IDAHO DEPARTMENT OF FISH AND GAME

Lower Snake River Fish and Wildlife Compensation Plan Evaluation

FY1987-FY1991

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INTRODUCTION

The Snake River Basin within Idaho, including the Salmon, Clearwater, and upper Snake River drainages, once produced an estimated 40% of the total spring chinook salmon, 45% of the total summer chinook salmon and 55% of the total summer steelhead trout in the Columbia River Basin. Substantial numbers of sockeye and fall chinook and lesser numbers of coho salmon also were produced.

By the late 1970's, naturally produced stocks of salmon and steelhead appeared to be headed toward extinction in Idaho. Hatchery produced anadromous fish were in a similarly depressed condition. This condition led to severe restrictions or closures of Idaho fisheries. Popular sport fisheries disappeared and local economies dependent on tourism suffered.

The precarious condition of many once-productive stocks of anadromous fish is a result of many interrelated factors. However, development of hydroelectric dams which block access to large amounts of important spawning and rearing habitat, cause high mortalities of migrating fish, and reduce stream flows during critical migration phases are readily identified as the most important influence.

In recent years hatchery production has been dramatically increased in an attempt to offset losses to natural production throughout the basin. Hatchery fish have come to be the dominant component of many runs. Attempts to harvest the more abundant hatchery fish, particularly those produced in the large complex of lower Columbia River hatcheries, led to overfishing of natural runs and upper river hatchery populations which had already been severely impacted by dam-related mortalities.

The plight of the Snake River anadromous fish runs has been recognized in several recent actions of national significance. The Pacific Northwest Electric Power Planning and Conservation Act of 1980 mandated a program to protect, mitigate, and enhance the anadromous fish resources of the Columbia River Basin affected by the development of the federal hydroelectric system. The Salmon and Steelhead Conservation and Enhancement Act of 1980 recognized the need for cooperative management programs for the northwest anadromous fishery resource and authorized funds for fishery enhancement projects. The Lower Snake River Fish and Wildlife Compensation Plan was implemented to mitigate for salmon and steelhead losses at four federal hydroelectric dams on the lower Snake River. In 1980 the Federal Energy Regulatory Commission approved a settlement agreement regarding compensation for fishery impacts of the Hells Canyon Dam complex between Idaho Power Company and the fishery agencies.

These major salmon and steelhead restoration programs bring new sources of funds and new management entities into the arena for restoring anadromous fish populations. They also increase the necessity for coordination and cooperation in management efforts to prevent wasteful duplication of effort or unproductive disputes over authority.

Naturally spawning chinook populations have declined drastically and steadily since 1960. Present redd counts in natural spawning areas indicate approximately 10% as many spawners as 20 years ago in the Salmon River drainage. Portions of the Clearwater drainage have shown increases in natural spawners due to hatchery produced smolt outplants, but the available spawning habitat is 90-95% unused.

Present hatchery capacity could produce about five million chinook smolts if enough spawning escapement occurred. Facilities under construction or planned by 1990 will increase smolt production capacity to more than 10 million spring chinook smolts. Spawning escapement to Idaho will have to be increased to provide enough eggs to fill the new hatching and rearing facilities. Improved disease control and nutrition to improve the quality of hatchery smolts will be necessary to allow hatchery programs to reach their full potential.

Wild steelhead populations were extremely depressed in the middle and late 1970's. A combination of protective regulations, downstream passage improvements and excellent habitat conditions has allowed some increases in wild steelhead populations. Three large drainages, the Selway River, the Middle Fork Salmon River, and the South Fork Salmon River have been reserved for wild steelhead management. These drainages have shown substantial increases in spawning escapement and smolt production in the past, but are estimated to be at only 20%-50% of potential.
Wild and natural runs into other drainages, such as the Lochsa River and Salmon River tributaries above the Middle Fork, are slowly increasing. In order to increase wild steelhead populations to the capacity of the habitat, fishing seasons and limits will remain selective and more restricted for wild fish than for hatchery supported runs.

The following are some of the policies which the Idaho Department of Fish and Game has adopted to achieve stated goals in the five year management plan for anadromous fish and which apply to this plan.

1. Wild (naturally produced, unassisted by artificial propagation) salmon and steelhead populations will receive priority consideration in all fisheries management decisions.

2. All important anadromous fish habitat in Idaho will be protected from any further degradation by water and/or energy development.

3. Natural production habitat of the state will be protected and enhanced consistent with the stream classification criteria.

4. Juvenile anadromous fish will be protected from harvest in trout fisheries as necessary to achieve production goals.

5. Hatchery production programs will be managed in a manner that minimizes adverse effects on the quantity and quality of natural production of anadromous fish.

6. Hatchery production will be managed to match as closely as possible the smolt size and outmigration timing which proves to produce the highest percentage of returning adults.

7. Anadromous fish diseases will be controlled in a manner that prevents natural stocks and other hatchery stocks from being infected.

8. All fisheries will be regulated to meet natural and hatchery spawning escapement objectives.

9. Known stock harvest opportunities for hatchery salmon and steelhead will be developed.

10. To facilitate achieving known stock harvest of hatchery steelhead all hatchery produced steelhead smolts will be marked with an adipose fin clip prior to being released from the hatchery.

LSRCP PROGRAM GOALS

The LSRCP requires that anadromous fish runs be returned to pre-project levels with the aid of fish hatcheries and facilities for trapping adult fish. By 1985, the following LSRCP hatcheries and collecting facilities have been completed in Idaho: McCall Hatchery, South Fork Salmon River Trap, Dworshak National Fish Hatchery expansion, Hagerman National Fish Hatchery expansion, Sawtooth Hatchery and East Fork Salmon River Trap (Fig. 1). The Magic Valley Hatchery is nearing completion and the construction of the Clearwater Hatchery is scheduled to begin in the near future.

.5% survival

The LSRCP goals are to produce 5.65 million spring and summer chinook salmon smolts and 6.9 million steelhead trout smolts (Table 1). These smolts are expected to return about 48,400 adult spring and summer chinook salmon and 39,300 adult steelhead trout to the project area in Idaho.

As facilities are coming on line and hatchery capacities tested, the operational production guidelines have been altered from the original smolt production goals (Table 2). But the adult return goals to the Snake river remain unchanged. The revised smolt production guidelines should be considered interim and subject to change as we gain experience in production of fish at the new LSRCP facilities. Fingerling and fry plants will also be made to determine if these plants are feasible and viable. These plants will be made if adult returns produce eggs in excess of tht needed for smolt production.

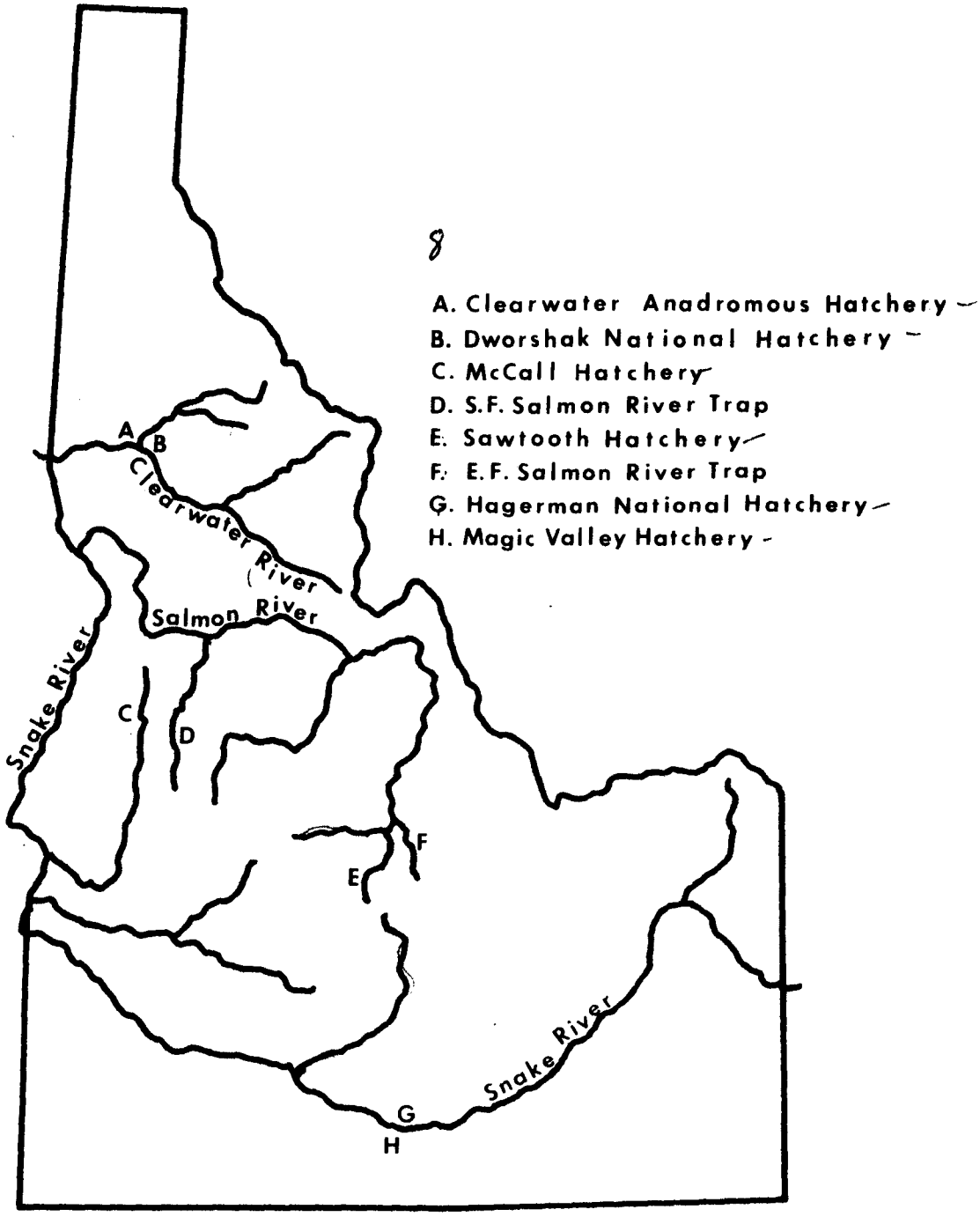

Figure 1. Location of Lower Snake River Fish and Wildlife Compensation Plan anadromous fish hatcheries in Idaho.

Table 1. LSRCP hatchery smolt design capacities and estimated adult returns based on adult return mitigation requirements.

