SALMON RIVER ANADROMOUS FISH PASSAGE ENHANCEMENT, IDAHO 9306200

SHORT DESCRIPTION:
Identify fish passage problems and implement appropriate habitat enhancement and passage restoration projects. Potential projects include fishways, diversion headgates, improved water distribution, improved secondary channel habitat, and acquiring instream flow agreements.

SPONSOR/CONTRACTOR: SWCD
Lemhi and Custer Soil and Water Conservation Districts
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SUB-CONTRACTORS:
Idaho Fish & Game screen program

GOALS

GENERAL:
Supports a healthy Columbia basin, Maintains biological diversity, Increases run sizes or populations, Provides needed habitat protection

WATERSHED:
Implementation

ANADROMOUS FISH:
Habitat or tributary passage

RESIDENT FISH:
Habitat

NPPC PROGRAM MEASURE:
7.0A.1

TARGET STOCK	LIFE STAGE	MGMT CODE (see below)
Salmon River basin bull trout	Spawning incubation, rearing,	N,P,W
Snake River summer steelhead	All freshwater - spawning incubation, rearing, migration, and adult holding	L,N,S,W
Snake River spring chinook	All freshwater - spawning incubation, rearing, migration, and adult holding	L,N,S,W

AFFECTED STOCK	BENEFIT OR DETRIMENT
All stream/riparian dependent species	Beneficial

BACKGROUND

STREAM AREA AFFECTED

Stream name:
Lemhi, Pahsimeroi and East Fork Salmon

Stream miles affected:
60

Hydro project mitigated:
CUMULATIVE EFFECTS OF EIGHT COLUMBIA/SNAKE RIVER DAMS

Project is an office site only

LAND AREA INFORMATION

Subbasin:
Salmon River, Idaho

Land ownership:
70,000 agricultural and 1.7 million public and National Forest lands (small amount of private)

Acres affected:
Approx 70,000 acres / 1.7 million basin-wide

Habitat types:

HISTORY:

In 1993 the U.S. Forest Service, Inter-mountain Region, (FS) contracted with Bonneville Power Administration (BPA) to improve habitat for anadromous fish (Project 93-62 Upper Salmon River Anadromous Fish Passage Enhancement Project Agreement No. DE-Al 7993BP00818). The FS began NEPA and BA (biological assessment) reports for the projects in the contract with the start of construction planned for 1994. The projects are designed to provide offsite mitigation for fish losses resulting from the Columbia River hydroelectric system. Fish population responses are being documented by the Idaho Department of Fish and Game (IDFG) as a part of BPA Project 83-7.

A cooperative project between the water right holder on the Yantis Ditch, the New Meadows Ranger District Idaho Water Resources and this project is underway to prevent the dewatering of Boulder Creek (Little Salmon River drainage). This will involve a headgate, permanent diversion dam and piping the diverted water about 3,000 feet down the ditch to prevent ditch loss. We have began design on consolidating the two upper diversions in Valley Creek (VC-5 & VC-6). Negotiations with the private land owners to provide additional flow in Alturas Lake Creek (a sockeye salmon stream) are proceeding. Design of the new diversion in Alturas Lake Creek about 300 yards upstream of the old diversion dam (a passage barrier) will be coordinated with IDFG engineers.

In 1994 a siphon was installed to convey Salmon River water under Carmen Creek and eliminate the dewatering of Carmen Creek during spring for irrigation. This was done on a cost share basis with the irrigators. This fall another diversion was eliminated from Carmen Creek with a cooperative agreement with the land owner to use the Big Flat Ditch as their water source. A pipeline from the Big Flat Ditch was installed using a grant and the heading from Carmen Creek eliminated.Other projects to be developed on the Challis, Payefte, Salmon and Sawtooth National Forests this summer include three headgates and ditch consolation in the Loon Creek drainage, survey of passage problems on the New Meadows Ranger District, the North Fork Salmon River and tributaries, and the Sawtooth National Recreation Area. Working with private water right holders and landowners is time consuming, but progress is being made.

