

# PIT TAG PURCHASES LOWER SNAKE RIVER COMPENSATION PLAN MONITORING AND EVALUATION PROGRAMS

9701800

## SHORT DESCRIPTION:

Allows an assessment of juvenile emigration timing, duration, and survival of hatchery and naturally-produced juveniles (under various flow regimes) in waters receiving compensation under the LSRCP.

## SPONSOR/CONTRACTOR: LSRCP

Lower Snake River Compensation Plan Office, U.S. Fish and Wildlife Service

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## SUB-CONTRACTORS:

None will receive funding; however those who will receive the tags include the LSRCP cooperators: Oregon Dept. of Fish and Wildlife, Washington Dept. of Fish and Wildlife, Idaho Dept. of Fish and Game, Nez Perce Tribe, Confederated Umatilla Tribes, and Fish and Wildlife Service

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## GOALS

### GENERAL:

Adaptive management (research or M&E)

### ANADROMOUS FISH:

Research, M&E

### NPPC PROGRAM MEASURE:

No response

### BIOLOGICAL OPINION ID:

Hatchery Program Biological Opinion 1995-1998

### OTHER PLANNING DOCUMENTS:

Snake River Recovery Plan, Chapter V, Section 4: 4.4a, 4.4c, 4.d, 4.5c

### TARGET STOCK

### LIFE STAGE

### MGMT CODE (see below)

|                          |          |         |
|--------------------------|----------|---------|
| Salmon River steelhead   | Juvenile | A,(P)   |
| Salmon River chinook     | Juvenile | S,(L),W |
| Clearwater chinook       | Juvenile | A,E     |
| Clearwater steelhead     | Juvenile | A,(P)   |
| Imnaha steelhead         | Juvenile | A,(P)   |
| Imnaha chinook           | Juvenile | S,(L),W |
| Grande Ronde chinook     | Juvenile | A,(L)   |
| Grande Ronde steelhead   | Juvenile | A,(P)   |
| Tucannon River steelhead | Juvenile | A,(P)   |
| Tucannon River chinook   | Juvenile | S,(L),W |

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## BACKGROUND

### Hydro project mitigated:

Four Lower Snake River Dams

### Project is an office site only

**HISTORY:**

Since the initiation of the LSRCP's involvement in the PIT-tagging program, LSRCP-related PIT tags have been provided by BPA through PSMFC because the LSRCP Program costs are reimbursed to the U.S. Treasury. Providing the PIT tags directly saved the administrative costs associated with the LSRCP program purchasing the tags.

**BIOLOGICAL RESULTS ACHIEVED:**

Estimates of juvenile migration timing, duration, and survival under various flow regimes have been provided for hatchery-reared chinook and steelhead released from LSRCP facilities both for monitoring and for a variety of evaluation studies. Additionally, several natural populations have been monitored that inhabit streams affected by the LSRCP Program.

**PROJECT REPORTS AND PAPERS:**

A list of LSRCP reports can be obtained from the LSRCP Office; they are numerous.

**ADAPTIVE MANAGEMENT IMPLICATIONS:**

Knowledge of juvenile survival has allowed the programs cooperators to select the best time, location, and type of release for improved emigration survival and helped reduce the likelihood of adverse impacts on naturally-produced fish. Flow managers will also use data to determine flows which provide optimum survival.

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**PURPOSE AND METHODS****SPECIFIC MEASUREABLE OBJECTIVES:**

Provide PIT-tags at an economical cost to cooperators so they can estimate juvenile LSRCP facility-reared steelhead and chinook emigration timing, migration, and survival from the point of release through the dams with detectors. PIT tags are used both as a monitoring device for standard release protocols and as an evaluation tool for controlled experiments. Some natural populations are also monitored for comparisons to hatchery-reared fish.

**CRITICAL UNCERTAINTIES:**

PIT tags use is not new; and although their use presents some risk to the marked fish, they have much lower mortality rates than alternative methods.

**BIOLOGICAL NEED:**

Data are lacking which describe migration and survival characteristics of most populations of migrating juveniles. Most populations of Snake River chinook and many steelhead populations, both natural and hatchery-reared, have experienced poor migratory corridor survival in most years since the LSRCP Program was initiated in the early 1980's. Several LSRCP-affected chinook populations are now listed, and the LSRCP program is incorporating conservation programs to maintain many of these populations. Many hatcheries are now rear and release listed fish and some hatchery populations are part of an ESU. Although survival has improved in those years with higher springs flows, listed populations remain at low levels and hatchery populations are barely replacing themselves in most years.