Hatchery	Species	Design capacity		Estimated adult return
		Smolt numbers	Pounds	
Clearwater Anadromous	Spring Chinook	1,369,500	91,300	12,200
Sawtooth	Spring Chinook	2,235,000	149,000	19,200
McCall	Summer Chinook	1,000,000	61,300	8,000
Dworshak	Spring Chinook	1,000,000	70,000	9,000
	Subtotal Chinook	5,604,500	371,600	48,400
Hagerman	Steelhead	2,400,000	340,000	13,600
Clearwater Anadromous	Steelhead	2,500,000	350,000	14,000
Magic Valley	Steelhead	2,000,000	400,000 291,500	11,660
	Subtotal Steelhead	6,900,000	981,500	39,260

Table 2. Proposed production and distribution summary, Idaho LSRCP anadromous fish hatcheries, smolt production.[1]

Hatchery	Species	Water Planted	Number	Total production
McCall	Summer Ck	South Fork Salmon R.	1,000,000	1,000,000
		(Total Summer Chinook - 1,000,000)		
Sawtooth	Spring Ck	Upper Salmon River	1,300,000	
		East Fork Salmon R.	700,000	
		Valley Creek	100,000	
		Yankee Fork Salmon R.	200,000	2,300,000
Dworshak	Spring Ck.	No. Fork Clearwater R.	500,000	
		Lolo Creek	200,000	1,000,000
		Newsome Creek	200,000	
		American River	100,000	
Clearwater	Spring Ck.	Lochsa R. and trlbs.	1,500,000	
		Crooked River	500,000	2,200,000
		Red River	200,000	
		(Total Spring Ck. - 5,500,000)		
Clearwater	Steelhead "B"	Crooked River	500,000	
	Steelhead "B"	Lochsa River	1,000,000	
	Steelhead "B"	Captain John Creek	300,000	
	Steelhead "B"	Slate Creek	500,000	
	Steelhead "B"	Whitebird Creek	200,000	2,500,000
Hagerman	Steelhead "B"	East Fork Salmon R.	1,000,000	1,700,000
	Steelhead "A"	Upper Salmon River	700,000	
Magic Valley	Steelhead "A"	Little Salmon River	800,000	1,500,000
	Steelhead "A"	Lower Salmon R. trlbs.	400,000	
	Steelhead "A"	Panther Creek	300,000	
		(Total Steelhead - 5,700,000)		

[1]From Idaho Anadromous Fisheries Management Plan, 1985-1990. Idaho Department of Fish and Game, 1985.

Table 3. Proposed distribution from Idaho LSRCP anadromous fish hatcheries fry and fingerlings.[1]

Hatchery	Species	Water planted	Number x 1000 & size	Time
McCall	SuCk	Upper South Fork Salmon R.	200 fingerling	June
	SuCk	Johnson Creek	200 fingerling	June
	SuCk	E. F. South Fork Salmon R.	100 fingerling	June
		(Total summer chinook - 500,000)		
Sawtooth	SpCk	Salmon R.-Stanley Basin trib.	600 fingerling	July
	SpCk	Yankee Fork Salmon R.	200 fingerling	July
	SpCk	East Fork Salmon R.	200 fingerling	July
	SpCk	Slate Creek	100 fingerling	July
Dworshak	SpCk	Lolo Creek	200 fingerling	June
	SpCk	So. Fork and tributaries	300 fingerling	June
Clearwater	SpCk	Lochsa R. and tributaries	500 fingerling	June
	SpCk	S. F. Clearwater R. and tributaries	500 fingerling	June
		(Total spring chinook - 2,600,000)		
Clearwater	ShB	Clearwater R. tributaries	1,000 fry	June
		(Total steelhead - 1,000,000)		

[1]From Idaho Anadromous Fisheries Management Plan, 1985-1990. Idaho Deparment of Fish and Game, 1985.

DESCRIPTION OF FACILITIES

McCall Hatchery

The McCall Hatchery was the first hatchery in Idaho completed (1980) under the authorization of the LSRCP. The hatchery is operated by the Idaho Department of Fish and Game and is located in McCall, Idaho, on the North Fork Payette River approximately 0.25 mile downstream from Payette Lake. Hatchery water is supplied from two inlets in Payette Lake, one at the surface and one at a depth of 50 feet; water temperatures and quality can be regulated. The McCall Hatchery was built in combination with a trapping and spawning facility located on the South Fork Salmon River near Cabin Creek. This facility consists of a removable fish weir, fish ladder, trap, two adult holding ponds with a total capacity of 750 summer chinook salmon and a covered spawning area. Green eggs are transported from the spawning facility to McCall Hatchery where they are incubated and the fish raised to smolt size. Smolts are transported back to the SFSR and released above the trap

At full capacity approximately 1,750,000 eggs will be collected for smolt production at the SFSR trap in August and September. These eggs will be transported green to the hatchery and placed in incubators at a loading density of approximately 7,000 per tray (100 ounces). Approximately 1,500,000 eggs will be incubated in trays through the button-up fry stage. During November-March, when the estimated 1,250,000 button-up fry are about 1,100 to the pound, they will be transferred to indoor nursery tanks. After rearing in the nursery tanks until the end of May, approximately 1,125,000 fingerlings at 250 per pound will be moved into the two outdoor ponds. The fish rear in the shaded outdoor ponds until they become smolts at about 16 to 18 per pound by the following April. The 1,000,000 (61,300 pounds) smolts are then transported back to the SFSR and released above the trap (Table 2). The goal for survival from fertilized eggs to smolts is expected to be 65%.

Dworshak National Fish Hatchery

Dworshak National Fish Hatchery (DNFH) is located at the confluence of the North Fork of the Clearwater River and the mainstem Clearwater River. DNFH began operations in 1968 and was originally constructed to compensate for fishery losses due to the construction of Dworshak Dam on the North Fork of the Clearwater River. It was designed and built by the U.S. Army Corps of Engineers and is operated by the U.S. Fish and Wildlife Service to rear steelhead. Hatchery water is taken from the North Fork of the Clearwater River below Dworshak Dam. Temperatures can be regulated at the dam by selector gates from late spring to late fall. Additional temperature regulation in the winter is achieved at the hatchery in a treated re-use system and by heating makeup water.

In 1981, the LSRCP authorized and funded the addition of 30 raceways at DNFH to rear 70,000 pounds of spring chinook salmon smolts. Construction was completed by June 1982 . Returning adult chinook will be trapped at DNFH and the Kooskia National Fish Hatchery (KNFH) on Clear Creek near Kooskia, Idaho.

Currently, production of spring chinook salmon at DNFH under LSRCP funding calls for the raising of 1,000,000 smolts (70,000 pounds)(Table 1). Egg collection will begin in August from adults returning to traps at DNFH and KNFH and then the eggs will be incubated at 45 F for four months. Currently, due to the low number of adults available at the facilities, eggs are being brought in from other spring chinook salmon hatcheries (Rapid River) to maintain production.

By 1 January, all feeding fry will be transferred to nursery tanks. The 1,120,000 fry will be reared in the tanks at 56 F until 1 April when they will be moved to outdoor raceways so that the nursery tanks are available for steelhead.

The 1,000,000 fingerlings which are at 250 per pound when moved, will be reared for one year in the raceways until their release at about 20 per pound. Water temperatures will be regulated from 44 to 52 F during the year to achieve the desired growth. By April, about 1,000,000 smolts will be released into the Clearwater River system (Table 2) from DNFH so that returning adults can be collected at the trap sites.

Hagerman National Fish Hatchery

Hagerman National Fish Hatchery (HNFH) is located in the Thousand Springs area above the Snake River near Hagerman, Idaho. The hatchery is owned and operated by the U.S. Fish and Wildlife Service and was originally built to rear catchable rainbow trout for the region. Under the LSRCP, the hatchery was rebuilt and expanded to rear 2,400,000 (340,000 pounds) steelhead trout smolts from eyed eggs (Table 1). Steelhead trout reared at HNFH will be released into the Salmon River drainage. Eyed steelhead eggs for the hatchery will be supplied by Sawtooth Hatchery and at the trap on the East Fork Salmon River. Water for hatching and rearing steelhead at HNFH is supplied from onsite springs at a constant temperature of 58 F. Reconstruction of HNFH was completed in November, 1983. It will continue to be operated by the U.S. Fish and Wildlife Service under LSRCP funding.

HNFH is designed to rear both group A and B steelhead smolts for the Salmon River drainage. Adult group B steelhead will be trapped during March and April in the East Fork Salmon River and group A steelhead in the upper part of the main Salmon River at Sawtooth Hatchery. Adults will be spawned at the traps, and the green eggs will be transferred to the hatchery nursery. The juvenile fish will be reared until the following April. The steelhead smolts will then be transported by tanker trucks to release sites at the adult traps on the mainstem Salmon and East Fork Salmon rivers, as well as to offsite release areas in other Salmon River tributaries.

Sawtooth Hatchery

Sawtooth Hatchery and trap are located on the upper Salmon River, six miles south of Stanley, Idaho, in the Sawtooth National Recreation Area. These facilities are operated by the Idaho Department of Fish and Game. When the hatchery is in full operation it was designed to produce 2,235,000 (149,000 pounds) spring chinook salmon smolts and will return an estimated 19,200 adults into the Salmon River (Table 1). Construction of this facility was completed in late 1984. Water supplies for the hatchery are from the Salmon River while onsite wells provide warmer water in the winter.

A trapping and spawning facility located on the East Fork Salmon River 18 miles upstream from its mouth is also operated by personnel from the Sawtooth Hatchery. Construction on this trap was completed in October, 1983 and was in operation the spring of 1984.

When the Sawtooth Hatchery is fully operational, adult spring chinook salmon will be trapped and spawned at both trapping sites and the eggs will be incubated and hatched at the hatchery. Chinook salmon fingerlings will be raised in outdoor raceways for a year and the smolts will be released directly into the Salmon River or transported to the East Fork Salmon River. In addition to the salmon operations, the hatchery and traps will be used as satellite facilities for the steelhead programs at HNFH and Magic Valley Steelhead Hatchery. Adult steelhead will be trapped and spawned at both traps in the spring, and the eggs will be incubated in the Sawtooth Hatchery until they are eyed. The eyed eggs will then be shipped to the two hatcheries for hatching and rearing.

