

I. Project Title: Translocation of northern pike from the Yampa River upstream of Craig, Colorado.

II. Principal Investigator:

Aaron Webber, Fish Biologist  
U. S. Fish and Wildlife Service  
1380 South 2350 West  
Vernal, UT 84078  
(435) 789-4078 ext 21 / Fax (435) 789-4805  
aaron\_webber@fws.gov

III. Project Summary:

This project has been progressing virtually unchanged for four years. For a more detailed description of the background of this project, literature reviews of northern pike and its life history and requirements, effects that non native introductions have on standing stocks, and non native removal history in the Program, please see previous annual reports of this project and the appropriate cross references. Objectives of this study are to reduce numbers of adult northern pike in the study reach, determine population size and structure of northern pike in the study reach and the subsequent changes in the population size and structure after translocation, maintain public support for the Recovery Program by providing off-channel angling opportunities, and to monitor the smallmouth bass population in the study area.

IV. Study Schedule: The study is ongoing.

V. Relationship to RIPRAP:

GREEN RIVER ACTION PLAN: YAMPA AND LITTLE SNAKE RIVERS

III.A.1.b Control northern pike.

III.A.1.b(1) Remove and translocate northern pike and other sportfishes from Yampa River

VI. Accomplishment of FY 2008 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

*Northern Pike Population Estimation and Removal Effectiveness*

Four hundred and seventy-five unique northern pike of all sizes were captured during the study of which 406 were removed. The population estimate of adult northern pike ( $\geq 300$  mm) in 2008 was 701 (295-1107 95% C.I.).

Of the estimated 701 adult northern pike in the 38-mile stretch of upper Yampa River from Hayden to Craig, 406 were removed. This is a removal of 57.9%. Of the 406 northern pike, the Colorado Division of Wildlife took 40 for a study. Two northern pike died during sampling, and the remaining 364 were translocated to Loudy Simpson Park in Craig, Colorado for anglers to pursue.

Length frequency of pike captured in 2008 (Figure 1) shows a normal distribution. Most pike captured were adults over 400 mm which is different from 2007, when many smaller fish were captured. Catches were variable among passes (Figure 2) and could be explained by sampling conditions, migration during the study, and increased effort in the form of netting in passes 4-6. Catch per unit effort by pass shows no depletion (Figure 3). There are some reaches that seem to harbor more northern pike than others, most notably river miles (RM) 139 and 151 (Figure 4).

#### *Northern Pike Foreign Tags*

In 2008, we captured 13 pike that had been tagged by previous investigators. The colors of the floy tags include red, yellow, blue, white and green. These fish were tagged upstream and downstream from the study site showing there is fish movement between sections of the Yampa River. Of the 78 northern pike that we tagged on the first pass, 20 were captured downstream by the Colorado Division of Wildlife (CDOW). This shows a significant movement component to this northern pike population.

Two of these tagged pike were tagged and released into the Yampa State Wildlife Area pond and Loudy Simpson pond in 2007 and were recaptured in the main river in 2008. These fish either were released by an angler back into the river or escaped back into the river after high flows connected the ponds to the river in 2008.

#### *Smallmouth Bass*

Thirty-five individual smallmouth bass were captured during the study period. Population estimation was not possible due to lack of recaptures. Smallmouth bass were distributed near the bottom and middle of the study area (Figure 5) and were captured in greater numbers during later passes (Figure 6). All these fish were adults ranging from 251-450 mm. Of the 35 smallmouth bass, 10 had been previously tagged. One of these fish was tagged and released into Elkhead Reservoir in 2003 and escaped back into the river.

### VII. Recommendations:

It appears that the northern pike population has decreased in this 38-mile reach from the initial point estimate of 1755 in 2004 to the 701 estimate in 2008. The confidence intervals in the years in between these years overlap (Figure 7), thus making it difficult to say that the population has been steadily declining since removal efforts were initiated. We know there is a significant movement component to this population, and removal efforts have been incorporated on more sections of the Yampa River since 2004.

