brood year of spring/summer chinook parr were collected for the Grande Ronde Basin Captive Broodstock Program. At that time 500 and 481 parr were collected from Catherine Creek and the Lostine River respectively. Only two parr were collected in the upper Grande Ronde River; both fish were returned to the wild.

The 1995 captive broodstock are currently being held at Lookingglass Hatchery until they reach smolt stage. In September, all fish were PIT tagged. Monthly sampling was done in October, November, and December to obtain length, weight, and PIT tag retention information. Of the original fish collected, 492 and 474 fish from Catherine Creek and Lostine River, respectively, were still alive as of December 31, 1996.

PROJECT REPORTS AND PAPERS:

Section 10 ESA Application Permit - ODFW 1995 Comprehensive Plan for Grande Ronde Basin Spring Chinook Captive Broodstocks- Section 10 Application 1996 - ODFW

ADAPTIVE MANAGEMENT IMPLICATIONS:

The Grande Ronde basin once supported large runs of chinook salmon with estimated escapements in excess of 10,000 as recently as the late 1950s. Natural escapement declines in the Grande Ronde basin have paralleled those of other Snake River stocks. Catherine Creek, Grande Ronde, and Lostine rivers were historically three of the most productive populations in the Grande Ronde basin. Escapement levels in Catherine Creek, the Grande Ronde, and Lostine rivers dropped to alarming low levels in 1994 and 1995. A total of 11, 3, and 16 redds were observed in Catherine Creek, upper Grande Ronde River, and the Lostine River in 1994, respectively. In contrast, the estimated number of redds in 1957 was 374 (not including NF Catherine Creek), 478, and 893 in these rivers, respectively. We are presently in an emergency situation where dramatic and unprecedented efforts will be needed to prevent extinction as well as preserve any future options for use of natural fish for artificial propagation programs. The initial management plan under the LSRCP program called for hatchery supplementation of four chinook populations in the basin: Catherine Creek, Wallowa, Grande Ronde, and Lostine rivers. The Oregon Department of Fish and Wildlife, U. S. Fish and Wildlife Service, and the Nez Perce Tribe have decided to immediately begin development of broodstocks from local natural populations for genetic conservation and natural production enhancement. This decision was a result of a number of factors including: increased emphasis on natural production and endemic stock recovery; consultations and requirements resulting from listing of Grande Ronde chinook populations as endangered; our lack of success in using non-local hatchery stocks for supplementing Grande Ronde chinook populations; and preferred strategies for use of artificial propagation identified in the NMFS draft recovery plan. It is too early in the program to provide significant results, however we believe that this program will provide substantial new knowledge for the use of artificial propagation to enhance natural production.

PURPOSE AND METHODS

SPECIFIC MEASUREABLE OBJECTIVES:

Prevent extinction of native wild populations in the Lostine, upper Grande Ronde River, and Catherine Creek. Maintain genetic diversity of indigenous artificially propagated chinook populations. Maintain genetic diversity of wild populations. Develop indigenous broodstocks for Grande Ronde chinook hatchery program. Modify facilities at Bonneville and Lookingglass hatcheries to provide capability to implement captive broodstock programs. Assess captive broodstock program performance in achieving adult broodstock, smolt production, adult return goals, and management. Determine optimum program operational criteria to ensure success of achieving objectives.

CRITICAL UNCERTAINTIES:

There is little uncertainty regarding the completion of adequate facilities at Bonneville, Lookingglass, and Manchester facilities. There is substantial uncertainty associated with many aspects of the captive brood production program which are summarized below: CAPTIVE JUVENILE PERIOD: Growth rate, mortality rate, smoltification development, and disease. CAPTIVE ADULT PERIOD: Post smolt growth rate, maturation schedule, survival to spawn, relationship of growth to maturation age and time, maturity recognition, and disease. SPAWNING: Spawning timing, size at maturity, fecundity, sperm volume and viability, egg viability, fertilization success. F1 GENERATION: Egg-to-fry survival, growth performance, fry-to-smolt survival, smolt-to adult survival, natural production performance, life history characteristics.