Although the Sawtooth Hatchery was not in full operation until 1985, a spring chinook salmon brood stock development program had been in operation in conjunction with McCall Hatchery since 1981. Adult spring chinook salmon are trapped, held and spawned at a temporary weir and holding pond at the Sawtooth site. Green eggs were flown to McCall, then reared until reaching the smolt stage. The yearling chinook salmon were then transported by truck to the Sawtooth site and released; the first release occurred in March 1983.

Magic Valley Steelhead Hatchery

Because Hagerman National Fish Hatchery could not produce the total requirement of steelhead smolts for the Salmon River drainage, an additional hatchery was planned. A private trout farm known as Crystal Springs Hatchery was purchased and was rebuilt to rear 2,000,000 (291,000 pounds) steelhead smolts (Table 1). This hatchery, renamed Magic Valley Steelhead Hatchery (MVSH), is operated by the Idaho Department of Fish and Game. It is located on the south side of the Snake River, northeast of Buhl, Idaho. Hatchery water is supplied from springs on the north side of the river and is piped across the river to the hatchery site. Water temperature is constant at 58 F. The hatchery will essentially be operated the same as Hagerman National Fish Hatchery and will also receive steelhead eggs from Sawtooth Hatchery.

Clearwater River Facilities

Along with the spring chinook salmon being reared at Dworshak, the LSRCP calls for an additional 1,400,000 (91,300 pounds) spring chinook salmon smolts and 2,500,000 (350,000 pounds) steelhead smolts to be released into the Clearwater River drainage (Table 2). To produce these fish, an additional hatchery will be built below Dworshak Dam on the North Fork of the Clearwater River across from DNFH. There will also be satellite trapping and spawning facilities in the upper Clearwater drainage. These facilities, including the hatchery, are in the final planning stages. The hatchery and satellite facilities will be operated by Idaho Department of Fish and Game.

LSRCP EVALUATION GOALS

To help achieve the long term production, harvest and escapement goals established for the LSRCP program in Idaho, the following evaluation study objectives have been developed.

1. Provide documentation of LSRCP hatchery production of subsmolts, smolts and adults, and evaluate major operational guidelines for LSRCP hatcheries.

2. Determine LSRCP reared chinook salmon and steelhead trout contribution to Pacific Ocean, Columbia River and Idaho fisheries.

3. Identify brood stocks and production lots for presence of important diseases such as IHN and BKD, and test treatments or practices to reduce mortalities.

4. Coordinate research and management programs with hatchery capabilities.

5. Identify suitable sites and appropriate guidelines for outplants in relation to harvest goals and available habitat.

To properly evaluate the LSRCP programs, it will be necessary to document the hatchery rearing programs in terms of quantity and quality of smolts released and adults returning. The program will consolidate records from the various facilities to provide the basis for evaluations of the operations, as well as provide administrators with a clear, centralized record of field activities. The program will also evaluate and provide oversight of certain hatchery operational practices, e.g. brood stock selection, size of fish reared and time of release. These practices will require the development of criteria and evaluation specific for each hatchery.

Contribution of LSRCP reared fish to the Idaho sport fishery will be evaluated by a statewide census on the three major anadromous drainages (Clearwater, Salmon, and Snake rivers). Cooperation of all downstream entities (commercial and sport) is imperative to reliably estimate the overall success of the LSRCP. Separation of LSRCP produced fish will be achieved through representative marking of smolts, primarily with coded wire tags.

Research into probable causes and treatment of important diseases within the LSRCP hatchery system is important to ensure the greatest quality and quantity of fish released. Two major diseases, infectious hematopoietic necrosis (IHN) in steelhead and bacterial kidney disease (BKD) in chinook salmon, must to addressed to reduce higher than desired mortalities.

Outplants of fry, fingerling or smolts will be made to distribute fishing pressure when adults return and to stock natural spawning and rearing habitat for restoration of naturally spawning runs. Documentation of the composition and quantity of adults returning to these offsite locations will be necessary for the overall evaluation of the LSRCP program.

1987-1991 EVALUATION STUDY GOALS AND OBJECTIVES

The Idaho Department of Fish and Game proposes seven evaluation studies for the five year period 1987-1991 to help meet the program goals listed above. The study objectives for these projects include the following :

1. Identify migration timing and proportions of Idaho's salmon and steelhead runs produced by LSRCP. This includes contributions to Idaho downriver and ocean fisheries.

2. Provide an oversight of major hatchery operational practices.

3. Provide documentation of LSRCP fish rearing activities and the resulting adult returns.

4. Provide documentation of LSRCP hatchery outplants of subsmolts, smolts and adults, and identify suitable sites for outplants in relation to harvest goals and available habitat.

5. Coordinate research and management programs with hatchery capabilities.

6. Recommend statewide harvest management procedures to maximize benefits from LSRCP anadromous fish production.

7. Identify brood stocks and production lots for presence of important diseases such as IHN and BKD, and test treatments or practices to reduce disease caused mortalities.

SYNOPSIS OF 1987 THROUGH 1990 PROJECTS

FY1987 Funded Projects

1. LSRCP Fish Hatchery Evaluation

Objectives:

1. Develop outplant criteria and guidelines.

2. Evaluate outplant returns.

3. Provide a documentation of the LSRCP funded fish rearing activities in Idaho and the resulting adult returns.

4. Develop and provide an ongoing evaluation of major operational guidelines for LSRCP hatchery activities in Idaho.

5. Coordinate research and management programs with hatchery capabilities.

Synopsis

Records will be compiled and summarized of numbers and size of fish planted at each offsite area. These offsite areas will be prioritized as to suitability for a particular species and size at time of release.

Records will be compiled and summarized of numbers of fish produced at each facility, categorized by strain, size, weight and stocking or transfer location. Fish condition and survival rates to stocking will also be noted.

Survival of downstream migrants to lower river sampling points will be documented for each production program insofar as data may be supplied by other downstream migrant monitoring efforts.

Schedule

The fish evaluation project is scheduled to continue for the duration of the LSRCP program.

2. Hatchery-Wild Composition of the Idaho Salmon and Steelhead Harvest

Objectives

1. Identify the timing and proportion of Idaho's steelhead run that are produced by:

   A. LSRCP
   B. Wild, sensitive or other stocks of interest that may be affected by the LSRCP stocks.

2. Recommend harvest management procedures in agreement with the goals and objectives of the Idaho Department of Fish and Game and the LSRCP.

Synopsis

Angler interviews will be conducted on all steelhead harvest areas in Idaho throughout the spring and fall fisheries. Harvested fish will be inspected for fin marks and tags. LSRCP reared fish will be identified by coded-wire tags. An estimate of the proportion of LSRCP fish in the harvest will be determined by expansion of recovery rates and telephone survey data. Some salmon angling could occur on LSRCP upper Salmon River stock as early as 1986.

Schedule

The hatchery-wild composition project is scheduled to continue for the duration of the LSRCP program.

3. Coded Wire Tag Analysis

Objective

1. Process recovered coded-wire tags and make the information available to management entities.

2. Develop method to determine Idaho LSRCP contribution to downstream fisheries.

Synopsis

Steelhead and salmon snouts identified by an LV or an adipose fin clip respectively, recovered in the sport fishery and at hatchery racks will be processed for coded wire tag recovery. Each coded wire tag will be decoded and the resulting data will be entered into the existing database. The information will be provided to concerned entities as requested..

Coordination with downstream agencies will be maintained for retrieval of this coded wire tag recovery information on fish tagged in Idaho. Using determined sampling rates, estimates of Idaho LSRCP reared fish harvested in downstream fisheries will be made.

Schedule

The identification of LSRCP reared fish project is scheduled to continue for the duration of the LSRCP program.

FY1988 Funded Projects

1. LSRCP fish hatchery evaluation

This project is a continuation of the 1987 study. Costs will increase as LSRCP facilities near full production and more adults return. In addition, as the outplant program returns more adults, increase in monitoring efforts on more streams will be necessary.

2. Hatchery-wild composition of the Idaho salmon and steelhead harvest

This project is a continuation of the 1987 study. Higher costs are a result of the need to increase sample size in telephone survey conducted to estimate fish harvest by river section and monitoring of an anticipated chinook salmon sport fishery.

3. Coded wire tag analysis

This project is a continuation of the 1987 study. Costs will increase as more coded wire tagged adult chinook and steelhead return to Idaho.

FY1989 Funded Projects

1. LSRCP fish hatchery evaluation

This project is a continuation of the 1988 study. Costs will be increased due to more outplants being made and more adult fish returning to Idaho streams.

2. Hatchery-wild composition of the Idaho salmon and steelhead harvest

This project is a continuation of the 1988 study. Costs will be increased due to anticipated adjustments in administrative changes and salaries and increases in field effort as more adults return to Idaho streams.

3. Coded wire tag analysis

This project is a continuation of the 1988 study. Costs will increase due to more coded wire tagged fish return to Idaho.

Synopsis

Identification of the outplant benefits to the sport fishery or restoration of natural runs will be ascertained by use of coded wire tags collected either through the sport fishery or spawning ground surveys.

4. LSRCP hatchery disease study

Objectives

1. Identify stocks and production lots of chinook salmon with BKD and steelhead trout with IHN.

2. Test diet supplements and other treatments on eggs, fry and fingerlings to reduce IHN and BKD caused mortalities.

Synopsis

Two diseases, infectious hemopoetic necrosis (IHN) in steelhead trout and bacterial kidney disease (BKD) in salmon, have caused significant mortality at some LSRCP hatcheries in Idaho Using state-of-the-art methods for isolating these diseases. The project will identify areas where problems exist. Practices and controls for reducing the effects of these diseases will be evaluated for possible implementation into standard hatchery operations.

FY1990 Funded Projects

1. LSRCP fish hatchery evaluation

   This project is a continuation of the 1989 study. Costs will be increased due to full operational capacities of the LSRCP hatcheries resulting in increased field efforts. There will also be increased adjustments in administrative charges and salaries.

2. Hatchery-wild composition of the Idaho salmon and steelhead

   This project is a continuation of the 1989 study. Costs will be increased due to anticipated increases in returning adults of LSRCP reared fish resulting in increase in field effort.

3. Coded Wire Tagging Analysis

   This project is a continuation of the 1989 study. Increase in cost is due to greater numbers of adults to be processed for coded wire recovery.

FY 1991 Funded Projects

1. LSRCP fish hatchery evaluation

   This project is a continuation of the 1990 study. Increase in cost is a result of adjusting administrative charges and salaries.