Since we have documented this year and in previous years that northern pike move both upstream and downstream, unless removal is employed in all sections of river where northern pike occur, effects of removal efforts would probably be negligible due to source populations. I recommend that we employ removal efforts on all sections of the Yampa River where northern pike occur to be able to determine if we really can decrease their populations. I also recommend that we time our population estimate during the same time as CDOW and do a larger-scale population estimate to make our estimate more precise.

We captured northern pike that were released into the Yampa State Wildlife Area pond and Loudy Simpson pond that re-entered the main river. The extent to which northern pike re-enter the main river after being stocked for anglers is unknown, but has the potential to be high. Our removal efforts are in vain if this is the case. It is also very important to appease the public and provide pike as a resource for sport fishermen. I recommend we search for another release site that has no potential to reconnect to the river so we can still provide angling opportunities while at the same time decreasing the chance of pike returning to the river.

Our study has documented concentrations of northern pike in certain backwaters near RM 151. I recommend that we consider blocking off known spawning habitat from northern pike in this study reach. We could also potentially use rotenone to poison specific backwaters with high concentrations of northern pike.

We documented a smallmouth bass that had been released into Elkhead Reservoir that showed up again in the river. I recommend we discontinue stocking any nonnative fish into Elkhead Reservoir to avoid supplementing a source population of nonnative fish.

VIII. Project Status: The project is ongoing.

IX. FY 2008 Budget Status:

- A. Funds Provided: \$163,740
- B. Funds Expended: \$163,740
- C. Difference: 0
- D. Percent of the FY 2008 work completed, and projected costs to complete: 100
- E. Recovery Program funds spent for publication charges: 0

X. Status of Data Submission: Data (lengths, tag numbers and location) were recorded in spread sheets and are available upon request.

XI. Signed: Aaron Webber December 21, 2008  
Principal Investigator Date

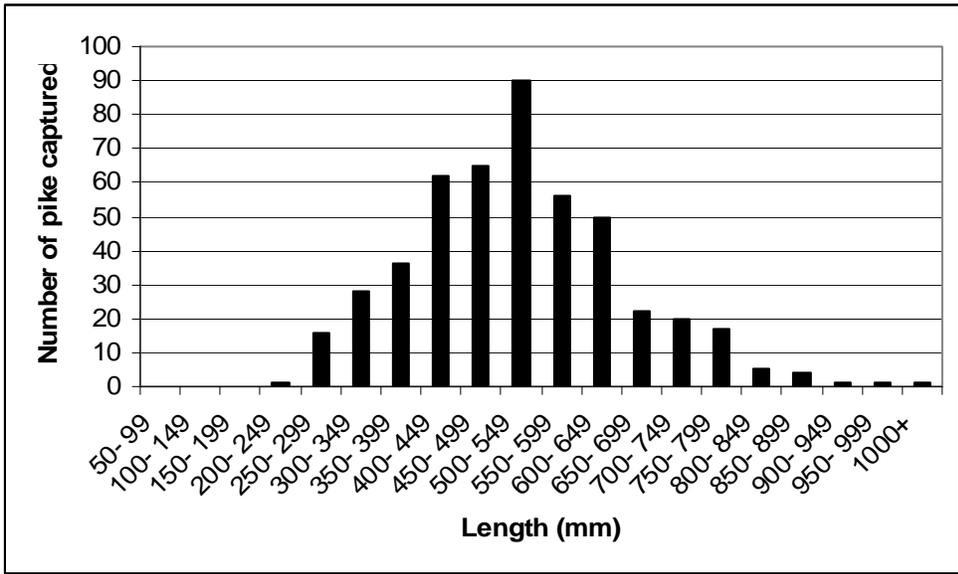


Figure 1. Length frequency of Yampa River northern pike captured in 2008.