**HYPOTHESIS TO BE TESTED:**

The hypotheses vary greatly among projects but generally include analysis of differences in migration timing, duration, or survival anticipated with various release locations, times, or types under various flow regimes. Some comparisons of stocks and type of rearing (e.g. natural versus hatchery) are also investigated.

**ALTERNATIVE APPROACHES:**

Cold branding was used before PIT tags became the preferred tool but have not been considered for recent studies.

**METHODS:**

The experimental designs vary depending on the method and objectives of the individual monitoring or evaluation programs. Numbers of fish tagged varies based on the history of tag interrogations, i.e. the historical interrogation rates will help determine the number of tags needed to obtain a suitable number of recoveries for statistical studies (often 35 to 50 per test group).

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## PLANNED ACTIVITIES

### SCHEDULE:

**O&M Phase**                      **Start** 1998                      **End** 2002                      **Subcontractor**  
**Task** Purchase PIT tags for LSRCP monitoring and evaluation programs

### PROJECT COMPLETION DATE:

variable but long term

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## OUTCOMES, MONITORING AND EVALUATION

### SUMMARY OF EXPECTED OUTCOMES

#### Information products:

Knowledge of juvenile migration timing, duration, and survival of a most hatchery and some natural-reared fish populations. Factors such as time, location, and type of release, as well as migration conditions and origin of stock, can be compared.

#### MONITORING APPROACH

Results should influence time, location, and type of release and influence stock selection which should result in better early survival of releases.

#### Provisions to monitor population status or habitat quality:

All LSRCP projects have extensive monitoring and evaluation programs which are ongoing and require PIT tags as an evaluation tool.

#### Data analysis and evaluation:

PIT-tag data will be incorporated into the analyses of programs by the study leaders conducting LSRCP-funded studies

#### Information feed back to management decisions:

All LSRCP projects are conducted by co-managers and findings are applied as they become available and are agreed to by co-managers.

### EVALUATION

N/A

#### Incorporating new information regarding uncertainties:

N/A

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## RELATIONSHIPS

### RELATED BPA PROJECT

5503300

5514000 Salmon River Production Program

8805302 Ne Oregon Hatchery - Grande Ronde Satellite  
Facilities

9801007

9801006

### RELATIONSHIP

LSRCP provides facilities/fish

|   |                                |
|---|--------------------------------|
| 9801005   | LSRCP provides facilities/fish |
| 9801004   | LSRCP provides facilities/fish |
| 9801003 Monitoring and Evaluation of Yearling Snake River Fall Chinook Salmon Outplanted Upstream of Lower Granite Dam                                | LSRCP provides facilities/fish |
| 9801002 Monitoring and Evaluation for Captive Rearing Initiative for Salmon River Chinook Salmon  | LSRCP provides facilities/fish |
| 9801001 Grande Ronde Basin Spring Chinook Captive Broodstock Program Operation and Maintenance, Monitoring and Evaluation, and Fish Health Monitoring | LSRCP provides facilities/fish |

**OPPORTUNITIES FOR COOPERATION:**

Yes, this is now occurring among three state agencies and two tribes funded by LSRCP Program.

**COSTS AND FTE**

**FUTURE FUNDING NEEDS:**

**PAST OBLIGATIONS (incl. 1997 if done):**

| <u>FY</u> | <u>\$ NEED</u> | <u>% PLAN</u> | <u>% IMPLEMENT</u> | <u>% O AND M</u> |
|-----------|----------------|---------------|--------------------|------------------|
| 1998      | \$168,200      |               |                    |                  |
| 1999      | \$181,830      |               |                    |                  |
| 2000      | \$183,570      |               |                    |                  |
| 2001      | \$179,510      |               |                    |                  |
| 2002      | \$179,510      |               |                    |                  |

**LONGER TERM COSTS:** The costs are expected to be similar to those of 2002 in future years.

**1997 OVERHEAD PERCENT:** \$0

**CONTRACTOR FTE:** none

**SUBCONTRACTOR FTE:** none