2. Hatchery-wild composition of the Idaho salmon and steelhead harvest

   This project is a continuation of the 1990 study. Increase in costs is due to adjustments in administrative charges and salaries.

3. Identification of LSRCP hatchery reared fish stocks

   This project is a continuation of the 1990 study. Increase in costs is due to adjustments in administrative charges and salaries.

4. LSRCP hatchery disease study

This project is a continuation of the 1990 study. Increase in costs is due to adjustments in administrative charges and salaries.

Table 4. Proposed LSRCP 5-year evaluation plan.

Project	FY87	FY88	FY89	FY90	FY91
Fish Hatchery Evaluation	$ 65,130	$ 93,235	$121,173	$127,703	$132,412
Hatchery-wild Composition	142,852	189,327	193,600	203,300	205,063
Coded Wire Tag Analysis	41,780	56,842	67,671	68,673	80,359
LSRCP Hatchery Disease Study	--	--	86,300	90,600	90,600
Total	$249,762	$339,404	$468,744	$490,276	508,434

APPENDIX A. FY1987 DETAILED PROPOSAL

TITLE: Hatchery-Wild Composition of the Idaho Salmon and Steelhead Harvest

COOPERATOR: Idaho Department of Fish and Game
600 South Walnut
P.O. Box 25
Boise, Id 83707

COORDINATOR: Tim Cochnauer

PROJECT LEADER: Kent Ball

STUDY PERIOD: 1 October 1986 - 30 September 1987

EXECUTIVE SUMMARY

The development of hatchery systems in Idaho to compensate for hydropower-related losses of salmon and steelhead has resulted in mixing of wild and hatchery stocks. Complex differential harvest programs are necessary to ensure adequate escapement of wild fish to natural spawning areas. Since 1984 all hatchery steelhead smolts released in Idaho streams had their adipose fins clipped prior to release. Adults returning with fin clips will be identifiable as a hatchery-produced fish.

In addition to the adipose fin mark, certain groups of fish from each hatchery receive a coded-wire tag prior to release. Several large groups of fish are released in streams without adult recovery facilities and intensive harvest monitoring is necessary to evaluate returns. Data on the timing, distribution and relative abundance of the various hatchery and wild stocks are collected for developing LSRCP harvest management plans.

Comprehensive harvest monitoring is necessary to evaluate the success of LSRCP programs. Harvest data is closely coordinated with hatchery returns.

OBJECTIVES:

1. Identify the timing and proportions of Idaho's steelhead run that are produced by:

   A. LSRCP

   B. Wild, sensitive or other stocks of interest that are affected by the LSRCP stocks.

2. Analyze the results from objective No. 1 and provide inputs into the development of a statewide harvest management plan in agreement with the goals and objectives of the Idaho Department of Fish and Game and the LSRCP.

APPROACH:

Steelhead Fisheries

Anglers will be interviewed on a systematic basis in all areas of the state's steelhead fishery throughout both fall and spring seasons. Methods used will be tailored to the accessibility and unique characteristics of each river and river section. Check stations will be used when anglers exit a fishing area through a single route. Roving interviews will be used when roads parallel the rivers, and jet boats will be used to interview boat anglers in unroaded river areas.

Data will be obtained on catch/effort and catch composition by interviewing anglers and examining their catch for tags, marks, brands and any other identifiable marks. All fish examined will be measured and the hatchery-wild proportion and stock composition will be assessed.

Steelhead return after one, two or three years in the ocean. Evaluation of each release group is not complete until all age groups of adults have returned. Compilation of all the release groups, marks and adult return estimates by time and location is complex and voluminous. In order to rapidly assimilate all the data and produce timely results, a computerized database will be developed.

Salmon Fisheries

Stocks are so depleted that a significant harvest opportunity is unlikely for several years. A census system will be devised when the fish runs have increased to a level where harvest is possible.

STUDY PLAN:

The State of Idaho, Department of Fish and Game, shall furnish all supervision, labor, services, materials, tools and equipment necessary to conduct an evaluation of LSRCP hatchery and wild stocks in the Idaho sport harvest, to fulfill the objectives cited above as follows:

A. Objective 1. Identify the timing and proportions of Idaho's steelhead run that are produced by:

   A. LSRCP

   B. Wild, sensitive or special-interest stocks

   Task 1.1: Conduct angler interviews on all steelhead harvest areas in Idaho throughout the fall and spring fisheries. Collect data on catch/effort and inspect the catch for hatchery-wild composition, fin marks and tags. Measure all fish and collect snouts for coded-wire retrieval. Determine the hatchery-wild composition of fish released.

HUST

Interviews will be scheduled as follows:

Snake River - interviews will be conducted by jet boat two days per week and by roving vehicle two days per week for 15 weeks in the fall and 16 weeks in the spring season.

Clearwater River - Upper Clearwater River interviews will be conducted by roving vehicle four days per week for eight weeks in the fall and 10 weeks in the spring season.

Salmon River -

Section 10 - Interview by jet boat six weekends in the fall and five weekends in the spring season.

Section 11 - Interview by roving vehicle ten weekends in the fall and eight weekends in the spring season.

Section 12 - operate a checking station at the old lumber mill site near Riggins for ten weekends in the fall and eight weekends in the spring season.

Section 13 - interview by jet boat six weekends in the fall and five weekends in the spring season.

Section 14 - interview by jet boat six weekends in the fall and five weekends in the spring season.

Section 15 - operate a checking station at North Fork for ten weekends in the fall and eight weekends in the spring season.

Section 16 - interview by roving vehicle six weekends in the fall and six weekends in the spring season.

Sections 17 & 18 - interview by roving vehicle for six weekends in the spring season.

Task 1.2: Compile and tabulate census results.

Task 1.3: Compile all groups of fish released, proportion marked, marks, stock and project years of return.

Task 1.4: Calculate the numbers of fish harvested for each hatchery group, wild stock and the numbers caught and released.

Task 1.5: Estimate the number of wild and natural fish escaping to spawning streams.

Task 1.6: Compile harvest history on LSRCP fish to compute the total number of fish produced by the program.

B. Objective 2. Analyze the results from Objective No. 1 and provide input into the development of a statewide harvest management plan in agreement with the goals and objectives of the Idaho Department of Fish and Game and the LSRCP.

Task 2.1: Assess trends of harvest both in time and location and relate to the fish stock and release location.

Task 2.2: Begin to develop a harvest manipulation system that will allow maximum harvest of plentiful stocks and restrict harvest of sensitive stocks.

Task 2.3: Recommend suitable spawning escapements to natural spawning areas and hatcheries.

Task 2.4: Monitor changes of stock performance over time and provide input to management plans which will maintain the genetic characteristics of each stock.

BUDGET ESTIMATE

Personnel	
Fishery Research Biologist, 12 mos @ $2304	$27,650
Fish & Wildlife Tech. 8 mos @ $1,080	17,280
Biological Aides 26 mos @ $809	28,375
	73,305
Personnel Benefits @ 23%	17,107
Subtotal	$90,412
Operating	
Mobile radio maintenance charge 2 @ $400	800
Long-distance telephone	2,400
Utilities - office	300
Materials & supplies	
Uniform items	1,000
Gas & oil for census boats	3,700
Office supplies for census recording	800
Tapes, services for processing fish	500
Repair and maintenance	
repair for census boats & ck. stn. trailers	2,500
Other services	3,200
Subtotal	15,200
Equipment rental	
Airplane 10 flights @ $200	2,000
Vehicle 32,000 mi. @ .25	8,000
Travel 50 days @ $40	2,000
General & administrative cost @ 20.1%	23,640
Equipment purchases: office equipment	1,600
TOTAL	$142,852

APPENDIX A. (Cont.) FY1987 DETAILED PROPOSAL

TITLE: Fish Hatchery Evaluations - Idaho

COOPERATOR: Idaho Department of Fish and Game
600 South Walnut
P.O. Box 25
Boise, Id 83707

COORDINATOR: Tim Cochnauer

PROJECT LEADER: Robert L. Rohrer

STUDY PERIOD: 1 October 1986 - 30 September 1987

EXECUTIVE SUMMARY

The LSRCP requires that anadromous fish runs be returned to the Snake River basin to pre-project levels with the aid of fish hatcheries and satellite facilities for trapping adult fish. By 1985, the following LSRCP hatcheries and collecting facilities have been completed in Idaho: McCall Hatchery, South Fork Salmon River Trap, Dworshak National Fish hatchery, Hagerman National Fish Hatchery, Sawtooth Hatchery and East Fork Salmon River trap. The Magic Valley Steelhead Hatchery is now under construction and construction on the Clearwater Hatchery will begin about March, 1987.

These facilities will be producing approximately 6.5 million spring and summer chinook salmon smolts and 5.7 million steelhead trout smolts. These smolts are expected to return about 48,400 adult spring and summer chinook salmon and 59,3000 adult steelhead trout to the project area in Idaho. Adult returns are obviously dependent on adequate passage of smolts at downstream facilities and sufficient adult escapement to the project area.

To properly evaluate this mitigation effort, it is necessary to document the results of the hatchery rearing programs and the returning adults. Idaho's hatchery evaluation study will consolidate records from the various facilities to provide the basis for evaluation of the operations, as well as provide administrators with a clear and concise record of field activities. This study will also evaluate certain hatchery operational practices, e.g., brood stock selection, size of fish reared and time of release. These practices will require the development of criteria and evaluations specific for each hatchery. As brood stocks increase, release of fish directly at adult-recovery locations will be programmed along with offsite release plans to utilize available habitat and provide added fishing opportunities.

OBJECTIVES:

1. To provide a documentation of the LSRCP-funded fish-rearing activities in Idaho and the resulting adult returns.

2. To develop and provide an ongoing evaluation of major operational guidelines of LSRCP hatchery activities in Idaho.

3. Identify suitable sites for outplants in relation to available habitat and potential harvest goals.

4. Document augmentation of natural runs that may occur due to outplant prgram.

Much of the data used in this report will be collected at the different facilities under their separate programs. It will be necessary to rapidly consolidate this information, so that evaluations can be accomplished in a

useful manner. To do this, a computerized system of data summary and analysis will be developed. The methods of accomplishing the individual tasks are:

Juvenile Output

Records will be compiled and summarized of numbers of fish produced at each facility, categorized by strain, size, weight and stocking or transfer location. Fish condition and survival rates to stocking will be noted. Size at release of test smolts and coded-wire tagged experimental groups will be documented.

