FISHERIES ENHANCEMENT -- COEUR D'ALENE RESERVATION 9004400

SHORT DESCRIPTION:
Implement fisheries enhancement measures on the Coeur d'Alene Indian Reservation. Measures to include but not limited to: purchase critical watershed areas, restore degraded habitat and protect high quality habitat, develop an educational outreach program, develop interim tribal harvest opportunities, construct and operate a hatchery, and initiate a five year monitoring and evaluation program.

SPONSOR/CONTRACTOR: Coeur d'Alene
Coeur d'Alene Tribe
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SUB-CONTRACTORS:
N/A The Coeur d' Alene Tribe Fish and Wildlife Program is responsible for managing all aspects of the Fisheries Enhancement Project. No other agencies or entities will receive funding under this project.

GOALS

GENERAL:
Supports a healthy Columbia basin, Maintains biological diversity, Maintains genetic integrity, Increases run sizes or populations, Provides needed habitat protection, Adaptive management (research or M&E)

RESIDENT FISH:
Habitat

NPPC PROGRAM MEASURE:
10.8B.4

RELATION TO MEASURE:
This project addresses all aspects of the above measure.

TARGET STOCK	LIFE STAGE	MGMT CODE (see below)
Coeur d'Alene Reservation/Rainbow trout		RSH
Coeur d'Alene Reservation/Bull Trout		P / RSH
Coeur d'Alene Reservation/Westslope Cutthroat Trout		W / RSH

AFFECTED STOCK	BENEFIT OR DETRIMENT
Beaver	Beneficial
Muskrat	Beneficial
White-tailed deer	Beneficial
Moose	Beneficial
Bald Eagle	Beneficial
Longnose Sucker	Beneficial
Brook Trout	Beneficial

BACKGROUND

STREAM AREA AFFECTED
Stream name:
Alder, Benewah, Evans, and Lake Creeks
Stream miles affected:
60

LAND AREA INFORMATION
Subbasin:
Upper Columbia
Land ownership:
Private and Tribal

Hydro project mitigated:
Grand Coulee

Acres affected:
90,000

Habitat types:
Riverine/Lacustrine/Riparian/Emergent Wetland/Forested Upland

HISTORY:
Baseline habitat evaluations and fish population surveys were conducted from 1990 through 1994. In 1994-95 final recommendations for restoration priorities were submitted to the NPPC for approval and adoption into the Council's Program. Planning and implementation efforts were initiated beginning in 1995. NEPA analysis was delayed until 1996. The first demonstration projects were initiated with the support of private landowners in 1995. Habitat restoration efforts and development of public participation/education continued through 1996. Trout pond management and hatchery planning continues as part of the interim harvest program and supplementation feasibility study.

BIOLOGICAL RESULTS ACHIEVED:
This project was initiated as a baseline evaluation. Four years of data was accumulated and analyzed to recommend the best alternative to rebuild a self-sustaining fishery for the Coeur d'Alene Tribe. Fish and macroinvertebrate population distribution and abundance has been described, in-stream and riparian habitats have been quantified, and limiting factors related to land use patterns have been evaluated. Approximately 5.1 km of riparian habitat has been restored and protected through landowner contracts during the first 2 years of implementation. Natural variability in cutthroat trout populations will require analysis of multiple brood years. Because of the life cycle of cutthroat trout, three additional years of population evaluation will be necessary to make comparisons with baseline population data.

PROJECT REPORTS AND PAPERS:
Fisheries Habitat Evaluations on Tributaries of the Coeur d'Alene Indian Reservation. Annual Reports 1990, 1991, 1992, 1993-94 Final Reports 1995 (Draft)Coeur d'Alene Tribe Project Management Plan for Enhancement of Resident Fish Resources within the Coeur d'Alene Indian Reservation, 1997 (Draft)

ADAPTIVE MANAGEMENT IMPLICATIONS:
Habitat and population information collected during the initial baseline investigations was used to produce a limiting factors analysis. This analysis was used in conjunction with existing data on land use and vegetation coverage to identify high priority areas for treatment and conservation. Ongoing studies examining cutthroat migration, habitat use, incubation success, and genetic variability provide data used to refine treatment priorities. Information specific to incubation success and genetic variability will be used to develop and modify alternatives to supplementation for reservation streams. Effectiveness and trend monitoring at restoration sites indicates the success of specific treatment techniques and will allow for modification when necessary. Program data and objectives are shared with partnership agencies and private landowners so that a watershed based approach to habitat conservation will be encouraged. Lessons learned in the targeted watersheds can be quickly adapted for use in other watershed management efforts on the reservation.