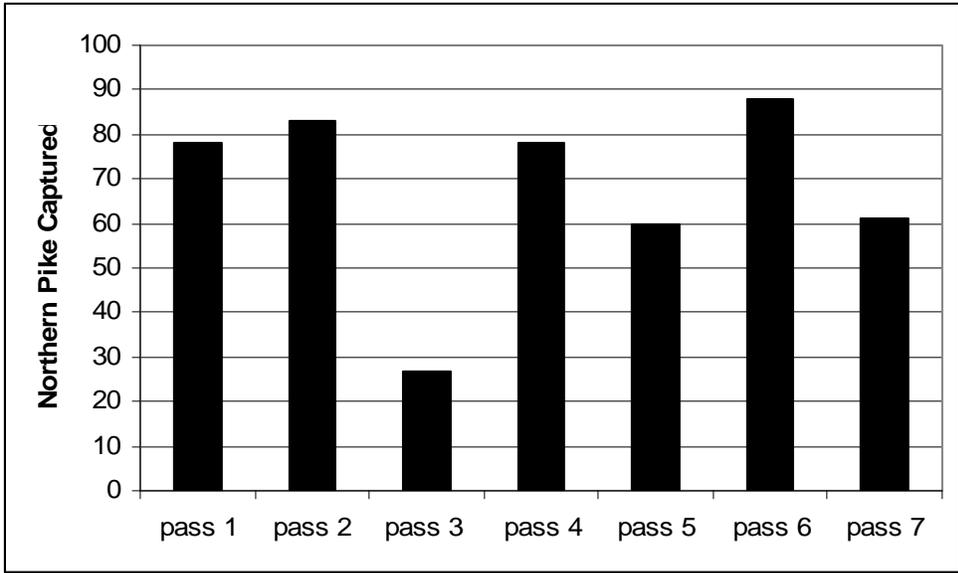


Figure 2. Northern pike captured by pass in the Yampa River, 2008.

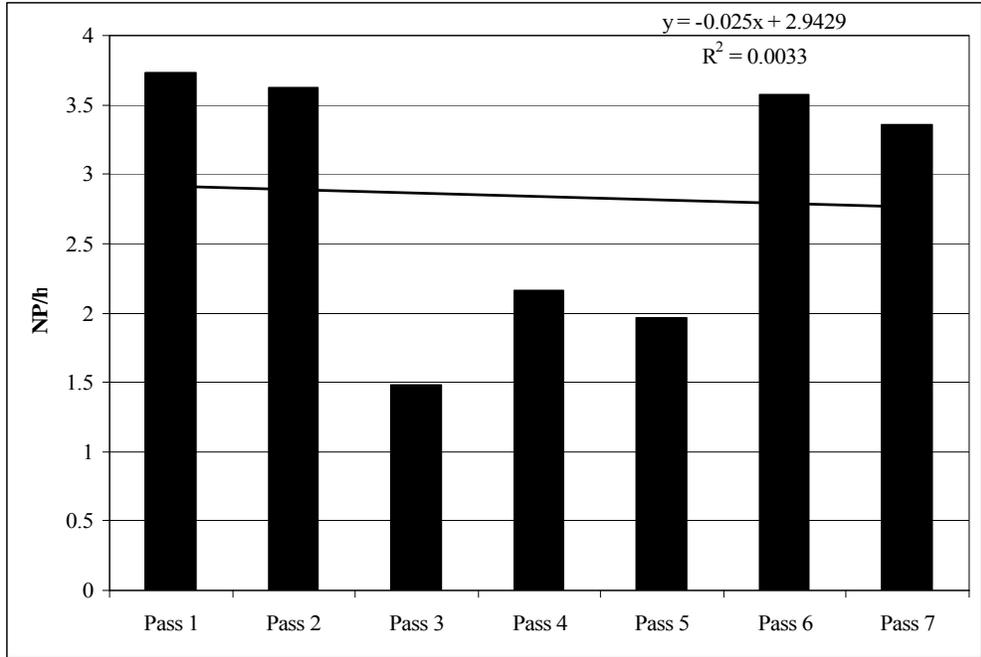


Figure 3. Northern pike captured per hour by pass, Yampa River 2008.