Downstream Survival

Survival of downstream migrants to lower river sampling points will be documented for each production program insofar as data may be supplied by other downstream migrant monitoring efforts. It is expected that cooperating fisheries agencies will continue monitoring survival of downstream migrants during the foreseeable future. This project will retrieve and highlight the data for LSRCP hatcheries in Idaho. Comparisons of survival rates for the different rearing programs will be made. We will seek to determine the reasons for any differences in survival rates, using the findings to improve the hatchery programs.

Adult Returns

Records of adult returns will be maintained for each rearing program categorized by strain and brood year. Actual data will be obtained by hatchery personnel at hatchery racks. Chinook salmon populations will be sampled on spawning grounds by project personnel in return areas that are without counting stations. Smolt-to-adult survival rates will be determined.

Hatchery and Wild Makeup

Currently, steelhead are being released in offsite tributaries along the lower portion of the Salmon River. These tributaries and tributaries near the upriver traps will be repeatedly surveyed during the spring spawning season to determine the relative hatchery and wild components. Streams surveyed in 1986 will include Slate Creek, Allison Creek, Little Salmon River, Herd Creek, East Fork Salmon River below the trap and Valley Creek. Survey techniques will include spawning ground surveys, snorkeling, electrofishing and possibly stream weiring. The information collected along with trapping records will be used to develop harvest plans which will achieve harvest and escapement goals for wild and hatchery fish.

Contribution to Fisheries

Fishery contributions will be determined by coded-wire tag returns. Pacific Coast state, federal and Canadian agencies cooperate in returning tags and catch data to the agency of origin. Project personnel will

develop contribution data for each rearing program that may have fish tagged for this purpose. Additional information on steelhead fisheries will be collected in Idaho in statewide creel census programs. Funding and fish cultural considerations make it likely that not all rearing programs will include representative tagged fish.

Hatchery Operations

A. Attaining the optimum size of smolts at the best time for release is critical to the success of the LSRCP. Existing size, time and return data will be reviewed to develop criteria for each program. Further experimentation will be necessary in some cases. Coded-wire tagged groups will be released as needed to test programs.

B. Selection of brood stock must be done in conformance with program objectives for genetic management. Usual objectives are to maintain the original size, run timing and age composition of fish. Criteria will be developed for each spawntaking program.

C. Special or experimental hatchery practices often require mark-release-return groups to facilitate evaluation. This project will develop the experimental design and evaluate results of selected programs. Investigation of disease, nutrition, pathology and rearing techniques will be done by the hatcheries section.

Fish Distribution

A fish distribution plan for LSRCP hatcheries will be developed in coordination with Regional Fishery Managers and the State Anadromous Fish Plan to provide stock-by-stock and stream-by-stream planting to supplement natural production. Evaluation and updating the distribution plan will be an ongoing process.

Hatchery Oversight

This project will provide the technical oversight to ensure:

A. Operations are consistent with interagency agreements on principles, procedures and goals for LSRCP hatcheries.

B. Maintenance of integrity of stocks where applicable.

C. Adherence to fish distribution plans.

D. Adherence to general operational criteria (e.g. size and time at release, brood stock selection, distribution of released fish).

Research and Management Programs

Coordination will be provided between research and management programs and hatcheries. Advance notice to the hatcheries for specific study groups or

marking programs will allow a more efficient use of hatchery space and reduce handling and stress on the fish. Research and management programs will be reviewed to see if the hatcheries will have the capabilities to meet the program goals.

Outplants

A list of potential outplant sites and criteria to be used in determining best method of augmentation at offsite locations will be developed. Selected streams will be monitored to determine numbers of returning adults in outplanted streams.

STUDY PLAN:

The State of Idaho, Department of Fish and Game, shall furnish all supervision, labor services, materials, tools and equipment necessary to conduct an evaluation of LSRCP hatchery operations and related fishery management programs at McCall, Magic Valley and Sawtooth state fish hatcheries and Hagerman and Dworshak National Fish Hatcheries, to fulfill the objectives as follows:

A. Objective 1: To provide a documentation of the LSRCP funded fish-rearing activities in Idaho and the resulting adult returns:

Task 1.1: Document juvenile fish output for each rearing facility by 30 June 1987.

Task 1.2: Document estimated downstream migrant survival to lower river sampling points for each rearing program by 15 August 1987.

Task 1.3: Document actual or estimated adult returns for each rearing program by 30 September 1987.

Task 1.4: Determine the hatchery and wild makeup of naturally spawning steelhead runs in selected LSRCP offsite distribution areas by 30 June 1987.

Task 1.5: Document contributions of each rearing program to the various fisheries by 30 September 1987.

Task 1.6: Develop a computerized system which will provide for the rapid analysis of the various data files. This will be an ongoing project; data collected on an annual basis will be computerized to facilitate project documentation.

B. Objective 2: To develop and provide an ongoing evaluation of major operational guidelines of LSRCP hatchery activities in Idaho.

Task 2.1: Evaluate major hatchery operational practices at each facility including size and time of release and brood stock selection by 30 September 1987.

BUDGET ESTIMATES

Personnel	
Fishery Research Biologist, 12 mos @ $2193	$26,317
Biological Aide 12 mos @ $808	9,696
	36,013
Personnel Benefits @ 23%	10,084
Subtotal	$46,097
Operating	
Mobile radio maintenance 2 @ $400	800
Long distance telephone	200
Utilities	
Gas & elec. for field stn.	300
Materials & supplies	
Uniform items	500
Gas & oil for electroshocker	200
Misc. office supplies	100
Nets, weir materials, etc. for sampling snouts	600
Repair and maintenance	
Repairs to electroshocker	300
Repairs of nets, etc.	200
Other Services	100
Subtotal	3,300
Equipment rental	
Airplane 4 flights @ $200	800
Vehicle 11,000 mi. @ $.20	2,200
Travel 37.5 days @ $40	1,500
General and administrative cost @ 20.1%	10,833
Equipment purchases	
Wet suits	400
TOTAL	$65,130

APPENDIX A. (Cont.) FY1987 DETAILED PROPOSALS

TITLE: Coded Wire Tag Analysis

COOPERATOR: Idaho Department of Fish and Game
600 South Walnut
P.O. Box 25
Boise, Id 83707

COORDINATOR: Tim Cochnauer

PROJECT LEADER: Tim Cochnauer

STUDY PERIOD: 1 October 1986 - 30 September 1987

BUDGET ESTIMATES

Personnel		
Fish & Wildlife Tech. 12 mos @ $1,124		13,493
Data Entry Operator 12 mo @ $952		11,419
		24,912
Personnel Benefits @ 23%		6,975
Subtotal		$31,887
Operating		
Materials & supplies		
Uniform items		500
Misc. office supplies		907
Repair and maintenance		500
Subtotal		1,900
Equipment rental		
Vehicle 2,500 mi. @ $.20		500
Travel 12.5 days @ $40		500
Administrative Charge @ 20.1%		6,992
	TOTAL	$ 41,780

APPENDIX B. FY1988 PRELIMINARY PROPOSAL

TITLE: Hatchery-Wild Composition

COOPERATOR: Idaho Department of Fish and Game
600 South Walnut
P.O. Box 25
Boise, Id 83707

COORDINATOR: Tim Cochnauer

PROJECT LEADER: Kent Ball

STUDY PERIOD: 1 October 1987 - 30 September 1988

PROJECT BACKGROUND:

The development of hatchery systems in Idaho to compensate for hydropower related losses of salmon and steelhead has resulted in the mixing of wild and hatchery stocks. Certain groups of fish from each LSRCP hatchery receive a coded-wire tag prior to release. Recovery of these tags when the fish return as adults provide information as to the timing, distribution and relative abundance of the various hatcheries and the success of the hatchery programs.

This project is a continuation of harvest monitoring initiated in 1984 and is projected to continue throughout the duration of the LSRCP evaluation program. The project has been expanded from the FY86 program to include an extensive ~~telephone survey for greater accuracy in determining statewide harvest of LSRCP produced~~ fish.

OBJECTIVES:

1. Identify the timing and proportions of Idaho's salmon and steelhead run that are produced by, (A) LSRCP and (B) wild, sensitive or special interest stocks effected by LSRCP stocks.

2. Analyze the results of Objective 1 and provide inputs into the development of a statewide harvest management plan in agreement with goals and objectives of the Idaho Department of Fish and Game and the LSRCP.

PROCEDURES:

Anglers will be interviewed on a systematic basis in all areas of the state's salmon and steelhead fishery throughout all seasons. Methods used will be tailored to the accessibility and unique characteristics of each river and river section. Check stations will be used when anglers exit a fishing area through a single route. Roving interviews will be used when roads parallel the rivers, and jet boats will be used to interview boat anglers and to provide access in unroaded areas.

Data will be obtained on catch per effort and catch composition by interviewing anglers and examining their catch for tags, marks, brands, and any other identifiable means. All fish examined will be measured and the hatchery/wild proportion and stock composition will be assessed.

After each season, salmon steelhead permittees will be surveyed by telephone to determine numbers of steelhead ~~harvested by~~ river location. This information will be interfaced with the catch per effort data to estimate harvest by river section.

BUDGET:

Personnel	$108,927
Travel	5,100
Supplies	34,100
Equipment	5,100
Agency Overhead	34,300
Total	$189,327

PRIORITY:

This project, along with the identification of LSRCP Stocks and Fish Hatchery Evaluation projects, should be given top priority. The project determines how many LSRCP hatchery produced steelhead and salmon are harvested by sport fishing in Idaho and where and when the harvest occurs. Hatchery releases can then be programmed for the maximum fishery or spawning escapement benefits. Harvest numbers added to the fish returning to the hatcheries or release stream will determine the success of specific hatchery and rearing programs.

APPENDIX B. FY1988 PRELIMINARY PROPOSAL

TITLE: Fish Hatchery Evaluation

COOPERATOR: Idaho Department of Fish and Game
600 South Walnut
P.O. Box 25
Boise, Id 83707

COORDINATOR: Tim Cochnauer

PROJECT LEADER: Bob Rohrer

STUDY PERIOD: 1 October 1987 - 30 September 1988

PROJECT BACKGROUND:

The LSRCP requires that anadromous fish runs to the Snake River be at levels that existed before lower Snake River hydro-power development. To properly evaluate this mitigation effort, it is necessary to document the results of the hatchery rearing programs and the returning adults. This study will consolidate records from the various facilities to provide the basis for evaluation of the operations, as well as provide administrators with a clear, centralized record of field activities. This project will also evaluate and provide oversight of certain hatchery operational practices, e.g., brood stock selection, size of fish reared and time of release.