BIOLOGICAL NEED:

Present escapement levels and recent trends indicate that Grande Ronde basin spring chinook are in imminent danger of extinction. Captive broodstock programs for Snake River spring/summer chinook salmon are supported by recommendations in the Snake River Recovery Team's report (Snake River Salmon Recovery Team Report 1994), NMFS draft recovery plan, and the Northwest Power Planning Council's Fish and Wildlife Program (Northwest Power Planning Council 1994). NMFS draft recovery plan states "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" and further states "considering the critical low abundance of Grande Ronde spring/summer chinook salmon, impacts to listed fish should be avoided and Lookingglass Hatchery should be operated to prevent extinction of local populations. Consequently indigenous broodstock should be immediately transferred to Lookingglass Hatchery (natural fish collected in 1995), and production should be maximized to supplement natural populations." Our goal is to prevent extinction of the three populations and provide a future basis to reverse the decline in stock abundance and ensure a high probability of population persistence.

HYPOTHESIS TO BE TESTED:
There are hypotheses associated with all uncertainties and assumptions described above.

ALTERNATIVE APPROACHES:
Alternative approaches have been tried in past years and we examined an array of alternative propagation actions that could be taken immediately to assist in conservation and recovery.

The list of propagation actions that were evaluated and our conclusions regarding each action.

PROPOSED ACTION/CONCLUSION
No intervention./If wild populations in the Grande Ronde do not rebuild naturally (survival conditions remain poor) and populations go extinct, the genetic resources of these populations will be lost.

Use Rapid River stock to supplement natural production in one or more of these populations./This action is inconsistent with recovery of naturally reproducing populations in the Grande Ronde basin and with the recommendations in the SRSRT (1994) Report, NMFS' Biological Opinion and Draft Recovery Plan (NMFS 1995a, 1995b).

Initiate conventional supplementation programs using naturally produced returning adults from target populations to produce smolts for release./This approach has shown some success in the Imnaha River (Carmichael and Messmer 1995), however too few adults were available in Grande Ronde populations during 1994 and 1995 to utilize this strategy. We consider this a potential complimentary effort to captive broodstock strategies. We may have adequate adults to implement this approach beginning in 1997.

Captive broodstock./Given low escapement levels we view this approach as one which will maximize the species reproductive potential as well as individual survival. It also poses the least short-term demographic risk to the remaining wild populations under present conditions.

In addition, we conducted an extensive assessment of facilities prior to selection of Bonneville and Manchester as the facilities.

JUSTIFICATION FOR PLANNING:
N/A

METHODS:
In an effort to reduce the probability of extinction and preserve the genetic resources contained in these populations, we believe it prudent to continue captive broodstock programs for the Lostine River, Catherine Creek, and upper Grande Ronde River populations and to initiate more conventional adult collection when returns warrant it. These programs, if successful, will provide returning adults to maintain hatchery broodstock conservation programs and to release adults and juveniles into the stream of parent origin and/or other appropriate locations.

We plan to collect naturally-produced juveniles for a minimum of five years, rear the juveniles to near smolt stage at Lookingglass Fish Hatchery (LGFH), transport two-thirds as smolts to Bonneville Fish Hatchery (BOH) and one-third as smolts to NMFS Manchester Marine Lab (MML), respectively, rear fish at those facilities to maturity. Maturing adults will be transported from MML to BOH and all fish spawned at BOH. Captive broodstock progeny will be incubated to eyed stage at BOH then transported to LGFH for final incubation and rearing to the smolt stage. Resulting smolts will be released into the river of parent origin and/or other chinook producing streams within that drainage. Other potential program strategies include outplanting of adults and/or progeny as eggs and/or parr produced in excess of smolt needs directly into unseeded historic production areas.

These programs will be operated under the adaptive management philosophy and will rely extensively on monitoring and evaluation results and new knowledge for making future decisions and adapting program approaches.

Overview

Specific evaluations will not be conducted with the 1994 brood of captive fish. Rather, these fish will be monitored during the course of their development in an effort to fine tune future evaluations. Beginning with the 1995 brood of captive fish, the two

evaluations that we are proposing can be accomplished by dividing each stock of captive fish into three groups (by broodyear). Thus, for any given brood we will have a total of nine groups of fish (see table). Approximately two-thirds of the fish will be reared in fresh water while the other third will be reared in sea water. The freshwater, natural growth group of each stock will serve as a control for both the other treatments. Variables other than environmental salinity, juvenile growth rate, and perhaps adult diet will remain as similar between treatments as possible. For example, at all times, all fish will be reared under a simulated natural photoperiod. Treatment groups will always be kept separate and brood years will be kept separate until spawning. Fish from different broodyears but within a treatment group may be spawned together. After spawning, F1-generation fish resulting from parents of a certain treatment group will be kept separate from F1-generation fish resulting from parents of a different treatment group. This separation will remain until F1-generation smolts are transported to acclimation facilities.

