

LAKE ROOSEVELT RAINBOW TROUT NET PENS

9500900

SHORT DESCRIPTION:

Enhancement of the Lake Roosevelt fishery by rearing up to 500,000 RBT annually. By using up to 42 volunteers to build, maintain and operate 34 net pens on the reservoir. The volunteers also feed and assist in other functions. The goal is to provide up to 190,000 harvested adult RBT annually.

SPONSOR/CONTRACTOR: LRDA
Lake Roosevelt Development Association
Gene Smith, Project Coordinator
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509/725-8416

SUB-CONTRACTORS:
N/A

GOALS

GENERAL:

Supports a healthy Columbia basin, Maintains biological diversity, Increases run sizes or populations, Adaptive management (research or M&E)

RESIDENT FISH:

Production

NPPC PROGRAM MEASURE:

10.8B.17

RELATION TO MEASURE:

The Biological objectives at Lake Roosevelt allow for an annual target of 500,000 harvestable adult rainbow trout reared in net pens with an annual harvest target of 190,000 adult rainbows.

TARGET STOCK

Rainbow trout

Rainbow trout

LIFE STAGE

MGMT CODE (see below)

RSH

M/W

AFFECTED STOCK

Eagles/otters

Kokanee

BENEFIT OR DETRIMENT

Beneficial

Beneficial

BACKGROUND

STREAM AREA AFFECTED

Stream name:

Lake Roosevelt

Stream miles affected:

150

Hydro project mitigated:

Grand Coulee Dam

LAND AREA INFORMATION

Subbasin:

Upper Columbia

Land ownership:

public/tribal/private

Acres affected:

83,000

Habitat types:

Area above Grand Coulee Dam--resident fish RBT

HISTORY:

LRDA net pen program managed to increase rainbow trout fishery in L. Roosevelt through volunteer efforts while utilizing donated funds, labor, and materials. Circumstances made the program more difficult to coordinate on voluntary basis. Money/equip to fund program has declined. Appealed to the Council's Program and were accepted and amended into Section 94A(l)(p). Phase 4. A coordinator was hired to take care of coordinating the voluntary efforts, fund raising, monitoring of net pen activity/operation and maintenance in order to carry on with the net pens within Lake Roosevelt. About 300-500K rbt are

released into Lake R. each year for sport fishing and subsistence. The net pen program compliments on-going resident fish mitigation programs on the Upper Col.

BIOLOGICAL RESULTS ACHIEVED:

Before the net pens went in, they were harvesting 300 to 1,000 native rainbow trout per year. They are currently (5/95) harvesting 140,000 (95% are net pen rainbows). Over 500,000 RBT have been raised this year, which will be released sometime in the spring of 1997.

PROJECT REPORTS AND PAPERS:

BPA receives a quarterly report on all the activities for the quarter, plus an annual report.

ADAPTIVE MANAGEMENT IMPLICATIONS:

The basic underlying principle for the use of net pens on Lake Roosevelt deals with two problems. 1. Predation: fingerlings released directly into the reservoir are heavily reduced by predators. 2. Entrainment: many smaller fish are lost over Grand Coulee Dam during major draw downs. Adaption: Program allows for containing fingerlings to 8-9 inches in length and can be held until reservoir stabilizes or until water is rising, thus reducing losses. Due to severe springtime drawdowns for flood control, more emphasis has been placed on positioning net pens in deeper water and outfitting them with automatic feeders. Deeper water allows us to keep fish in pens longer, but requires access by boat.

PURPOSE AND METHODS

SPECIFIC MEASUREABLE OBJECTIVES:

FY95--LRDA hired a coordinator who has been able to provide the project with a more consistent review of inventory (fish food, materials), fund raising, finding volunteers to help with the program, and making the public aware of the project's capabilities and future goals. FY96--Coordinator continues to monitor the needs of the program and include the installation of ten new net pens to reach to goal of 500,000 net pen rainbow trout. FY97 and beyond--continue O & M of net pens and coordination of voluntary efforts and funding. Harvest goals for the project are the harvest of 190,000 adult RBT annually.

CRITICAL UNCERTAINTIES:

The primary concern or uncertainty involving the net pens is the operation of the reservoir during the net pen season of October through May. The net pens are designed to allow for water fluctuations, but concerns are for retention time (zoo plankton replenishment) and for release dates of net pen fish (rising levels).

BIOLOGICAL NEED:

The need for resident fish above Grand Coulee Dam includes several strategies outlined in the biological objectives. The rainbow trout net pen program insures that the fish are reared to a size which allows them to survive predation activities of larger fish. By rearing up to 500,000 net pen rainbow the sport and subsistence fishing will be greatly enhanced and will work jointly with established habitat improvement projects and the kokanee programs on Lake Roosevelt.

HYPOTHESIS TO BE TESTED:

Prior to the net pens the average catch of Lake Roosevelt rainbows would range between 300 and 1 000 native rainbows per year. Since the net pen program, harvesting has improved to 140,000 rainbow per year. 95% of the harvest has been net pen reared fish. Monitoring is done by project #88-063 and #94-043.