This project is scheduled to continue for the duration of the LSRCP program.

OBJECTIVES:

1. Provide a documentation of the LSRCP funded fish rearing activities in Idaho and the resulting adult returns.

2. Develop and provide an ongoing evaluation of major operational guidelines of LSRCP hatchery activities in Idaho.

3. Document augmentation of natural runs that occur due to outplant program.

PROCEDURES:

Much of the data collected for this project will come from the different facilities under their separate programs. To rapidly consolidate this information, a computerized data system will be developed. Records will be compiled and summarized of fish numbers produced at each facility, categorized by strain, size/weight and stocking or transfer locations. Survival of downstream migrants to lower river sampling points will be documented for each production program insofar as data may be supplied by other downstream migrant monitoring efforts. Records of adult returns will be maintained for each rearing program categorized by strain and brood year. Data will be obtained by hatchery personnel at hatchery racks.

APPENDIX B. FY1988 PRELIMINARY PROPOSAL

TITLE: Coded Wire Tag analysis

COOPERATOR: Idaho Department of Fish and Game
600 South Walnut
P.O. Box 25
Boise, Id 83707

COORDINATOR: Tim Cochnauer

PROJECT LEADER: Tim Cochnauer

STUDY PERIOD: 1 October 1987 - 30 September 1988

PROJECT BACKGROUND:

Anadromous fish originating from the LSRCP hatcheries constitute a significant portion of the runs into Idaho. Comprehensive evaluation is required to properly manage the LSRCP programs and the wild stocks with which LSRCP stocks are intermingled. Evaluation requires the ability to identify individual groups of fish that are harvested or collected. Coded-wire tagging will be used for this purpose.

This project is a continuation program and will be continued throughout the duration of the LSRCP program.

OBJECTIVES:

To recover coded wire tags from returning adult chinook salmon and steelhead trout and decode for analysis of success of LSRCP program.

Document contribution of Idaho LSRCP reared fish in downstream Columbia River and ocean fisheries.

PROCEDURES:

The Idaho Department of Fish and Game's tag recovery laboratory will continue to receive and process tags recovered from adults. All information will be put on an existing computer program and reported to various other agencies.

Coordination will be made with Oregon, Washington and federal agencies to retrieve coded wire tag information pertaining to Idaho fish caught in fisheries out of Idaho.

BUDGET

Personnel:	$40,201
Travel:	1,000
Supplies	4,200
Equipment	1,000
Agency Overhead	10,442
Total	$56,842

PRIORITY:

This project, along with the Fish Hatchery Evaluation and Hatchery-Wild Composition projects, should be given top priority. The project will allow recognition of LSRCP hatchery reared fish as adults at the hatchery, in the stream of outplanting and in the sport and commercial harvest.

APPENDIX C. FY1989 PRELIMINARY PROPOSAL

TITLE: Hatchery-Wild Composition

COOPERATOR: Idaho Department of Fish and Game
600 South Walnut
P.O. Box 25
Boise, Id 83707

COORDINATOR: Tim Cochnauer

PROJECT LEADER: Kent Ball

STUDY PERIOD: 1 October 1988 - 30 September 1989

PROJECT BACKGROUND:

The development of hatchery systems in Idaho to compensate for hydropower related losses of salmon and steelhead has resulted in the mixing of wild and hatchery stocks. Certain groups of fish from each LSRCP hatchery receive a coded-wire tag prior to release. Recovery of these tags when the fish return as adults provide information as to the timing, distribution and relative abundance of the various hatcheries and the success of the hatchery programs.

This project is a continuation of harvest monitoring initiated in 1984 and is projected to continue throughout the duration of the LSRCP evaluation program.

OBJECTIVES:

1. Identify the timing and proportions of Idaho's salmon and steelhead run that are produced by, (A) LSRCP and (B) wild, sensitive or special interest stocks effected by LSRCP stocks.

2. Analyze the results of Objective 1 and provide inputs into the development of a statewide harvest management plan in agreement with goals and objectives of the Idaho Department of Fish and Game and the LSRCP.

PROCEDURES:

Anglers will interviewed on a systematic basis in all areas of the state's salmon andsteelhead fishery throughout all seasons. Methods used will be tailored to the accessibility and unique characteristics of each river and river section. Check stations will be used when anglers exit a fishing area through a single route. Roving interviews will be used when roads parallel the rivers, and jet boats will be used to interview boat anglers and to provide access in unroaded areas.

Data will be obtained on catch per effort and catch composition by interviewing anglers and examining their catch for tags, marks, brands, and any other identifiable means. All fish examined will be measured and the hatchery wild proportion and stock composition will be assessed.

After each salmon and steelhead season, steelhead permittees will be surveyed by telephone to determine numbers of steelhead harvested by river location. This information will be interfaced with the catch per effort data to estimate harvest by river section.

BUDGET:

Personnel	$105,800
Travel	5,100
Supplies	39,200
Equipment	5,900
Agency Overhead	37,600
Total	$193,600

PRIORITY:

This project, along with the identification of LSRCP Stocks and Fish Hatchery Evaluation projects, should be given top priority. The project determines how many LSRCP hatchery produced steelhead and salmon are harvested by sport fishing in Idaho, and where and when the harvest occurs. Hatchery releases can then be programmed for the maximum fishery or spawning escapement benefits. Harvest numbers added to the fish returning to the hatcheries or release stream will determine the success of specific hatchery and rearing programs.

APPENDIX C. FY1989 PRELIMINARY PROPOSAL

TITLE: Fish Hatchery Evaluation

COOPERATOR: Idaho Department of Fish and Game
600 South Walnut
P.O. Box 25
Boise, Id 83707

COORDINATOR: Tim Cochnauer

PROJECT LEADER: Bob Rohrer

STUDY PERIOD: 1 October 1988 - 30 September 1989

PROJECT BACKGROUND:

The LSRCP requires that anadromous fish runs be returned to the Snake River be increased to pre-project levels that existed before lower Snake River hydro-power development. To properly evaluate this mitigation effort, it is necessary to document the results of the hatchery rearing programs and the return adults. This study will consolidate records from the various facilities to provide the basis for evaluation of the operations, as well as provide administrators with a clear and centralized record of field activities. This project will also evaluate and provide oversight of certain hatchery operational practices, e.g., brood stock selection, size of fish reared and time of release.

OBJECTIVES:

1. Provide a documentation of the LSRCP funded fish rearing activities in Idaho and the resulting adult returns.

2. Develop and provide an ongoing evaluation of major operational guidelines of LSRCP hatchery activities in Idaho.

3. Document augmentation of natural runs that occur due to outplant program.

PROCEDURES:

Much of the data collected for this project will come from the different facilities under their separate programs. To rapidly consolidate this information, a computerized data system will be developed. Records will be compiled and summarized of fish numbers produced a teach facility, categorized by strain, size, weight and stocking or transfer locations. Survival of downstream migrants to lower river sampling points will be documented for each production program insofar as data may be supplied by other downstream migrant monitoring efforts. Records of adult returns will be maintained for each rearing program categorized by strain and brood year. Data will be obtained by hatchery personnel at hatchery racks. Locations of offsite smolt releases will be repeatedly surveyed during the

spring spawning season to determine the relative hatchery and wild components. Contributions to sport fisheries will be determine by coded-wire tag returns. Pacific Coast state, federal and Canadian agencies cooperate in returning tags and catch data to the agency of origin.

Existing size, time and return data will be reviewed to determine optimum size of smolts at best time of release. Coded-wire tagged groups will be released as needed to test programs. Selection of brood stock must be done in conformance with program objectives for genetic management.

A fish distribution plan for LSRCP hatcheries will be developed in coordination with Department personnel and the State Anadromous Fish Plan to provide stock-by-stock and stream-by-stream planting to supplement natural reproduction.

Coordination will be provided between research and management programs and hatcheries. Advance notice to the hatcheries for specific study groups or marking programs will allow a more efficient use of hatchery space and reduce handling and stress on fish.

Selected streams will be sampled to document increases in natural runs resulting from previous year outplants. Returning adults will be monitored for identifying marks (freeze brands, coded wire tags, etc.)

BUDGET

Personnel:	$66,411
Travel:	5,300
Supplies	27,600
Equipment	1,900
Agency Overhead	19,962
Total	$121,173

PRIORITY:

This project, along with the Identification of LSRCP Stocks and Hatchery-Wild Composition projects, should be given top priority. The project determines how successful each hatchery's program is in meeting the stated adult return goals.

APPENDIX C. FY1989 PRELIMINARY PROPOSAL

TITLE: Coded Wire Tag Analysis

COOPERATOR: Idaho Department of Fish and Game
600 South Walnut
P.O. Box 25
Boise, Id 83707

COORDINATOR: Tim Cochnauer

PROJECT LEADER: Tim Cochnauer

STUDY PERIOD: 1 October 1988 - 30 September 1989

PROJECT BACKGROUND:

Anadromous fish originating from the LSRCP hatcheries constitute a significant portion of the runs into Idaho. Comprehensive evaluation is required to properly manage the LSRCP programs and the wild stocks with which LSRCP stocks are intermingled. Evaluation requires the ability to identify individual groups of fish that are harvested or collected. Coded-wire tagging will be used for this purpose.

Document contribution of Idaho LSRCP reared fish in downstream Columbia River and ocean fisheries.

OBJECTIVES:

To recover coded wire tags from returning adult chinook salmon and steelhead trout and decode for analysis of success of LSRCP program.

Coordination will be made with Oregon, Washington and federal agencies to retrieve coded wire tag information pertaining to Idaho fish caught in fisheries out of Idaho.

PROCEDURES:

The Idaho Department of Fish and Game's tag recovery laboratory will continue to receive and process tags recovered from adults. All information will be put on an existing computer program and reported for use by various agencies.

APPENDIX C. FY1989 PRELIMINARY PROPOSAL

TITLE: LSRCP Hatchery Disease Investigations

COOPERATOR: Idaho Department of Fish and Game
600 South Walnut
P.O. Box 25
Boise, ID 83707

COORDINATOR: Tim Cochnauer

PROJECT LEADER: To be assigned

STUDY PERIOD: 1 October 1988 - 30 September 1989

PROJECT BACKGROUND:

Two diseases, infectious hemopoetic necrosis (IHN) in steelhead trout and bacterial kidney disease (BKD) in salmon, have caused significant mortality at some LSRCP hatcheries in Idaho. This project will be done by the Idaho Department of Fish and Game fish health section to key in on these diseases and make recommendations to reduce mortalities caused by these.