Captive fish will be reared through maturation, spawned, and then their progeny reared through the yearling smolt stage. This entire cycle should take between 3.5 and 5.5 years. For example, fish collected in September of 1995 would spawn at age 5 in September of 1999 and the resulting progeny would be released as smolts in the spring of 2001. For the purpose of clarifying the terminology associated with the monitoring and evaluation plan, we have divided this cycle into four periods (see table). The Captive Juvenile period begins at collection and ends once fish have been transferred to BOH or MML. The captive juvenile period is composed of two shorter periods; pre-smolt growth and smoltification. The Captive Adult period begins once fish have been transferred to BOH or the MML and ends once fish have been spawned or die. The captive adult period is composed of three shorter periods; post-smolt growth, maturation, and spawning.

PLANNED ACTIVITIES

SCHEDULE:

Planning Phase	**Start**	a. 01/01/96b. 10/01/96c. 04/01/97	**End**	a. 05/01/96b. 04/01/97c. 09/30/97	**Subcontractor**

Task a. Complete comprehensive plan by 1 May 1996 and submit Section 10 permit application. b. Complete facility design for Bonneville Hatchery. c. Complete design for Lookingglass Hatchery modifications.

Implementation Phase	**Start**	a. 07/01/96b. 08/01/96c. 04/01/97d. 10/01/97	**End**	a. 09/15/96b. 09/15/96c. 09/10/97d. 09/30/98	**Subcontractor**

Task a. Complete temporary facility construction at Bonneville Hatchery. b. Collect 1995 brood juveniles. c. Complete construction at Bonneville Hatchery. d. Complete Lookingglass Hatchery modifications.

O&M Phase	**Start**	a. 10/01/98 b. 10/01/99 c. 10/01/00 d. 10/01/01	**End**	a. 09/30/99 b. 09/30/00 c. 09/30/01 d. 09/30/02	**Subcontractor**

Task a. Continue collection, rearing, and spawning, monitoring and evaluation, and fish health monitoring. b. Collection, rearing, spawning, release smolts, monitoring and evaluation, and fish health monitoring. c. Collection, rearing spawning, release smolts, monitoring and evaluation, and fish health monitoring. d. Collection, rearing, spawning, release smolts, monitoring and evaluation, and fish health monitoring.

PROJECT COMPLETION DATE:

2002

CONSTRAINTS OR FACTORS THAT MAY CAUSE SCHEDULE OR BUDGET CHANGES:

There is risk of not completing construction of facilities in an timely fashion. NEPA is proceeding on schedule. There is a risk that too few fish may be available in some years to meet collection goals.

OUTCOMES, MONITORING AND EVALUATION

SUMMARY OF EXPECTED OUTCOMES

Expected performance of target population or quality change in land area affected:
We expect that this program will provide adult returns to these populations in future years thus reducing the probability of extinction and providing opportunity for future supplementation and mitigation. If successful, this program will provide a minimum escapement of 150 adults on an annual basis. Program will continue until survival conditions allow these natural populations to begin to rebuild. In addition, we will be providing extensive new knowledge on techniques and approaches for use of captive broodstock in recovery efforts for endangered fishes.

Present utilization and convservation potential of target population or area:
The present utilization potential is very limited due to depressed status and low productivity. The conservation potential is excellent in terms of conservation value of the target populations and the potential for recovery to sustainable levels if adequate improvement in mainstem survival is achieved.

Assumed historic status of utilization and conservation potential:
Historically, these populations contributed substantially to ocean and in-river commercial fisheries, recreational fisheries, and tribal fisheries. The conservation potential historically was excellent.

Long term expected utilization and conservation potential for target population or habitat:
The long-term desired utilization is to restore historic commercial, recreational, and tribal fisheries, however we believe that these populations can never support the historic fisheries levels. The expected long-term conservation potential is excellent.

Contribution toward long-term goal:
This project is an essential component for achieving both the utilization and conservation goals for these populations.

Indirect biological or environmental changes:
If successful, this program will allow us to eliminate the use of the Rapid River stock in the Grande Ronde basin and thus reduce the impacts of hatchery straying in the Minam and Wenaha populations.

Physical products:
Mature, adult endemic broodstock from Lostine, Grande Ronde, and Catherine Creek populations. 150,000 smolt production for each stock annually. New captive brood production facility at Bonneville Hatchery. Adult returns to Lostine and Grande Ronde rivers, and Catherine Creek.

