

I. Project Title: Yampa River northern pike exclusion studies

II. Principal Investigator(s):

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III. Project Summary:

The purpose of this investigation is to evaluate low-cost screening exclosures as a means of preventing adult northern pike from spawning in suitable flooded habitats connected to the Yampa River. This approach to nonnative fish control addresses the long term reduction in reproductive success of this introduced fish species on a large scale – from Stagecoach Reservoir above Steamboat Springs to Craig, Colorado. The success of this approach hinges on identification of all potential pike spawning habitat in the target reach, and gaining cooperation by landowners in the affected area through permission to access pike spawning habitats located on their property. To date, northern pike were trapped, tagged, and measured at four study sites during the spring spawning season of 2002. Collections of young-of-the-year pike were made at 12 sites during 2002 and 2003. Potential backwater spawning sites between Steamboat Springs and Craig were identified during 2003. Barriers were installed at 3 sites during 2003 at locations where young-of-the-year pike were found in 2002. Responses from the landowner questionnaire have been received and are being evaluated. A final report is in the process of being completed.

IV. Study Schedule: FY 2001 – FY 2004

V. Relationship to RIPRAP:

Green River Action Plan: Yampa and Little Snake Rivers

- III. Reduce negative impacts of nonnative fishes and sportfish management activities.
 - A. Develop aquatic management plan to reduce nonnative fish impacts while providing sportfishing opportunities.
 - 1. Implement Yampa Basin aquatic wildlife management plan
 - b. Reduce northern pike reproduction in the Yampa River
 - (2)(a) Identify and evaluate natural and artificial spawning /nursery habitats for northern pike in the Yampa R.
 - (2)(b) Implement remedial measures to reduce northern pike reproduction.

- (2)(c) Develop guidelines for new structures to minimize creation of habitat suitable for pike spawning/nursery habitats.

VI. Accomplishment of FY 2003 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

Task 1) Coordinate with the water conservation district and water user association representatives in the Yampa River basin to determine the number and location of all diversion and return flow sites between Catamount Lake and Craig for future assessment as pike spawning habitat.

Through the help of George Schisler and Kevin Rogers at the Colorado Division of Wildlife we have obtained an aerial video of the Yampa River between Catamount Reservoir and Craig. Digitized aerial photographs from the USGS have been purchased and could be used in a GIS program to identify and map diversions and return flows in the Yampa River.

Task 2) Conduct site visits of all identified potential habitats to evaluate feasibility of control and estimate design, materials necessary to implement.

All potential backwater spawning habitats on the Yampa River were visited during the spring of 2003 and categorized by size, orientation to the main river channel, and possibility of connecting to the main channel during spring runoff. Northern pike were trapped, tagged, and measured at four study sites during the spring spawning season of 2002 to determine the critical time for pike spawning. Collections of young-of-the-year pike were conducted at 12 sites during 2002 and 2003 to determine the success of recruitment in backwater habitats.

Task 3) Select sites and conduct pilot screening to test design and materials, and investigate operational constraints and effectiveness.

A seine and trap nets were used to collect all pike trying to enter or exit the selected backwaters during the spawning season. Advantages of the seine were that it conformed to the bottom of the sloughs and was easy to work with and modify. Disadvantages were that beaver and muskrat caused significant damage to the seine. Also, small pike were able to get through the mesh size we used. Pieces of Kevlar coated netting of two mesh sizes, poultry wire, and another metal fencing material were tested for resistance to muskrat damage. The Kevlar coated net with the larger mesh size was not resistant, as hoped, to muskrat damage. PVC coated poultry wire was used to construct 3 barriers at sites where young-of-the-year pike were found during 2002. Two barriers were installed during November and one barrier was installed during March. Winter ice formation and beaver and muskrat activity pose serious operational constraints to the effective use of barriers.

Task 4) Prepare final report including feasibility of approach and screening materials, evaluation of results from pilot sites for effectiveness and operation requirements, and a proposed scope of work required to expand approach to proposed reachwide scale.

Responses from the landowner questionnaire, abundance of yoy in backwater habitats, and abundance and quality of backwater spawning habitat are being analyzed to determine the feasibility of using barriers. A final report is being prepared.

VII. Recommendations: Continue project as planned.

VIII. Project Status:

Consider "on track and ongoing." This is the final year, field work has been completed and submittal of a draft final report by January 2004 is expected. Progress has been made on all tasks. No changes have been made to study design or the budget, and it is expected to be conducted as planned. Project success will be gauged by the success of pilot exclosure devices in reducing access and spawning by adult pike in suitable habitats, and by the magnitude of cooperation by private property owners in the target river reach with respect to implementing this control action on a reach-wide scale.

IX. FY 2003 Budget Status

- A. Funds Provided: \$20,000 (Program – capital funds); \$30,000 (CDOW)
- B. Funds Expended: \$50,000 has been encumbered in the CDOW contract with the Colorado Cooperative Fishery Research Unit in Fort Collins annually for the completion of this project.
- C. Difference: \$0
- D. Percent of the FY 2003 work completed, and projected costs to complete: 100%
- E. Recovery Program funds spent for publication charges: \$0

X. Status of Data Submission (Where applicable): Not yet accomplished.

XI. Signed: Thomas P. Nesler 11-14-2003
Principal Investigator Date

APPENDIX: None