

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 five 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, see previous annual reports. Objectives of this study are to reduce numbers of adult northern pike in the study reach, determine population size and structure, 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 2009 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

Northern Pike Population Estimation and Removal Effectiveness

We conducted 7 electrofishing passes through our 38-mile study section of the upper Yampa River from Hayden to Craig. The first pass was a marking pass and the subsequent passes were used for removal. Four hundred thirty-eight unique northern pike of all sizes were captured, of which 371 were removed or relocated. The population estimate, prior to removal, of adult northern pike (≥ 300 mm) in 2009 was 840 (263-1605 95% C.I.).

Of the estimated 840 adults (22 fish/mile), 263 were removed (31%, compared to 57.9% and 24.4% in 2008 and 2007 respectively). Additionally, 115 juvenile northern pike were removed. A population estimate of juvenile northern pike was not possible due to lack of recaptures. Of the 263 northern pike, the Colorado Division of Wildlife took 28 for a study and the remaining were translocated to the Yampa River State Park Headquarters pond for anglers.

Length-frequency of pike captured in 2009 shows a bimodal distribution (Figure 1). Forty-three percent of the catch was < 450mm and 27% was <300mm, suggesting successful spawning and recruitment for 2007 and 2008. Only 6% of the catch measured >700mm. When comparing the length frequency distribution of 2008 with 2009, it appears that we caught many more smaller fish in 2009 and we are possibly decreasing the larger fish from the population (Figure 1). Catches were variable among passes (Figure 2). Catch per unit effort by pass shows consistent catch rates with no evidence of depletion (Figure 3). There are some reaches that seem to harbor more northern pike than others, most notably river miles (RM) 139 and 151, both of which have one primary backwater where the majority of the northern pike are captured (Figure 4).

Northern Pike Foreign Tags

In 2009, we captured 13 northern pike that had been tagged by previous investigators up to three years ago. The colors of the floy tags included red, yellow, green, and purple. One fish was tagged in Catamount Reservoir upstream of our study reach, two fish came from downstream of our study area and the remaining ten were tagged within our study reach. We captured one northern pike that our crew released into Loudy Simpson pond in 2008.

Of the 78 northern pike tagged on the first pass, we recaptured 11, and 6 were captured downstream of our study area by the Colorado Division of Wildlife (CDOW) and Colorado State University (22% removal of tagged fish compared to 52% in 2008). This recapture data shows a significant movement component to this northern pike population.

Smallmouth Bass

Seven individual smallmouth bass were captured during the study period. A population estimate was not possible due to lack of recaptures. Smallmouth bass were distributed near the bottom and middle of the study area (Figure 4). These fish ranged from 170-374 mm. One had been previously tagged with a purple floy tag, was released into the Craig Justice Center Pond, and later returned into the river. We suspect anglers are responsible for this illegal relocation of the fish back into the river.

VII. Recommendations:

The northern pike population has probably decreased in this 38-mile reach from the

initial point estimate of 1,755 in 2004 to the 840 estimate in 2009, although confidence intervals overlap (Figure 5), and additional uncertainty exists due to unknown rates of escapement from translocated fish. Overall catch rates have decreased since 2004 (Figure 6). 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, removal needs to be employed in all sections of river where northern pike occur, otherwise the effects of removal will probably be negligible due to repopulation by 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.

We captured a northern pike that was released into Loudy-Simpson pond in 2008 that re-entered the main river. Escapement of northern pike and smallmouth bass has been documented from Loudy-Simpson pond, the state wildlife pond, and Elkhead Reservoir. The extent to which these species re-enter the main river after being stocked for anglers is not well known, but has the potential to be high. This year all relocated northern pike were released into the Yampa River State Park Headquarters pond. This site has virtually no chance of connecting to the river. If relocated fish that are stocked into this pond end up in the river again, we would assume anglers would be responsible. There are people that intentionally capture northern pike and smallmouth bass from these translocation sites and return the fish into the river, and this activity will probably continue indefinitely if we continue to translocate these fish. The only way to eliminate this activity with the fish that we capture is to euthanize northern pike and smallmouth bass upon capturing them.