BIOLOGICAL RESULTS ACHIEVED:

Steelhead are currently using Carmen Creek as the result of this project. Spring chinook salmon have access to the spawning and rearing above the former diversion blockage. improvement in fish production depends on reduction in downstream mortalities. The cooperative work on the lower Lemhi diversions L-3 through L-7 has helped alleviate dewatering conditions and step up a new diversion operation to better allow flushing flows in the spring for juvenile fish downstream migration and late summer adult upstream migration. The Challis area diversion consolidations will greatly reduce the time juveniles must negotiate large river-spanning diversion dams. Also, consolidations in the Lemhi and Pahsimeroi will decrease migration time and the savings in screening costs have been used to implement habitat improvement projects that otherwise would be difficult to fund.

PROJECT REPORTS AND PAPERS:

USFS annual reports are in draft and should be completed by the end of 1996 and a model watershed report summarizing fish passage will be out in 1997.

ADAPTIVE MANAGEMENT IMPLICATIONS:

The elimination of fish passage problems in the Salmon Basin directly improves the survival rates of both juvenile and adult fish. Some of the problems have been the more prominent causes of fish mortality. These often overlooked projects due to the attitude of "We can't do that" has hindered the elimination of such problems until recently. With cooperation from various entities, a well thought approach with new thinking of "How can we make this work" attitude will prove successful, even if it has not been tried anywhere before. Often, It is more cost effective to establish habitat routes to existing habitat than it is to restore degraded habitat.

PURPOSE AND METHODS

SPECIFIC MEASUREABLE OBJECTIVES:

The 1998-2000 project objectives would be to treat 10 to 15 irrigation diversion sites that are either unscreened or blocking access to priority streams that are tributary to the Salmon River and identified as critical habitat for Snake River spring and summer chinook salmon in conjunction with IDFG and BoR. Also to pursue and implement diversion consolidations on 8 to 12 sites by 2000, to restore access to tributaries of the mainstem rivers in the model watershed area (ex: Agency Cr in the Lemhi similar to the Carmen Creek Project) , and to locate and put into use of channel rearing sites in conjunction with diversion locations or

previously used diversion canals.

CRITICAL UNCERTAINTIES:
While most private land owners have proven to be cooperative, some irrigators will perceive this effort as an intrusion on their water right and attempt to undermine their water right.

BIOLOGICAL NEED:
Irrigation diversions can be detrimental to migrating fish in several ways. Juveniles can be diverted into irrigation canals causing migration delays and mortalities. Gravel berms constructed in the stream to divert water can act as passage impediments to adult fish and often results in dewatering down stream sections. Operation of heavy equipment to construct gravel berms causes streambed disturbance releasing sediment into the stream. In addition, any time equipment is operated in a stream there is a risk of spills of petroleum or other toxic substances. The affected irrigators will have reduced canal maintenance costs, reduced time and money to construct gravel berms, and, for those irrigators converting to sprinklers, improved crop production. Additionally, secondary channel habitat which is critical for juvenile rearing is lacking in these systems and can be greatly expanded through appropriate modifications to the complex irrigation diversion systems currently in place.

ALTERNATIVE APPROACHES:
N/A

JUSTIFICATION FOR PLANNING:
N/A

METHODS:
This project involves working with irrigators both at their diversion sites on national forest land and on their own property by consolidating diversions, screening, installing headgates, improving water distribution to increase stream flows, and in some extreme cases acquiring agreements from land owners to leave water instream during critical passage periods water from willing participants to improve passage past currently dewatered reaches. A memorandum of understanding with the Lemhi County Irrigators is in place for the fish passage work on Carmen Creek and similar agreements can be set up with others.

PLANNED ACTIVITIES

SCHEDULE:

PROJECT COMPLETION DATE:
2000

CONSTRAINTS OR FACTORS THAT MAY CAUSE SCHEDULE OR BUDGET CHANGES:
The opportunity to improve passage is constrained by the permitting system from ID Water Resources/Army Corp of Engineers/NMFS. Also, potential changes in water delivery systems may keep users from cooperating on future projects.