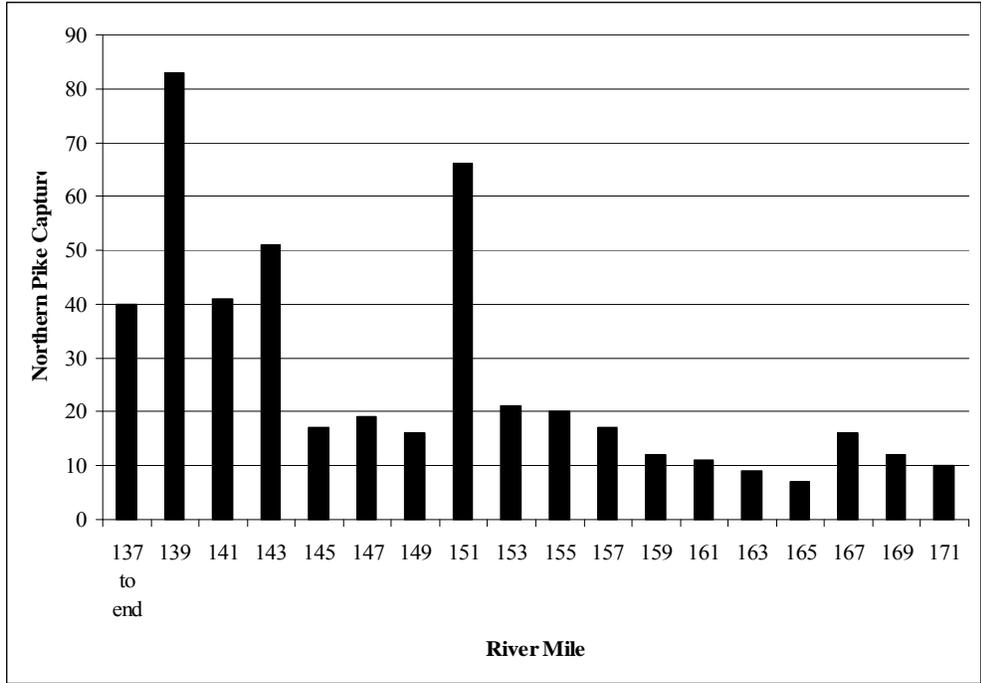


Figure 4. Total number of northern pike captured by river mile reach, Yampa River 2008.