On October 26 and 27, 2009, Loudy-Simpson pond was sampled by electrofishing and gill netting. Twelve northern pike were captured, of which only one was tagged. The remaining 11 were small, untagged fish suggesting that there likely has been successful spawning and recruitment at this site, and that it does not winterkill each year. At a high water event, any of these fish can enter the river. The Recovery Program stocks northern pike into Loudy-Simpson, essentially supplementing a northern pike nursery. Stocking northern pike into Loudy-Simpson should be discontinued. I also recommend we use netting and electrofishing to remove northern pike from Loudy-Simpson since we know that at high water any of these fish move into the Yampa River. I consider Loudy-Simpson part of our sampling area since it is known that fish move back and forth from this site.

It is expensive to capture northern pike and smallmouth bass and translocate them to other sites. We are usually paying our workers overtime by the end of each day, and we usually are spending 2-3 additional hours per day to transport sometimes only a few fish to these translocation sites. All this is done knowing that each year, translocated fish return to the river. This adds additional uncertainty to our population estimates since we do not know how much escapement occurs, and directly conflicts with our primary

objective: to reduce northern pike and smallmouth bass numbers. I recommend that we euthanize all smallmouth bass and northern pike captured in our sampling. If mitigation is required to appease the local angling public who are opposed to our removing these species from the river, let us appease them by stocking a species such as rainbow trout into the waters where we currently translocate our northern pike and smallmouth bass. It would be a less expensive alternative and would not pose as much of a threat to endangered fish downstream. If we must translocate non-native fish for anglers, I recommend that we stock fish only in the State Park Headquarters pond. This site has no chance to reconnect to the river. Dishonest anglers still might try to remove the fish and relocate them to the river, but this site at least has State Park personnel nearby that may deter some anglers from relocating fish. I recommend we discontinue relocating fish to Loudy-Simpson, Elkhead Reservoir and the state wildlife pond.

VIII. Project Status: The project is ongoing.

IX. FY 2009 Budget Status:

- A. Funds Provided: \$163,453
- B. Funds Expended: \$163,453
- C. Difference: 0
- D. Percent of the FY 2009 work completed, and projected costs to complete:100
- E. Recovery Program funds spent for publication charges:0

X. Status of Data Submission: Data has been submitted to Travis Francis, USFWS-Grand Junction CRFP.

XI. Signed: Aaron Webber November 4, 2009
Principal Investigator Date

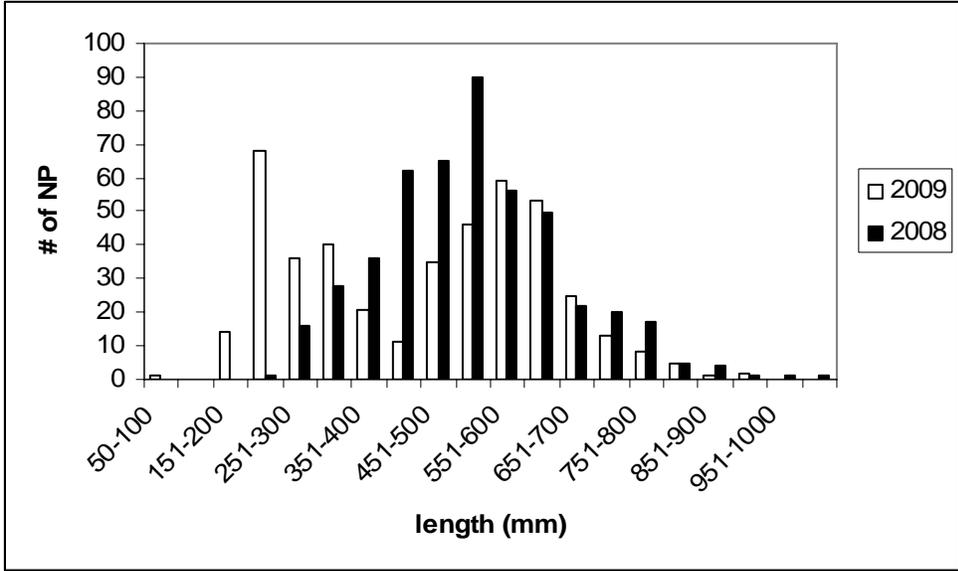


Figure 1. Length frequency of Yampa River northern pike captured in 2008 and 2009.