OBJECTIVES:

1. Identify stocks and production lots of chinook salmon with BKD and steelhead trout with IHN.

2. Test diet supplements and other treatments on eggs, fry and fingerlings to reduce IHN and BKD caused mortalities.

PROCEDURES:

This project will work will be done by Idaho Department of Fish and Game pathologists and other agency personnel to determine the presence of these diseases using standard laboratory techniques. Recommendations will be made as to how these diseases related mortalities can be reduced.

BUDGET

Personnel:	$41,400
Travel:	4,600
Supplies	21,200
Equipment	2,300
Agency Overhead	16,800
Total	86,300

PRIORITY:

The LSRCP hatchery disease investigations project should be given a secondary priority. This project will be important to improve the quality and quantity of salmon and steelhead trout smolts released and the efficiency of LSRCP hatcheries in Idaho.

APPENDIX A - FY1990 PRELIMINARY PROPOSAL

TITLE: Hatchery Wild Composition

COOPERATOR: Idaho Department of Fish and Game
600 South Walnut
P.O. Box 25
Boise, Id 83707

COORDINATOR: Tim Cochnauer

PROJECT LEADER: Kent Ball

STUDY PERIOD: 1 October 1989 - 30 September 1990

PROJECT BACKGROUND:

The development of hatchery systems in Idaho to compensate for hydropower related losses of salmon and steelhead has resulted in the mixing of wild and hatchery stocks. Certain groups of fish from each LSRCP hatchery receive a coded-wire tag prior to release. Recovery of these tags when the fish return as adults provide information as to the timing, distribution and relative abundance of the various hatcheries and the success of the hatchery programs.

This project is a continuation of harvest monitoring initiated in 1984 and is projected to continue throughout the duration of the LSRCP evaluation program.

OBJECTIVES:

1. Identify the timing and proportions of Idaho's salmon and steelhead run that are produced by, (A) LSRCP and (B) wild, sensitive or special interest stocks effected by LSRCP stocks.

2. Analyze the results of Objective 1 and provide inputs into the development of a statewide harvest management plan in agreement with goals and objectives of the Idaho Department of Fish and Game and the LSRCP.

PROCEDURES:

Anglers will interviewed on a systematic basis in all areas of the state's salmon and steelhead fishery throughout all seasons. Methods used will be tailored to the accessibility and unique characteristics of each river and river section. Check stations will be used when anglers exit a fishing area through a single route. Roving interviews will be used when roads parallel the rivers, and jet boats will be used to interview boat anglers and to provide access in unroaded areas.

Data will be obtained on catch per effort and catch composition by interviewing anglers and examining their catch for tags, marks, brands, and any other identifiable means. All fish examined will be measured and the hatchery/wild proportion and stock composition will be assessed.

After each season, salmon and steelhead permittees will be surveyed by telephone to determine numbers of salmon and steelhead harvested by river location. This information will be interfaced with the catch per effort data to estimate harvest by river section.

BUDGET:

Personnel	$111,100
Travel	5,400
Supplies	41,200
Equipment	6,100
Agency Overhead	39,500
Total	$203,300

PRIORITY:

This project, along with the Identification of LSRCP Stocks and Fish Hatchery Evaluation projects, should be given top priority. The project determines how many LSRCP hatchery produced steelhead and salmon are harvested by sport fishing in Idaho, and where and when the ahrvest occurs. Hatchery releases can then be programmed for the maximum fishery or spawning escapement benefits. Harvest numbers added to the fish returning to the hatcheries or release stream will determine the success of specific hatchery and rearing programs.

APPENDIX D. FY1990 PRELIMINARY PROPOSAL

TITLE: Fish Hatchery Evaluation

COOPERATOR: Idaho Department of Fish and Game
600 South Walnut
P.O. Box 25
Boise, Id 83707

COORDINATOR: Tim Cochnauer

PROJECT LEADER: Bob Rohrer

STUDY PERIOD: 1 October 1989 - 30 September 1990

PROJECT BACKGROUND:

The LSRCP requires that anadromous fish runs be returned to the Snake River be increased to levels that existed before Lower Snake River hydro-power development. To properly evaluate this mitigation effort, it is necessary to document the results of the hatchery rearing programs and the return adults. This study will consolidate records from the various facilities to provide the basis for evaluation of the operations, as well as provide administrators with a clear and centralized record of field activities. This project will also evaluate and provide oversight of certain hatchery operational practices, e.g., brood stock selection, size of fish reared and time of release.

OBJECTIVES:

1. Provide a documentation of the LSRCP funded fish rearing activities in Idaho and the resulting adult returns.

2. Develop and provide an ongoing evaluation of major operational guidelines of LSRCP hatchery activities in Idaho.

3. Document augmentation of natural runs that occur due to outplant program.

PROCEDURES:

Much of the data collected for this project will come from the different facilities under their separate programs. To rapidly consolidate this information, a computerized data system will be developed. Records will be compiled and summarized of fish numbers produced a teach facility, categorized by strain, size, weight and stocking or transfer locations. Survival of downstream migrants to lower river sampling points will be documented for each production program insofar as data may be supplied by

other downstream migrant monitoring efforts. Records of adult returns will be maintained for each rearing program categorized by strain and brood year. Actual data will be obtained by hatchery personnel at hatchery racks. Locations of offsite smolt releases will be repeatedly surveyed during the spring spawning season to determine the relative hatchery and wild components. Contributions to sport fisheries will be determined by coded-wire tag returns. Pacific Coast state, federal and Canadian agencies cooperate in returning tags and catch data to the agency of origin.

Existing size, time and return data will be reviewed to determine optimum size of smolts at best time of release. Coded-wire tagged groups will be released as needed to test programs. Selection of brood stock must be done in conformance with program objectives for genetic management.

A fish distribution plan for LSRCP hatcheries will be developed in coordination with Department personnel and the State Anadromous Fish Plan to provide stock-by-stock and stream-by-stream planting to supplement natural reproduction.

Coordination will be provided between research and management programs and hatcheries. Advance notice to the hatcheries for specific study groups or marking programs will allow a more efficient use of hatchery space and reduce handling and stress on fish.

Selected streams will be sample to document increases in natural runs resulting from previous year outplants. Returning adults will be monitored for identifying marks (freeze brands, coded wire tags, etc.)

BUDGET

Personnel:	$ 69,732
Travel:	5,600
Supplies	29,000
Equipment	2.400
Agency Overhead	20,971
Total	$127,703

PRIORITY:

This project, along with the Identification of LSRCP Stocks and Hatchery-Wild Composition projects, should be given top priority. The project determines how successful each hatchery's program is in meeting the stated adult return goals.

APPENDIX D. FY1990 PRELIMINARY PROPOSAL

TITLE: Coded Wire Tag Analysis

COOPERATOR: Idaho Department of Fish and Game
600 South Walnut
P.O. Box 25
Boise, Id 83707

COORDINATOR: Tim Cochnauer

PROJECT LEADER: Tim Cochnauer

STUDY PERIOD: 1 October 1989 - 30 September 1990

PROJECT BACKGROUND:

Anadromous fish originating from the LSRCP hatcheries constitute a significant portion of the runs into Idaho. Comprehensive evaluation is required to properly manage the LSRCP programs and the wild stocks with which LSRCP stocks are intermingled. Evaluation requires the ability to identify individual groups of fish that are harvested or collected. Coded-wire tagging will be used for this purpose.

All LSRCP facilities should be in operation at this time. There will be a dramatic increase in numbers of smolts marked (400,000 to 1.2 million) and an associated increase in the workload for the tag recovery lab.

OBJECTIVES:

To recover coded wire tags from returning adult chinook salmon and steelhead trout and decode for analysis of success of LSRCP program.

Document contribution of Idaho LSRCP reared fish in downstream Columbia River and ocean fisheries.

PROCEDURES:

The Idaho Department of Fish and Game's tag recovery laboratory will continue to receive and process tags recovered from adults. All information will be put on an existing computer program and reported to various other agencies.

Coordination will be made with Oregon, Washington and federal agencies to retrieve coded wire tag information pertaining to Idaho fish caught in fisheries out of Idaho.

BUDGET

Personnel:	$53,047
Travel:	1,100
Supplies	2,700
Equipment	400
Agency Overhead	11,426
Total	$68,673

PRIORITY:

This project, along with the Fish Hatchery Evaluation and Hatchery-Wild Composition projects, should be given top priority. The project will allow recognition of LSRCF hatchery reared fish as adults at the hatchery, in the stream of outplanting and in the sport and commercial harvest.

APPENDIX D. FY1990 PRELIMINARY PROPOSAL

TITLE: LSRCP Hatchery Disease Investigations

COOPERATOR: Idaho Department of Fish and Game
600 South Walnut
P.O. Box 25
Boise, Id 83707

COORDINATOR: Tim Cochnauer

PROJECT LEADER: To be assigned

STUDY PERIOD: 1 October 1989 - 30 September 1990

PROJECT BACKGROUND:

Two diseases, infectious hemopoetic necrosis (IHN) in steelhead trout and bacterial kidney disease (BKD) in salmon, have caused significant mortality at some LSRCP hatcheries in Idaho. This project will be done by the Idaho Department of Fish and Game fish health section to key on these diseases and make recommendations to reduce mortalities caused by these.

OBJECTIVES:

1. Identify stocks and production lots of chinook salmon with BKD and steelhead trout with IHN.

2. Test diet supplements and other treatments on eggs, fry and fingerlings to reduce IHN and BKD caused mortalities.

PROCEDURES:

This project will be done by other Idaho Department of Fish and Game pathologists and other agency personnel to determine the presence of these diseases using standard laboratory techniques. Recommendations will be made as to how these disease related mortalities can be reduced.

BUDGET

Personnel:	$43,500
Travel:	4,800
Supplies	22,300
Equipment	2,300
Agency Overhead	17,700
Total	$90,600

PRIORITY:

The LSRCP hatchery disease investigations project should be given a secondary priority. This project will be important to improve the quality and quantity of salmon and steelhead trout smolts released and the efficiency of LSRCP hatcheries in Idaho.

