

1993 Research Project Abstract

FOR THE PERIOD ENDING JUNE 30, 1995

This project was supported by MN Future Resources Fund

JUL 05 1995

TITLE: Anadromous Fish Monitoring
PROGRAM MANAGER: Mark Ebbers
ORGANIZATION: Department of Natural Resources
LEGAL CITATION: M.L. 93 Chpt. 172, Sect. 14, Subd. 6(e)
APPROPRIATION AMOUNT: \$137,000

Statement of Objectives

To construct an anadromous fish monitoring device on the Knife River, Lake County.

Overall Project Results

Valuable life history information on migrating trout and salmon species will be collected from the Knife River Trap. Information collected from fish trapped at the facility will allow fisheries managers to assess riverine and lake survival, growth, run timing, predator/prey responses, and the effects of planned or accidental species introductions. The effects of human activities, to include fishing and watershed restoration, will also be assessed using information collected at this facility. This information will enable fisheries managers to better assess and eventually predict fish population responses as a result of various management decisions throughout the North Shore Management Area. The Knife River Fish Trap will provide significant information on the anadromous fish stocks and the ecosystem of the North Shore region of Lake Superior. As stated in the steelhead plan (MN DNR 1991), the long-term goal and overall production of adult steelhead must be determined. At this time, the relationship between smolt production and the number of returning adults are unknown. The Knife River Fish Trap will assist in determining the relationship between smolt production and returning adults.

Project Results Use and Dissemination

Data collected on fish from the Knife River Fish Trap will be compiled and analyzed by the Duluth Area Fisheries staff. The results will be summarized in an annual steelhead plan progress report. This information will be shared with interested fishing groups and the general public. Data from the Knife River Trap will also be shared with other agencies on Lake Superior and other Great Lakes.

JUL 05 1995

July 1, 1995

LCMR Final Workprogram Update Report

I. Anadromous Fish Monitoring

Program Manager: Mark Ebbers
Agency Affiliation: Department of Natural Resources
Section of Fisheries - Box 12
500 Lafayette Road
St. Paul, MN 55155
Phone: (612) 297-2804

A. Legal Citation: M.L. 93 Chpt.172, Sect.14, Subd.6(e)

Total Biennial LCMR Budget: \$137,000
Balance: \$0

This appropriation is from the future resources fund to the commissioner of natural resources for biologic monitoring to improve the management of the steelhead population on the north shore of Lake Superior.

Initial funding for the selection of the best design and site location is from 1990 RIM appropriations. Additional funding for this project will come from Trout and Salmon Stamp monies.

B. LMIC Compatible Data Language: Not applicable.

C. Status of match Requirement: Not applicable.

Match required:
Funds Raised to Date:

II. Project Summary:

Anadromous fish comprise an important component of the Lake Superior fishery. Steelhead trout have declined over the past decade; however little is known about the factors that limit their production. The ability to monitor the Knife River steelhead population provides the necessary biological information for sound fisheries management along the entire Minnesota North Shore. This project will also provide a means to obtain eggs from wild Lake Superior steelhead and allow the stocking of selected tributary streams.

III. Statement of Objectives:

A. Determine the method of monitoring which is most effective and practical.

B. Implement monitoring method determined from Objective A.

IV. Research Objectives:

A. Title of Objective: Determine the method of monitoring which is most effective and practical.

A.1. Activity: A consultant will be hired to evaluate and recommend alternative methods of capturing adult and juvenile anadromous salmonids. Alternatives will include permanent and temporary trapping devices on the Knife River.

A.1.a. Context within the project: Because anadromous fish monitoring devices are not commonly used by the DNR, a consultant will be hired to recommend the best monitoring design and recommend the most suitable location on the Knife River. The report must also address aesthetic concerns and include cost estimates for each type of design. After the consultant has completed a report, information meetings will be held in Duluth and the Twin Cities to discuss the project and receive public input. Detailed engineering plans will be developed upon which construction bids can be made.