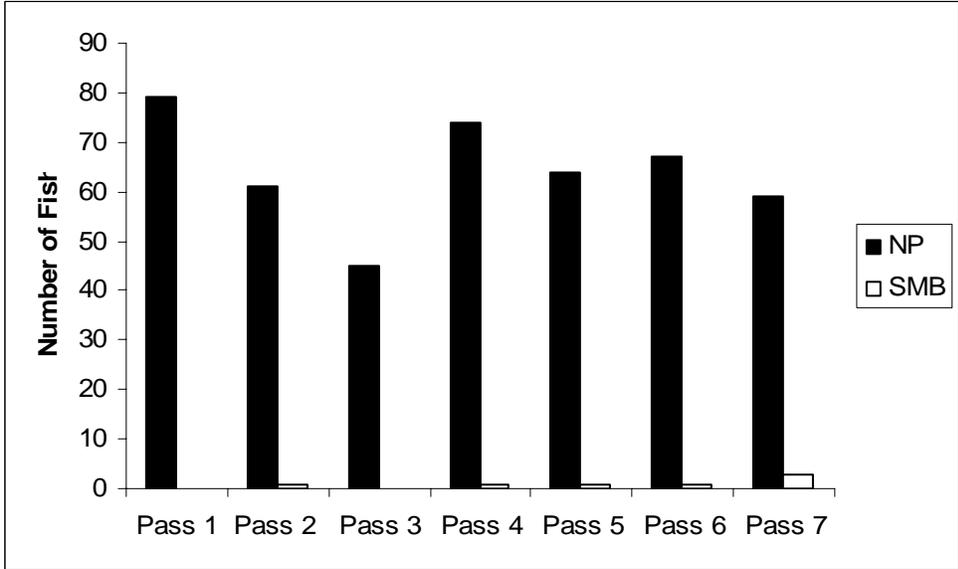


Figure 2. Northern pike and smallmouth bass captured by pass in the Yampa River, 2009.

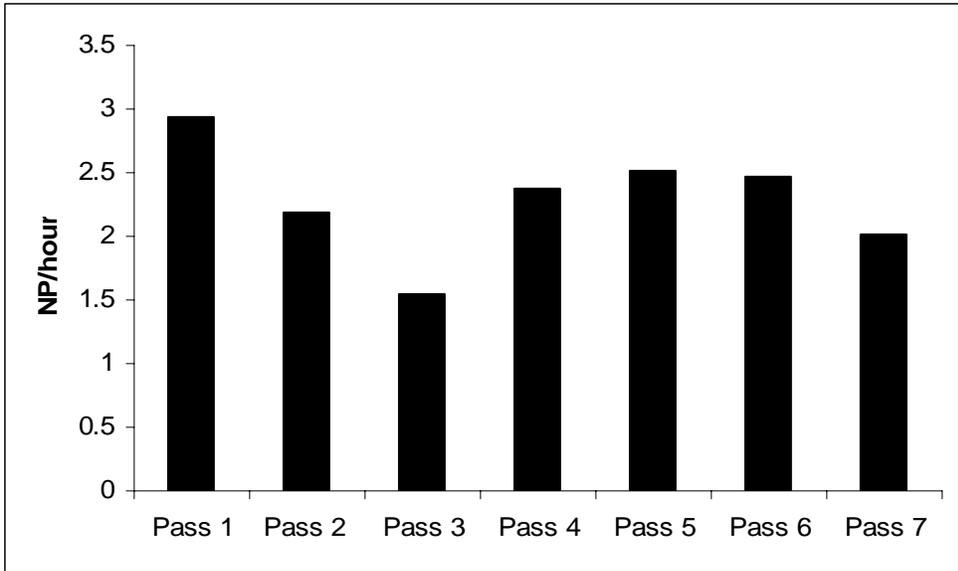


Figure 3. Northern pike captured per hour by pass, Yampa River 2009.