APPENDIX E. FY1991 PRELIMINARY PROPOSAL

TITLE: Hatchery-Wild Composition

COOPERATOR: Idaho Department of Fish and Game
600 South Walnut
P.O. Box 25
Boise, Id 83707

COORDINATOR: Tim Cochnauer

PROJECT LEADER: Kent Ball

STUDY PERIOD: 1 October 1990 - 30 September 1991

PROJECT BACKGROUND:

The development of hatchery systems in Idaho to compensate for hydropower related losses of salmon and steelhead has resulted in the mixing of wild and hatchery stocks. Certain groups of fish from each LSRCP hatchery receive a coded-wire tag prior to release. Recovery of these tags when the fish return as adults provide information as to the timing, distribution and relative abundance of the various hatcheries and the success of the hatchery programs.

This project is a continuation of harvest monitoring initiated in 1984 and is projected to continue throughout the duration of the LSRCP evaluation program.

OBJECTIVES:

1. Identify the timing and proportions of Idaho's salmon steelhead run that are produced by, (A) LSRCP and (B) wild, sensitive or special interest stocks effected by LSRCP stocks.

2. Analyze the results of Objective 1 and provide inputs into the development of a statewide harvest management plan in agreement with goals and objectives of the Idaho Department of Fish and Game and the LSRCP.

PROCEDURES:

Anglers will be interviewed on a systematic basis in all areas of the state's salmon and steelhead fishery throughout all seasons. Methods used will be tailored to the accessibility and unique characteristics of each river and river section. Check stations will be used when anglers exit a fishing area through a single route. Roving interviews will be used when roads parallel the rivers, and jet boats will be used to interview boat anglers and to provide access in unroaded areas.

Data will be obtained on catch per effort and catch composition by interviewing anglers and examining their catch for tags, marks, brands, and any other identifiable means. All fish examined will be measured and the hatchery/wild proportion and stock composition will be assessed.

After each season, salmon and steelhead permittees will be surveyed by telephone to determine numbers of salmon and steelhead harvested by river location. This information will be interfaced with the catch per effort data to estimate harvest by river section.

BUDGET:

Personnel	$116,655
Travel	5,500
Supplies	43,260
Equipment	6,400
Agency Overhead	33,248
Total	$205,063

PRIORITY:

This project, along with the Identification of LSRCP Stocks and Fish Hatchery Evaluation projects, should be given top priority. The project determines how many LSRCP hatchery produced steelhead and salmon are harvested by sport fishing in Idaho, and where and when the harvest occurs. Hatchery releases can then be programmed for the maximum fishery or spawning escapement benefits.. Harvest numbers added to the fish returning to the hatcheries or release stream will determine the success of specific hatchery and rearing programs.

APPENDIX E. FY1991 PRELIMINARY PROPOSAL

TITLE: Fish Hatchery Evaluation

COOPERATOR: Idaho Department of Fish and Game
600 South Walnut
P.O. Box 25
Boise, Id 83707

COORDINATOR: Tim Cochnauer

PROJECT LEADER: Bob Rohrer

STUDY PERIOD: 1 October 1990 - 30 September 1991

PROJECT BACKGROUND:

The LSRCP requires that anadromous fish runs be returned to the Snake River be incrased to pre-project levels that existed before Lower Snake River hydro-power development. To properly evaluate this mitigation effort, it is necessary to document the results of the hatchery rearing programs and the return adults. This study will consolidate records from the various facilities to provide the basis for evaluation of the operations, as well as provide administrators with a clear and concise record of field activities. This project will also evaluate and provide oversight of certain hatchery operational practices, e.g., brood stock selection, size of fish reared and time of release.

OBJECTIVES:

1. Provide a documentation of the LSRCP funded fish rearing activities in Idaho and the resulting adult returns.

2. Develop and provide an ongoing evaluation of major operational guidelines of LSRCP hatchery activities in Idaho.

3. Document augmentation of natural runs that occur due to outplant program.

PROCEDURES:

Much of the data collected for this project will come from the different facilities under their separate programs. To rapidly consolidate this information, a computerized data system will be developed. Records will be compiled and summarized of fish numbers produced a teach facility, categorized by strain, size/weight and stocking or transfer locations. Survival of downstream migrants to lower river sampling points will be documented for each production program insofar as data may be supplied by other downstream migrant monitoring efforts. Records of adult returns will be maintained for each rearing program categorized by strain and brood year. Data will be obtained by hatchery personnel at hatchery racks.

Locations of offsite smolt releases will be repeatedly surveyed during the spring spawning season to determine the relative hatchery and wild components. Contributions to sport fisheries will be determined by coded-wire tag returns. Pacific Coast state, federal and Canadian agencies cooperate in returning tags and catch data to the agency of origin.

Existing size, time and return data will be reviewed to determine optimum size of smolts at best time of release. Coded-wire tagged groups will be released as needed to test programs. Selection of brood stock must be done in conformance with program objectives for genetic management.

A fish distribution plan for LSRCP hatcheries will be developed in coordination with Department personnel and the State Anadromous Fish Plan to provide stock-by-stock and stream-by-stream planting to supplement natural production.

Coordination will be provided between research and management programs and hatcheries. Advance notice to the hatcheries for specific study groups or marking programs will allow a more efficient use of hatchery space and reduce handling and stress on fish.

BUDGET

Personnel:	$73,219
Travel:	5,900
Supplies	30,300
Equipment	1,000
Agency Overhead	21,993
Total	$132,412

PRIORITY:

This project, along with the Identification of LSRCP Stocks and Hatchery-Wild Composition projects, should be given top priority. The project determines how successful each hatchery's program is in meeting the stated adult return goals.

APPENDIX E. FY1991 PRELIMINARY PROPOSAL

TITLE: Coded Wire Tag Analysis

COOPERATOR: Idaho Department of Fish and Game
600 South Walnut
P.O. Box 25
Boise, Id 83707

COORDINATOR: Tim Cochnauer

PROJECT LEADER: Tim Cochnauer

STUDY PERIOD: 1 October 1989 - 30 September 1990

PROJECT BACKGROUND:

Anadromous fish originating from the LSRCP hatcheries constitute a significant portion of the runs into Idaho. Comprehensive evaluation is required to properly manage the LSRCP programs and the wild stocks with which LSRCP stocks are intermingled. Evaluation requires the ability to identify individual groups of fish that are harvested or collected. Coded-wire tagging will be used for this purpose.

OBJECTIVES:

To recover coded wire tags from returning adult chinook salmon and steelhead trout and decode for analysis of success of LSRCP program.

Document contribution of Idaho LSRCP reared fish in downstream Columbia River and ocean fisheries.

PROCEDURES:

The Idaho Department of Fish and Game's tag recovery laboratory will continue to receive and process tags recovered from adults. All information will be put on an existing computer program and reported to various other agencies.

Coordination will be made with Oregon, Washington and federal agencies to retrieve coded wire tag information pertaining to Idaho fish caught in fisheries out of Idaho.

BUDGET

Personnel:	$ 55,699
Travel:	1,150
Supplies	2,900
Equipment	8,600
Agency Overhead	12,010
Total	$ 80,359

PRIORITY:

This project, along with the Fish Hatchery Evaluation and Hatchery-Wild Composition projects, should be given top priority. The project will allow recognition of LSRCP hatchery reared fish as adults at the hatchery, in the stream of outplanting and in the sport and commercial harvest.

APPENDIX E. FY1991 PRELIMINARY PROPOSAL

TITLE: LSRCP Hatchery Disease Investigations

COOPERATOR: Idaho Department of Fish and Game
600 South Walnut
P.O. Box 25
Boise, Id 83707

COORDINATOR: Tim Cochnauer

PROJECT LEADER: To be assigned

STUDY PERIOD: 1 October 1990 - 30 September 1991

PROJECT BACKGROUND:

Two diseases, infectious hemopoetic necrosis (IHN) in steelhead trout and bacterial kidney disease (BKD) in salmon, have caused significant mortality at some LSRCP hatcheries in Idaho. This project will be done by the Idaho Department of Fish and Game fish health section to key on these diseases and make recommendations to reduce mortalities caused by these.

OBJECTIVES:

1. Identify stocks and production lots of chinook salmon with BKD and steelhead trout with IHN.

2. Test diet supplements and other treatments on eggs, fry and fingerlings to reduce IHN and BKD caused mortalities.

PROCEDURES:

This project will work will be done by Idaho Department of Fish and Game pathologists and other agency personnel to determine the presence of these diseases using standard laboratory techniques. Recommendations will be made as to how these disease related mortalities can be reduced.

BUDGET

Personnel:	$43,500
Travel:	4,800
Supplies	22,300
Equipment	2,300
Agency Overhead	17,700
Total	$90,600

PRIORITY:

The LSRCP hatchery disease investigations project should be given a secondary priority. This project will be important to improve the quality and quantity of salmon and steelhead trout smolts released and the efficiency of LSRCP hatcheries in Idaho.

rbyington

Legal Notice 7.4.08.xls
07/11/08 10:00 AM

XEROX®

BA-147 (Revised 5/31/05)

Accounts Payable Data

ALL SHADED AREAS ARE REQUIRED. Please write legibly. Complete bottom section of form for equipment or inventory items.

Invoice Date MM/DD/YY Format: 7/1/2008

Vendor Name:	Idaho Press Tribune	**Vendor Number:**	
Employee Name:	Cal Groen	**Invoice Number:**	
Approved By:		**Invoice Amount:**	$196.98

Bureau Chief \ Regional Supervisor

Purpose: Please provide a detailed description of purpose and or usage, flight reports, man meals, meeting agendas, etc.

Legal Notices: 08-39 Closure of Chinook salmon season on the Middle Fork Clearwater River; 08-40 Closure of the Chinook salmon season the Snake River (from Dug Bar boat ramp upstream to Hells Canyon Dam).

MER	PCA	MER Suff	Activity / Species	Project (If Applicable)	Expend Sub Object	Sub Obj Det	Amount
	19901		E399				$77.91
	19901		E399				$119.07
					Invoice Total		$196.00

Equipment Information

To be filled out for Equipment Reportable on BA4

Property Number (5 digits)	
Ending Odometer Miles/Hours	
Gallons Purchased	

VEHICLE MAINTENANCE - CHECK APPROPRIATE BOX

3,000 mile service (includes oil change)	☐
30,000 mile service (includes oil change)	☐

Inventory Purchases

To be filled out when purchasing physical items which will appear on annual inventory

Manufacturer	
Model	
Serial No.	
P.O./Requisition No.	
Building Property No.	
Inventory Location Code	

Contract Number	Batch Sequence Number

One BA - 147 must be attached to EACH invoice submitted for payment