PURPOSE AND METHODS

SPECIFIC MEASUREABLE OBJECTIVES:
These can be found in Section 10.8.B of the NPPC's program. Section 10.8.B includes the following information:
1. Enhance fish habitat on Alder, Benewah, Evans and Lake creeks to achieve interim 25%, 50%, and final 75% habitat improvement targets.

CRITICAL UNCERTAINTIES:
Uncertainties are factors that are beyond the control of the project that could affect the outcomes of the project. Risks are unintended project outcomes, such as damage to other stocks. Competitive interactions between cutthroat trout and introduced species.Ability to convince key landowners of the desirability of maintaining sustainable native trout populations in target drainages.

BIOLOGICAL NEED:
Adfluvial westslope cutthroat trout and bull trout are species of special concern in the region. Populations of these fishes on the re

servation are significantly reduced from historic levels and when compared with other stream systems in the region. Land use within the target drainages consists primarily of managed forest (53%), agriculture (25%), and grazed pasture (22%). Furthermore, approximately 80 percent of land ownership within the target drainages consist of small (>400 acres) private lots. All current land uses exert some adverse impact on trout populations. Over harvest and a lack of education in regards to native species conservation has also been responsible for recent declines in population numbers. Because of the severity of habitat loss within the reservation and a checkerboard ownership pattern within the target drainages, restoration efforts must be approached on a watershed level. Three life history stages, juvenile rearing, lake residence, and adult spawning, have been identified as critical in determining survivability of adfluvial cutthroat trout stocks. The linkages between habitat quality and critical life history stages are the focus for rebuilding sustainable and harvestable populations.

HYPOTHESIS TO BE TESTED:

N/A The emphasis of this project is to rebuild native cutthroat and bull trout populations using proven methods for habitat enhancement and supplementation, if necessary.

ALTERNATIVE APPROACHES:

Scholz, et. al., (1985) developed a feasibility report on restoration of Coeur d'Alene Tribal Fisheries. A range of fisheries restoration alternatives were evaluated. A subsequent report (Graves, et.al. 1990) developed criteria for ranking nineteen tributaries based on potential for cutthroat and bull trout habitat enhancement.

JUSTIFICATION FOR PLANNING:

N/A This project is an example of on-the-ground restoration efforts; planning, assessment, and coordination have already been completed.

METHODS:

Appropriate and tested habitat restoration techniques are being used to reclaim degraded habitat. Examples include, but are not limited to, riparian planting, bank stabilization, riparian fencing, and supplementation. Landowner contracts are signed to ensure long-term commitment to project maintenance and monitoring. Supplementation procedures may include hatchery construction and operation that follow procedures outlined in the IHOT process as they relate to resident fisheries. Trout Pond construction/operation will follow standard NRCS trout pond specifications. A five year scope of work is detailed in the Coeur d'Alene Tribe Project Management Plan for Enhancement of Resident Fish Resources within the Coeur d'Alene Indian Reservation, 1997 (Draft). No known limitations of the proposed methods have been identified.

PLANNED ACTIVITIES

SCHEDULE:

Planning Phase **Start** 1997 **End** 2001 **Subcontractor**

Task 1997-2001 Select sites for restoration efforts based on landowner participation. Initiate supplementation feasibility work (1997), to include stream-side incubation planning and lake habitat evaluations.1998- Develop supplementation strategy based on results of feasibility work and stream restoration implementation. Develop bioengineering criteria for hatchery planning and construction.1999-2001- Complete restoration activities. Continue supplementation efforts and effectiveness monitoring.

O&M Phase **Start** 2002 **End** 2006 **Subcontractor**

Task 1999- : Fish hatchery 2002-2006: Initiate five-year monitoring program.

CONSTRAINTS OR FACTORS THAT MAY CAUSE SCHEDULE OR BUDGET CHANGES:

Constraints or factors that may cause changes to planned efforts include NEPA analysis, landowner agreements, permit requirements, results of ongoing studies.