Environmental attributes affected by the project:
N/A

Changes assumed or expected for affected environmental attributes:
N/A

Measure of attribute changes:
N/A

Assessment of effects on project outcomes of critical uncertainty:
We have developed a detailed monitoring and evaluation plan that was previously described in this document. We will manage this program under an adaptive management approach using new knowledge generated from the monitoring and evaluation plan to make decisions.

Information products:
Reports - monthly, quarterly, annual ESA annual reports ESA permits Technical manuscripts Technical presentations

Coordination outcomes:
The primary coordination outcomes are transfer of knowledge, sharing of resources, and increased effectiveness and efficiency.

MONITORING APPROACH
The project has clearly established biological objectives and criteria for all aspects of performance. The Region should measure the outcomes in terms of the project objectives and measured performances. These measured outcomes will be reported annually. A comprehensive monitoring and evaluation program will be implemented to evaluate all aspects of program performance and to determine optimum strategies.

[BPA Note: The following text was moved from the Methods section, and one level of the outline section has been removed with Contractor's permission.]

The following outline describes the monitoring that will be done during each period of the captive brood cycle. At all times, great care will be taken to minimize stress and any adverse impacts that monitoring may have on the fish. When possible, all variables will be associated with the tag code of an individual fish. The monitoring aspect of this program is designed to allow us the ability to make comparisons in our experimental evaluations, to monitor the basic progress of the fish, to detect areas of concern that may need our immediate attention, and to judge the adequacy of the benchmarks we have used to design the overall captive broodstock program (for example: a 75% egg viability of the captive brood adults). In general, along with the pathological sampling, we will record the length, weight, maturity, and gonadal status of all mortalities.

i. Captive Juvenile period: pre-smolt growth, smoltification
ii. Captive adult period: post-smolt growth, maturation, spawning
iii. F1-Generation: incubation, juvenile rearing, smolt releases, adult return
iv. F2-Generation: pre-smolt, smolt, post-smolt

Evaluation plan

There are numerous uncertainties associated with salmonid captive broodstock programs (Flagg and Mahnken, 1995). There is a need to evaluate experimentally various aspects of rearing and spawning captive salmonids. However, each evaluation has varying degrees of risk to or impact on the population associated with an experiment. Since we are working with endangered stocks of spring chinook salmon, we need to balance information needs with risks to the captive populations. Thus, we are proposing to evaluate aspects of captive rearing and breeding that address relatively important uncertainties but will have minimal impact to the groups of fish being studied.

The first evaluation we propose is a comparison of fish reared exclusively in fresh water to those reared in fresh water as juveniles, sea water as adults, and returned to fresh water for final maturation. Fish in the first evaluation will be reared under simulated natural growth rates. The second evaluation we propose is a comparison of fish that, as juveniles, are grown at either a natural rate or an accelerated rate. Growth rates will be manipulated using water temperature and feeding levels. Fish growing at a natural rate will be reared in water temperatures (5-14 C) that simulate the natural water temperature cycle. Fish growing at an accelerated rate will be reared in constant 14 C water. Feeding will be adjusted according to water temperature. Fish in the second evaluation will be reared exclusively in fresh water. In each evaluation, we will compare the overall performance of captive fish and their progeny.

Provisions to monitor population status or habitat quality:
The following information is presently being collected on target stocks to monitor population status:
1. Smolt production.
2. Overwinter survival.
3. Juvenile life history patterns (tributary and Snake River mainstem migration patterns).
4. Complete area redd counts and adult escapement estimates.
5. Spawning distribution and adult spawning stock characteristics.
6. Genetic characteristics.
7. Hatchery/wild composition of natural spawners.
Future plans include construction of adult recapture facilities on target stock streams which will allow for accurate population escapement estimates and smolt-to-adult survival for natural and hatchery origin fish.

Data analysis and evaluation:
A detailed description of the methodology was previously presented in the Methods Section. The following statistical analysis procedures are proposed: Correlation analysis, ANOVA, nonparametric analysis, parametric T-tests, regression analysis, and summary statistics.

Information feed back to management decisions:
There are multiple decision levels that the information will be used at. At the field biologist level information will be transferred and used by regular communication and contact. At the agency level information will be input into the formal decision process by written communication. Information will be input into the NMFS recovery plan process through written communication and into the CBFWA process by verbal and written communication. The format of feedback will be description of results, recommendations, and formal publication. We have established multi-agency management oversight teams for decision making.