ALTERNATIVE APPROACHES:

Originally it was throught to release fingerling size RBT directly from the hatchery, but monitoring showed the survival rate was drastically reduced by predition and entrainment.

JUSTIFICATION FOR PLANNING:

N/A

METHODS:

Experimental design: The net pen program consists primarily of a rectangular float 20 feet square prepared from 8" PVC pipe suspending a 20'x 20' net approximately 14' deep and designed with umbrella type bird netting covering the top. These net pens are attached to docks anchored to shore and also anchored at the far end and attached to a winch at each end to allow for water fluctuations. Statistical analysis: Each net pen can hold 14,000-18,000 net pen rainbows which can be reared from 12-14 fish per pound in October to 5-6 per pound in early June. Approximately 98% of the fish survive in the net pens to release date. Severe drawdown could force early release of the fish.

PLANNED ACTIVITIES

SCHEDULE:

Planning Phase **Start** 01/94 **End** 11/96 **Subcontractor** no

Task FY96 the coordinator will continue to monitor the needs of the program and coordinate with volunteers and other entities (State Fish and Wildlife, Bureau of Reclamation, Spokane Tribe of Indians, Colville Confederated Tribes, Park Service and others), to provide funding for operation and maintenance of the net pens and feeding the fish. Also includes installation of ten new net pens, which will increase the rainbow trout to 500,000. FY97 and beyond we will continue to operate and maintain the net pens and the coordination of voluntary efforts and funding.

Implementation Phase **Start** 02/94 **End** 02/02 **Subcontractor** no

Task Coordinate establishing core group of volunteers

O&M Phase **Start** 2/94 **End** 02/02 **Subcontractor** no

Task Coordinate volunteers; repair and maintain net pens and docks

PROJECT COMPLETION DATE:

02/2002

CONSTRAINTS OR FACTORS THAT MAY CAUSE SCHEDULE OR BUDGET CHANGES:

The risks involved in the net pen program are very small. The program enlists the help of volunteers and very little biological or technical risk to the reservoir or its biological balance. NEPA requirements have been met and a cooperative agreement has been entered into with the Spokane Tribe and the Confederated Colville Tribes as well as NPS, Corps of Engineers, Bureau of Reclamation.

OUTCOMES, MONITORING AND EVALUATION

SUMMARY OF EXPECTED OUTCOMES

Expected performance of target population or quality change in land area affected:

If adequate funding is received to provide the new net pens, then the net pen program will be able to produce up to 500,000 RBT yearly. There will be some carryover effect and some natural spawning in bays along the reservoir.

Present utilization and conservation potential of target population or area:

To provide 190,000 adult sized harvest population for sport fishermen, subsistence, and recreation as well as providing for traditional tribal culture.

Assumed historic status of utilization and conservation potential:

To provide adult sized RBT reared in net pens for the purpose of recreational, sport and subsistence as well as to fulfill tribal cultural fishing habitat populations.

Long term expected utilization and conservation potential for target population or habitat:

To maintain a steady production of 500,000 net pen reared RBT per year with a target of 190,000 adult harvested fish per year.

Contribution toward long-term goal:

A steady production and release of 500,000 RBT yearly for the area above Grand Coulee DAM..

Indirect biological or environmental changes:

The release of 500,000 RBT per year takes pressure off native populations of rainbow, kokanee, and other species. Provides food source for eagles, otters, etc.

Physical products:

Monitors tag 20,000 RBT per year.

Environmental attributes affected by the project:

Project is affected by drawdown, but project has no affect of drawdown.

Changes assumed or expected for affected environmental attributes:

None expected.

Measure of attribute changes:

None expected

Assessment of effects on project outcomes of critical uncertainty:

Drawdown of the reservoir behind Grand Coulee Dam affects release date of net pen fish. Forces early release and loss of fish by entrainment.

Information products:

The Lake Roosevelt monitors provide statistical data for the operation of the net pen project through electroshocking, creel counts, measurement of flows, temperature, and evaluation of food base and sooplankton counts

Coordination outcomes:

1995 - Hired coordinator which has been able to provide the project with a more consistent review of inventory (fish food, materials), fund raising, finding volunteers to help with the program, and making the public aware of the project's capabilities and future goals.

MONITORING APPROACH

Through our Lake Roosevelt Hatchery Technical meetings, we determine strategies for the operation of the reservoir in terms of rearing and releasing of RBT as well as kokanee. The Lake Roosevelt Monitors evaluate conditions on the reservoir which they apply to the Biological objectives. Experimental design: The net pen program consists primarily of a rectangular float 20 feet square prepared from 8" PVC pipe suspending a 20'x 20' net approximately 14' deep and designed with umbrella type bird netting covering the top. These net pens are attached to docks anchored to shore and also anchored at the far end and attached to a winch at each end to allow for water fluctuations. Statistical analysis: Each net pen can hold 14,000-18,000 net pen rainbows which can be reared from 12-14 fish per pound in October to 5-6 per pound in early June. Approximately 98% of the fish survive in the net pens to release date.