A.1.b. Methods: The RFP will be published in the State Register. A consultant will be hired from the group of proposals submitted. Site inspections will be required during the fall of 1992, and several meetings with the DNR and a task force made up of public and private members will be necessary.

A.1.c. Materials: The design and site selections will be based on fluctuations in flows and the geology of the stream bed. Standard surveying instruments will be used.

A.1.d. Budget: \$0
Funding for the consultants report came out of the 1990 RIM appropriations.

A.1.e. Timeline: 7/93 1/94 6/94 1/95 6/95

Consultant Report **

A.1.f. Status: Completed
Problems:

Progress: The final consultant report on the design feasibility study for the Knife River was completed on November 22, 1993.

B. Title of Objective: Implement monitoring method determined from Objective A.

B.1. Activity: Construct the anadromous fish monitoring device on the Knife River.

B.1.a. Context within the project: Construction of the anadromous fish monitoring device will be completed by a private construction firm.

B.1.b. Methods: Construction plans and specifications are being prepared and will be completed by July 1, 1994. Bids will be opened on July 1 and by early August, contracts will be given. Construction is scheduled to begin in mid-September and the project completed by late March 1995. Late fall and winter are the preferred time for construction because the river is at the lowest flow. Methods and procedures to be followed by the contractor will be specified in the consultant and engineering report.

B.1.c. Materials: Material and equipment needs will be described in detail in the consultants report.

B.1.d. Budget: \$137,000
Balance: \$0

The amount budgeted will not be sufficient to cover the total cost of the project. Additional funding for this project will come from Trout and Salmon Stamp monies.

B.1.e. Timeline: 7/93 1/94 6/94 1/95 6/95

Construction *****

B.1.f. Status: Completed
Problem:

Progress: The EAW was completed in June, 1994. Construction started in mid-December, 1994, and was completed in April, 1995. Because of a gift of \$50,000 from the Lake Superior Steelhead Association a smolt trap will be added during 1995. This device will greatly increase information gathering capabilities of the Knife River Trap. The trap will be full

operation during the spring of 1996.

V. Evaluation: The Knife River Fish Monitoring Device will be operated from April through October. Adult fish will be captured during the spawning run in the spring, and smolts will be captured during the summer. This device will be a valuable tool in evaluation of regulations and other management techniques used to restore the anadromous fish populations on the North Shore. This device will also allow the opportunity to take eggs from spawning adult steelhead. Fry from these eggs will be used to stock streams on the North Shore, based on the Section of Fisheries North Shore steelhead plan.

VI. Context within field: The Knife River is the major stream for anadromous fish spawning on the North Shore. Little information is available on the population dynamics of steelhead and other anadromous fish. Unknown factors are restricting the restoration of these populations.

VII. Benefits: Steelhead populations have declined over the past 10 years. This project will allow better monitoring and evaluation of a new, more restrictive regulation for steelhead on the North Shore by providing information on the dynamics and limiting factors of steelhead populations.

VIII. Dissemination: Data collected on anadromous fish species will be compiled and reported annually. This information will be shared with other agencies managing anadromous fish on Lake Superior and presentations will be made to interested angling organizations.

IX. Time: Construction should be completed prior to the end of FY 95.

X. Cooperation: Not Applicable.

XI. Semiannual status reports will be submitted no later than January 1, 1994, July 1, 1994, January 1, 1995 and a final status report by June 30, 1995.

Qualifications: Knife River Anadromous Fish Monitoring Project.

Mark Ebbers
Fisheries Program Coordinator
Minnesota Dept. Of Natural Resources

B.S. University of Wisconsin - Stevens Point, 1974, Fish Management.
Fisheries Program Coordinator, Minnesota DNR, St. Paul, 1987 to present.
Special Project Biologist, Minnesota DNR, St. Paul, 1986 to 1987.
Aquatic Biologist, Minnesota DNR, St. Paul, 1986 to 1986.
Fisheries Specialist, Minnesota DNR, St. Paul, 1979 to 1985.
Fisheries Technician, Minnesota DNR, Lake City, 1976 to 1979.

Responsibilities include statewide coordination of the trout and salmon program.