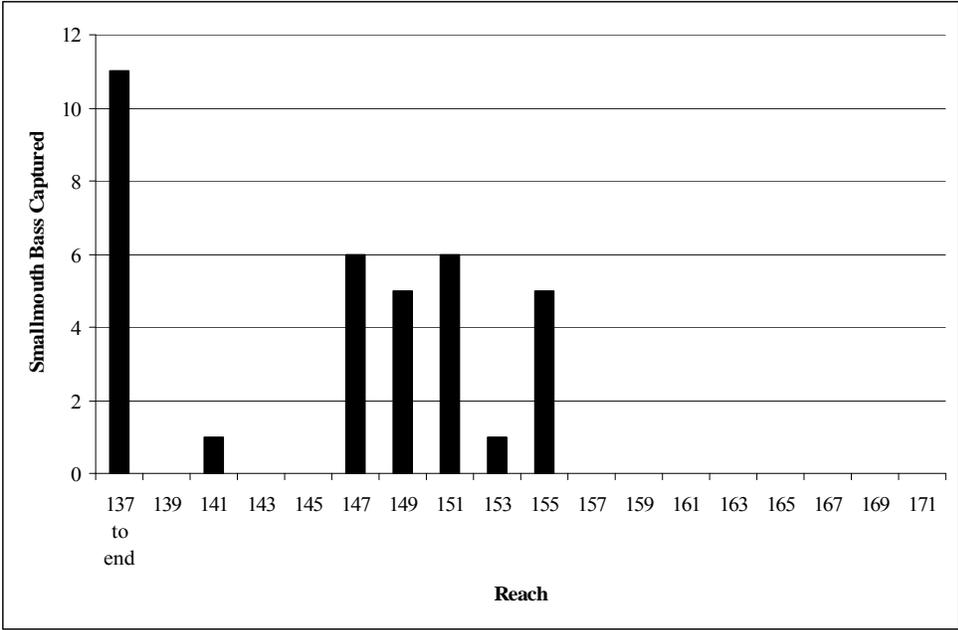


Figure 5. Smallmouth bass encountered by river mile in the Yampa River, 2008.

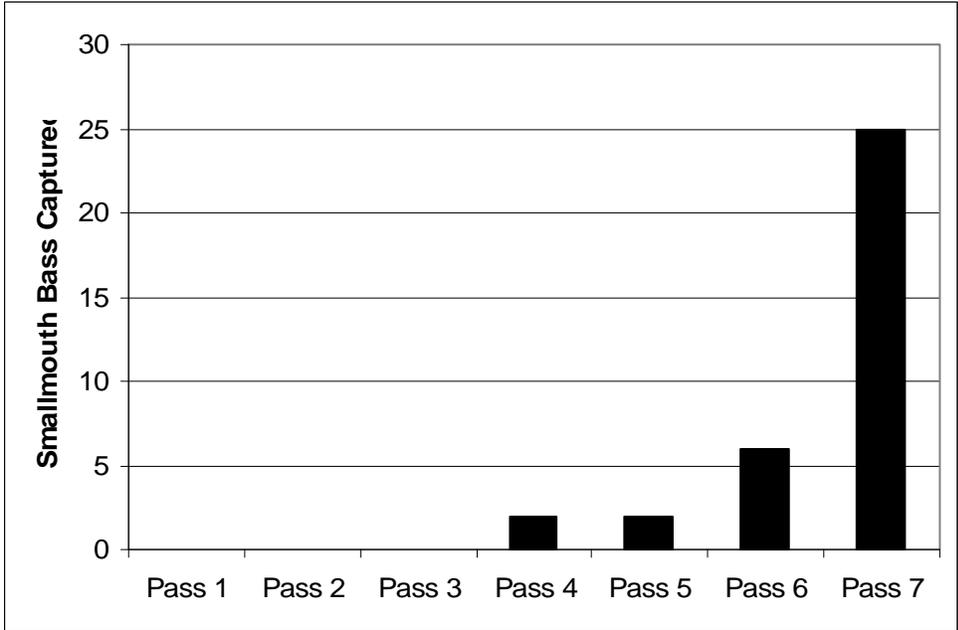


Figure 6. Smallmouth bass encountered by pass in the Yampa River, 2008.

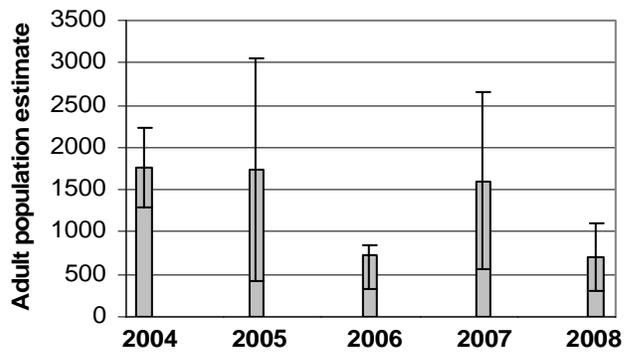


Figure 7. Northern pike population estimates and 95% confidence intervals 2004-2008.