Critical uncertainties affecting project's outcomes:
The critical uncertainties will be resolved through research, monitoring, and evaluation. There is corollary work ongoing with Idaho chinook and sockeye, Sacramento River chinook, as well as chinook stocks in Washington.

EVALUATION
The success needs to be evaluated by comparing the program's performance criteria (survival rates, maturity rates, smolt production, adult returns, adult performance in nature, and target population status improvement)with the actual measured performance for each of these performance areas.

Incorporating new information regarding uncertainties:
This project has established management teams that meet on a regular basis to review new information and make decisions. In addition, there are Columbia basin-wide teams that meet to discuss this project and its outcomes. As new uncertainties are identified they will be brought to the management teams for review and decision.

Increasing public awareness of F&W activities:
Through public and professional presentations of information as well as outreach efforts at Bonneville Hatchery, which receives nearly 1 million visitors annually.

RELATIONSHIPS

RELATED BPA PROJECT	RELATIONSHIP
8909600 Genetic Monitoring and Evaluation of Snake River Salmon and Steelhead- NMFS	This project provides samples for the genetics monitoring program.
5520700 Captive Broodstock Artificial Propagation - NPT	This is the NPT funding for cooperative evaluation of the Grande Ronde Spring Chinook Captive Broodstock Program.
8805301 8805302 Northeast Oregon Hatcheries - ODFW, CTUIR, and NPT	Captive broodstock program will be directly integrated into the NE Oregon Hatcheries program as it will be providing the broodstock and eggs that will be utilized for NEOH.
9202604 Investigations into the early life history of spring chinook salmon in the Grande Ronde basin	We utilize migration timing information from this project to determine when to collect juveniles for captive broodstock (prior to the beginning of the fall migration). Juvenile migrant traps may also be used in some years to collect fish for captive brood. Life history information will also be used to access the success of supplementation programs.

8712700 9102800 Smolt Monitoring by Non-Federal Entities; Monitoring Smolt Migration of Wild Snake River Sp/Sum Chinook	During the summer we PIT tag parr in Catherine Creek and the Lostine and Grande Ronde Rivers. We collect parr for the captive broodstock at the same time that parr PIT tagging occurs. This project also provides personnel and information to improve efficiencies.

RELATED NON-BPA PROJECT	RELATIONSHIP
LSRCP Hatchery Operations and Evaluations	This captive broodstock program is completely integrated with the LSRCP program. LSRCP facilities and personnel are implementing the production, evaluations, and fish health monitoring for the captive brood program. Extensive sharing is occurring between the programs. In addition, ongoing research under LSRCP will be providing information to assess the success of the Captive Broodstock Program.
Bonneville Hatchery Operations - NMFS funding	The captive broodstock production facility will be completed at Bonneville Hatchery in September 1997. Management personnel at Bonneville will be overseeing the production program and we will be sharing equipment and personnel with Bonneville Hatchery. All opportunities to maximize efficiency will be sought.

OPPORTUNITIES FOR COOPERATION:
In FY 97 the LSRCP funded operation and maintenance, monitoring and evaluation, and fish health monitoring for the entire captive broodstock program. This program is coordinated extensively throughout the Region through an Integrated Technical team and the Conservation Planning Oversight Team (CONSPOT). This project is integrated with LSRCP operations at Lookingglass and Bonneville hatcheries as well as monitoring and evaluation and research activities under LSRCP.

COSTS AND FTE

FUTURE FUNDING NEEDS: **PAST OBLIGATIONS (incl. 1997 if done):**

FY	$ NEED	% PLAN	% IMPLEMENT	% O AND M
1998	$436,000			
1999	$503,000			
2000	$503,000			
2001	$503,000			
2002	$503,000			

OTHER NON-FINANCIAL SUPPORTERS:
USFWS, IDFG, NMFS, USACOE, Grande Ronde Model Watershed

LONGER TERM COSTS: $504,000
Operation and Maintenance

1997 OVERHEAD PERCENT: Presently it is 20.5%, however varies on an annual basis.

HOW DOES PERCENTAGE APPLY TO DIRECT COSTS:
Applies to all costs except capital purchases and contract services.

CONTRACTOR FTE: Approximately 5 FTE's.

SUBCONTRACTOR FTE:
The contract for construction at Bonneville Hatchery has not been awarded, therefore we cannot determine the contract FTE's.