OUTCOMES, MONITORING AND EVALUATION

SUMMARY OF EXPECTED OUTCOMES

Present utilization and convservation potential of target population or area:
Land use within the target drainages consists primarily of managed forest (53%), agriculture (25%), and grazed pasture (22%). Furthermore, approximately 80 percent of land ownership within the target drainages consist of small (>400 acres) private lots. The Coeur d'Alene Tribe regulates fishing pressure in target drainages, thereby enhancing conservation potential.

Assumed historic status of utilization and conservation potential:
Scholz et. al. (1985), Peltier (1975), and Mallet (1969) describe historic utilization and subsistence use of fisheries resources. These analyses describe the reference status for utilization and habitat production potential.

Long term expected utilization and conservation potential for target population or habitat:
Develop self sustaining westslope cutthroat trout populations in the target drainages which provide opportunities for both subsistence and recreational fish harvest. Develop cohesive watershed working groups that will address habitat conservation issues within each target drainage.

Contribution toward long-term goal:
The project will implement habitat restoration measures which will improve the long term production potential of the target drainages. Construction and operation of trout ponds will provide interim subsistence and recreational fishing opportunities. Implementation of supplementation strategies will help increase native cutthroat populations to self sustaining levels. Landowner contracts and the education/outreach program will develop the foundation for long term interest in habitat conservation within the target drainages.

Indirect biological or environmental changes:
Populations of all cold water fish species (brook trout, longnose sucker, etc.) may increase as a result of habitat restoration and improvements in water quality. Abundance and diversity of macroinvertebrates may increase as detritus accumulates following riparian restoration. Productivity of upland soils may increase as microbial communities recover following reforestation.

Physical products:
Physical products of the project are largely dependent on landowner participation and development of long term contracts. Products will be quantified in quarterly and annual reports.

Environmental attributes affected by the project:
Attributes potentially affected include the following: water temperature; changes in base flows; channel profiles; sedimentation; restriction of human uses of land, etc.

Changes assumed or expected for affected environmental attributes:
Changes in environmental attributes include the following: lower mean summer water temperature; increased water retention capability in upland areas and higher summer base flows; increased channel stabilization and pool habitat; sediment abatement; restriction of human uses of land (riparian fencing), etc.

Measure of attribute changes:
Rates of sediment reduction will be estimated following implementation of applicable projects. These estimates will be described in annual reports.

Assessment of effects on project outcomes of critical uncertainty:
Species interactions and landowner commitment to conservation strategies were identified as critical uncertainties for this project. Studies of habitat usage by cutthroat trout in Lake Coeur d'Alene will assess the effects of species interaction. This assessment will identify whether competition with introduced species limits cutthroat trout populations. In addition, this assessment will play an adaptive role in developing supplementation strategies for target drainages. Implementation monitoring will solicit feedback from the landowner, cooperating agencies, and other interested parties regarding efficiency of

implementation efforts and expected effectiveness of rehabilitation measures. Finally, the response of landowners at watershed meetings will indicate the level of commitment to conservation and lead to appropriate adaptive strategies.

Information products:
Annual reports will describe implementation techniques and affected area as well as the results of biological and physical monitoring.

Coordination outcomes:
The purpose of the education/outreach component of the project is to communicate restoration objectives to landowners, participating agencies, and other interested parties. The expected outcome will be a coordinated approach to watershed restoration and growing support within the reservation community for sustainable resource management.

MONITORING APPROACH
Habitat restoration techniques that will be utilized include bank stabilization; planting etc. The list of possible techniques is to large to include in this write-up. However, for each restoration project, a description of the proposed action will be available. The Hatchery Construction/Operation will follow those procedures as outlined in the IHOT process as they relate to resident fisheries. Trout Pond construction/operation will follow standard NRCS trout pond specifications. Operations will follow the Tribal Fish and Wildlife Management Plan. A five-year monitoring program will be initiated during the final phase of the project and will include methodologies similar to those used as described in our final annual report (1993-94).