Provisions to monitor population status or habitat quality:

Lake Roosevelt Monitors evaluate populations of RBT in the reservoir as well as those harvested. Electroshocking, netting, and creel counts at various sites are some of the methods used.

Data analysis and evaluation:

Annual reports and data concerning populations of RBT and food base information are used in evaluation of the project.

Information feed back to management decisions:

The Lake Roosevelt Hatchery Technical Committee reviews data twice annually. Decisions are made at these meetings which coordinate management of programs on the reservoir.

Critical uncertainties affecting project's outcomes:

Leveling out the draw down of the reservoir so that water levels are not drawn so low would provide a more consistant prediction for the outcome of the project.

EVALUATION

Creel counts indicating harvested adult RBT is probably the best indicator of project success.

Incorporating new information regarding uncertainties:

Through Hatchery Technical Committee meetings involving all fishery/hatchery projects on the reservoir.

Increasing public awareness of F&W activities:

The net pen project on Lake Roosevelt is best made aware to the public by increased use of the reservoir and high creel counts. Other methods used are speaking to groups, attending sporting shows, submitting written articles, and pamphlet publications.

RELATIONSHIPS

RELATED BPA PROJECT

8806300
 9404300 Lake Roosevelt Monitor Station
 9104700 Sherman Creek Hatchery
 9104600 Spokane Tribal Hatchery

RELATIONSHIP

monitor populations & other scientific data
 provides RBT for this project
 provides RBT for this project

RELATED NON-BPA PROJECT

Fish and Wildlife Department

RELATIONSHIP

provides food & maintenance funding

OPPORTUNITIES FOR COOPERATION:

LRDA has the support of many entities, We are dependent upon maintaining the cooperative spirit and the grass roots enthusiam of volunteers. Through this cooperation the Washington State Fish and Wildlife, the National Park Service, the Bureau of Reclamation, the Spokane Tribe of Indians, and the Colville Confederated Tribes along with the Corps of Engineers have all supported the net pen program as a valued means of enhancing the Lake Roosevelt fishery. We have met NEPA requirements and other environmental concerns. LRDA is presently operating with 42 volunteers who help with maintenance of net pens and docks and feeding of the fish.

COSTS AND FTE

1997 Planned: \$95,600

FUTURE FUNDING NEEDS:

<u>FY</u>	<u>\$ NEED</u>	<u>% PLAN</u>	<u>% IMPLEMENT</u>	<u>% O AND M</u>
1998	\$100,000	33%	33%	33%
1999	\$110,000	33%	40%	27%
2000	\$110,000	33%	40%	27%
2001	\$110,000	33%	40%	27%
2002		33%	40%	27%

PAST OBLIGATIONS (incl. 1997 if done):

<u>FY</u>	<u>OBLIGATED</u>
1995	\$62,863
1996	\$115,000
1997	\$95,251
TOTAL:	\$273,114

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

<u>FY</u>	<u>OTHER FUNDING SOURCE</u>	<u>AMOUNT</u>	<u>IN-KIND VALUE</u>
1998	WSDFWL volunteers	7,000 fish food	volunteer hours for matching funds
1999	WSDFWL volunteers		? volunteer hours for matching funds
2000	WSDFWL volunteers		? volunteer hours for matching funds
2001	WSDFWL volunteers		? volunteer hours for matching funds
2002	WSDFWL volunteers		? volunteer hours for matching funds

OTHER NON-FINANCIAL SUPPORTERS:

42 volunteers helping build docks, net pens, provide equipment, and feed fish. Colville Confederated Tribes, Spokane Tribe of Indians, Lions Clubs, Service Leagues, Chambers of Commerce.

LONGER TERM COSTS: Primarily costs will be for Operation and Maintenance.

1997 OVERHEAD PERCENT: None

HOW DOES PERCENTAGE APPLY TO DIRECT COSTS:

None (volunteers)

CONTRACTOR FTE: None (volunteers)

SUBCONTRACTOR FTE: None (volunteers)

SUPPLEMENTAL ANADROMOUS FISH EVALUATION FACTORS:

The LRDA net pen program provides 500,000 RBT per year using volunteers to assemble, maintain and feed the fish. The RBT net pen project's success is measured and evaluated by the Lake Roosevelt Monitors. This includes tagging, electro-shocking and technical meetings twice yearly to review projects as they relate to the biological objectives. Releasing large numbers of RBT provides a food source for eagles, osprey, otters and other aquatic organisms on the reservoir. Biological objectives have been adopted to identify the specific needs of the Lake Roosevelt reservoir. Biological objectives relate to the needs of the various species both introduced and native. They also address other wildlife on and around the reservoir. Project targets a specific objective for production and harvest of RBT as monitored by Lake Roosevelt Monitoring Team. Project mitigates for the loss of salmon.

SUPPLEMENTAL RESIDENT FISH EVALUATION FACTORS:

LRDA net pens rely heavily on volunteerism. We routinely use about 40 to 45 volunteers handily in the program.