OUTCOMES, MONITORING AND EVALUATION

SUMMARY OF EXPECTED OUTCOMES

Expected performance of target population or quality change in land area affected:
The goal of this project is to increase the quality and quantity of spring or summer chinook salmon and summer steelhead with an emphasis an increasing the survival of wild and natural stocks. This goal will be achieved by protecting and improving the habitat of the stocks indigenous to the upper Salmon River. This passage project will help increase fish production over current levels.
The project objectives are to increase spring and summer chinook and steelhead production by screening, installing head gates, improving water distribution to increase stream flows from below the minimums for production and survival towards optimum.

Meeting the above goal and objectives will provide off site mitigation listed in the Integrated System Plan for Salmon and Steelhead Production in the Columbia River Basin, (NPPC 1991).
Current potential smolt production capacity of the project portion of the Salmon River Sub-basin is estimated at 526,537 spring and summer chinook and 99,014 summer steelhead for a total of 635,551 smolts. The estimated annual increase in potential smolt production as the result of this project is 101,100 spring and summer chinook and 88,679 summer steelhead.

Present utilization and convservation potential of target population or area:
Approximately 1% of 1960-65 anadromous fish populations.

Assumed historic status of utilization and conservation potential:
1960-65 anadromous fish populations (Lemhi- 1200 redds, Pahsimeroi- 700 redds, East Fork- 775 redds)

Long term expected utilization and conservation potential for target population or habitat:
1960-65 anadromous fish populations (Lemhi- 1200 redds, Pahsimeroi- 700 redds, East Fork- 775 redds)

Contribution toward long-term goal:
Ensures lower rate of migration mortality than currently exists.

Indirect biological or environmental changes:
Benefits to resident fish for migration to different habitats and reduction of migration mortality.

Physical products:
Physical barriers removed, miles of habitat opened up, # diversions consolidated, off channel rearing sites established or improved, sites improved to reduce heavy equipment time in channel for maintenance.

Environmental attributes affected by the project:
Reduced number of physical barriers to habitat access, increased seasonal flows, reduced temperatures, and increased off-channel sites.

Changes assumed or expected for affected environmental attributes:
Reduced number of physical barriers to habitat access, increased seasonal flows, reduced temperatures, and increased off-channel sites.

Measure of attribute changes:
Approximately 15 diversion consolidations, 3-5 off-channel rearing sites, 5 miles of habitat opened up and five barriers removed or modified.

Assessment of effects on project outcomes of critical uncertainty:
Assume obstructions and known mortality causing structures will have less or no impacts to fish once modified. IDFG will monitor fish populations.

Information products:
Annual report of the model watershed describing project status and results.

Coordination outcomes:
Projects have already brought parties together from model watershed, Bureau of Reclamation, Shoshone-Bannocktribes, the water users and others and it will continue to build through the model watershed coordinator in conjunction with BPA contract # 9202603.

MONITORING APPROACH
This project involves working with irrigators both at their diversion sites on national forest land and on their own property by con

solidating diversions, screening, installing headgates, improving water distribution to increase stream flows, and in some extreme cases acquiring agreements from land owners to leave water instream during critical passage periods water from willing participants to improve passage past currently dewatered reaches. A memorandum of understanding with the Lemhi County Irrigators is in place for the fish passage work on Carmen Creek.

Provisions to monitor population status or habitat quality:
IDFG monitors fish populations and survival rates. No migration studies are proposed at this time.

Data analysis and evaluation:
Annual reports of projects and their relationship to meeting objectives in the Model Watershed Plan.

Information feed back to management decisions:
All information and techniques will be presented to the model watershed advisory and technical committees.

Critical uncertainties affecting project's outcomes:
Study of seasonal migrations of fish and delay time in diversions needs to be better understood along with the use of off-channel and other rearing sites in the basin.

EVALUATION
Mortality rate changes over time with new projects in place.