Provisions to monitor population status or habitat quality:
Monitoring strategies are described in The Coeur d'Alene Tribe Project Management Plan for Enhancement of Resident Fish Resources within the Coeur d'Alene Indian Reservation, 1997 (Draft). Ongoing population monitoring includes annual examination of migrating fish (timing, number, age class, and health) and quantification of fish abundance and distribution within each target drainage. Habitat characteristics are monitored in all areas affected by restoration activities.

Data analysis and evaluation:
Data resulting from the project is compiled annually to facilitate the analysis of population trends. This allows for comparisons with baseline data as well as with population data from similar stream systems in the region.

Information feed back to management decisions:
The draft Coeur d'Alene Tribe Project Management Plan for Enhancement of Resident Fish Resources within the Coeur d'Alene Indian Reservation describes the adaptive management strategy for this project. In summary, the strategy is a step-wise process that leads from development of quantifiable and measurable objectives, to hypothesis testing through data collection and monitoring, and finally to modification of management decisions.

Critical uncertainties affecting project's outcomes:
Critical uncertainties will be resolved through education and consensus building within the watershed working groups and the community at large, and through application of an adaptive management strategy to studies of the lake rearing phase of reservation cutthroat. Broader research needs will be identified during the preliminary assessment of habitat use by cutthroat trout in Lake Coeur d'Alene. These additional research needs are unknown at this time, but may include studies of cutthroat migration patterns in Lake Coeur d'Alene and/or study of dietary habitats of picivorous fishes in the lake.

EVALUATION

Incorporating new information regarding uncertainties:
The draft Coeur d'Alene Tribe Project Management Plan for Enhancement of Resident Fish Resources within the Coeur d'Alene Indian Reservation describes the adaptive management strategy for this project. This strategy will be used to assess all new monitoring data as it becomes available, as well as information regarding project uncertainties. In summary, the strategy is a step-wise process that leads from development of quantifiable and measurable objectives, to hypothesis testing through data collection and monitoring, and finally to modification of management decisions.

Increasing public awareness of F&W activities:
Information gathered by the project is made available to the public through education and outreach efforts. Watershed working groups are being created as a forum to discuss research implications and enhancement strategies and are open to all interested parties. Demonstration sites are being developed in each target drainage to increase public awareness of local and region conservation opportunities.

RELATIONSHIPS

RELATED BPA PROJECT	RELATIONSHIP
NPPC measure 10.8.B.21. This project purchases a critical watershed area.	Proposed purchase area is located in a drainage target for stream restoration.

OPPORTUNITIES FOR COOPERATION:
Opportunities for cooperation are numerous and include private landowner, industry, and agency participation in the restoration projects. Much of the restoration activities will be completed on private land and will result in landowner contracts and/or conservation easements. Watershed working groups are being developed to serve as educational forums which will encourage long-term support from private landowners and the timber industry. Local school districts are participating in program sponsored outreach efforts and often donate time and labor at restoration sites. The EPA is working with the Tribe under section 319 of the Clean Water Act to reduce non-point source pollution. This cooperative effort will address issues related to habitat protection in one of the target drainages. The Natural Resource Conservation Service (NRCS) in conjunction with the Kootenai/Shoshone Soil Conservation District has received a grant to fund projects which will reduce non-point source pollution from cropland erosion in one target drainage. Fish and Wildlife Program staff are coordinating stream restoration efforts with the NRCS so that critical areas receive priority treatment.

COSTS AND FTE

1997 Planned: $764,800

FUTURE FUNDING NEEDS:

FY	$ NEED	% PLAN	% IMPLEMENT	% O AND M
1998	$1,512,000			
1999	$918,000			
2000	$726,000			
2001	$417,000			
2002	TBD			

PAST OBLIGATIONS (incl. 1997 if done):

FY	OBLIGATED
1990	$172,831
1992	$92,857
1993	$156,840
1994	$517,690
1995	$7,118
1996	$495,228
1997	$763,579
TOTAL:	$2,206,143

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

LONGER TERM COSTS:
These have not been determined yet. Costs associated with this project will be available at the end of FY 98.
Costs will be associated with M &E and O & M

1997 OVERHEAD PERCENT: 32%

HOW DOES PERCENTAGE APPLY TO DIRECT COSTS:
Applies to direct project costs less contractual and captial equipment.

CONTRACTOR FTE: 7