Incorporating new information regarding uncertainties:
Through the model watershed coordinator, technical and advisory committees and participating agencies and users.

Increasing public awareness of F&W activities:
Projects will be portrayed in reports, newsletters and other media to promote positive working relationships that implement projects with direct benefits to fish which also help the irrigators and other land users maintain current operations. Locally, these relationships spread well by word-of-mouth and is critical to maintain the programs strong reputation.

RELATIONSHIPS

RELATED BPA PROJECT	RELATIONSHIP
9401700 Model Watershed Habitat Implementation	Provides administrative and technical support for the model watershed work. Implementation funds for specific model watershed projects that are high priority in the watershed plan are included in 9401700. The State of Idaho may also provide cost share for implementation.
IDFG's screening program	Provides habitat passage improvements to irrigation diversions and reduces mortality for migrating fish by screening diversions
9303300 South Fork Salmon River Anadromous Fish Habitat Enhancement,	Provides habitat passage improvements to irrigation diversions
8402400 Shoshone-Bannock Tribes Salmon River BPA project	Provides habitat passage improvements to irrigation diversions
9202603 Model Watershed Coordination	Provides administrative and technical support for the model watershed work. Implementation funds for specific model watershed projects that are high priority in the watershed plan are included in 9401700. The State of Idaho may also provide cost share for implementation.

RELATED NON-BPA PROJECT	RELATIONSHIP

US Bureau of Reclamation	Consolidation of irrigation diversions and enhancement of stream flows through irrigation water management.
State Agricultural Water Quality Improvement Program. This funding would become available in 1997 also and could be used to match BPA funding.	Both Lemhi and Custer Soil and Water Conservation Districts have applied to the State of Idaho for funding

OPPORTUNITIES FOR COOPERATION:

This project will require irrigators' approval, compliance, 404 permits from the Army Corps of Engineers, consultation with NMFS, and archaeological clearance. Cooperators include: Idaho Soil Conservation Commission, Shoshone-Bannock Tribes, Bureau of Reclamation, Idaho Department of Fish and Game, Natural Resources Conservation Service,Custer Soil and Water Conservation District, Lemhi Soil and Water Conservation District, USDA Forest Service, and individual irrigators.
Most of this project involves working with irrigators both at their diversion sites on national forest land and on their own property.

A memorandum of understanding with the Lemhi County Irrigators is in place for the fish passage work that was done on Carmen Creek. Other memorandums of understanding will be developed as part of this project. The local community will be contacted during the NEPA scoping process. Local contractors will be hired to do the construction.

The private land owners will pay 25 percent of the costs of headgates constructed on their property. The Big Flat Ditch Company irrigators contributed $3,000 to the fish passage work on Carmen Creek. A multipartnership is being planned for treating fish passage projects on Agency Cr (Lemhi), the Pahsimeroi and the East Fork.

COSTS AND FTE

1997 Planned: $90,000

FUTURE FUNDING NEEDS:

FY	$ NEED	% PLAN	% IMPLEMENT	% O AND M
1998	$100,000	10%	90%	
1999	$100,000	10%	90%	

PAST OBLIGATIONS (incl. 1997 if done):

FY	OBLIGATED
1993	$91,964
1994	$98,741
TOTAL:	$190,705

Note: Data are past obligations, or amounts committed by year, not amounts billed. Does not include data for related projects.

FY	OTHER FUNDING SOURCE	AMOUNT	IN-KIND VALUE
1998	IDFG, BOR, Shoshone-Bannock Tribes	??	
1999	IDFG, BOR, Shoshone-Bannock Tribes	??	

OTHER NON-FINANCIAL SUPPORTERS:

Model Watershed participants (see list above)

LONGER TERM COSTS: N/A

1997 OVERHEAD PERCENT: 10%

HOW DOES PERCENTAGE APPLY TO DIRECT COSTS:

direct costs

CONTRACTOR FTE: N/A

SUBCONTRACTOR FTE: N/A