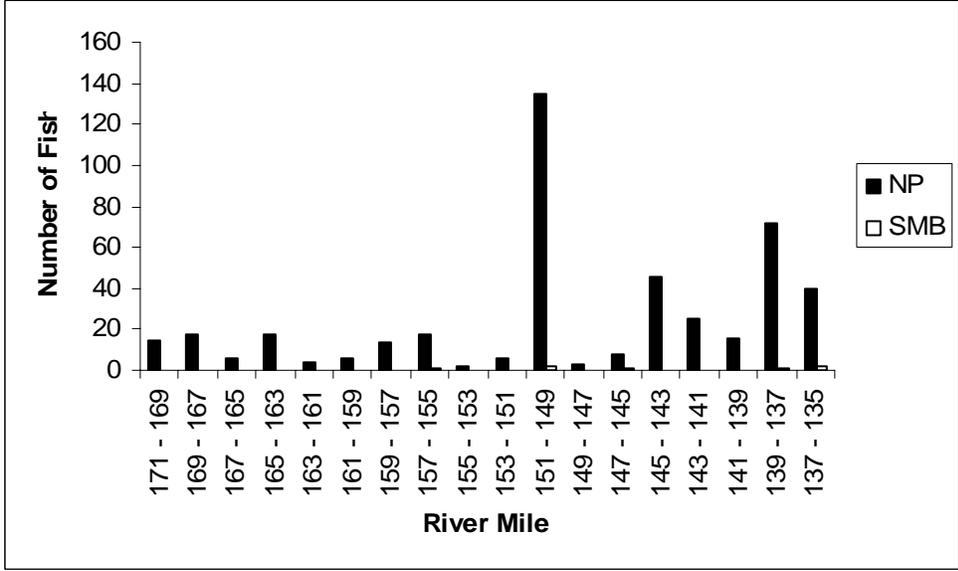


Figure 4. Total number of northern pike and smallmouth bass captured by river mile reach, Yampa River 2009.

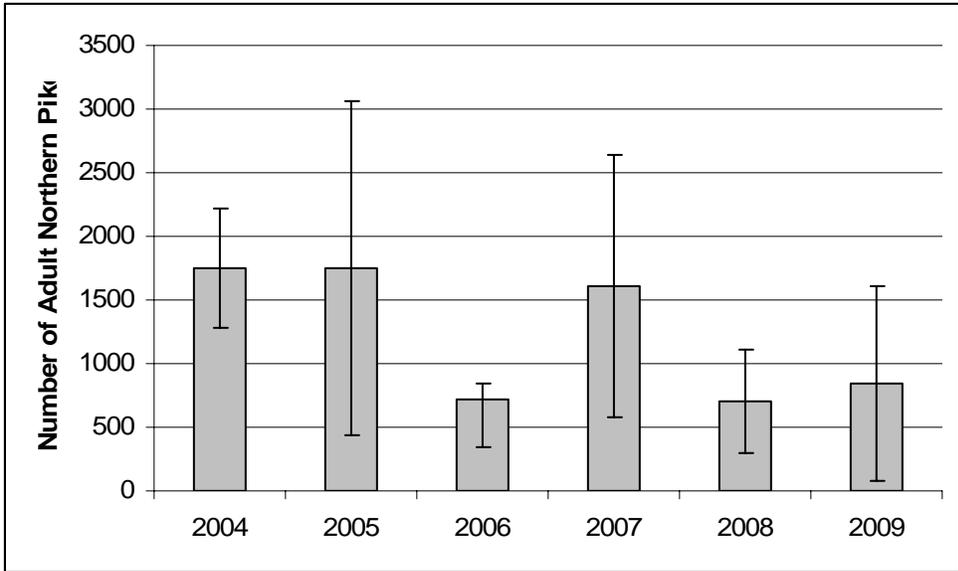


Figure 5. Northern pike population estimates and 95% confidence intervals 2004-2009.

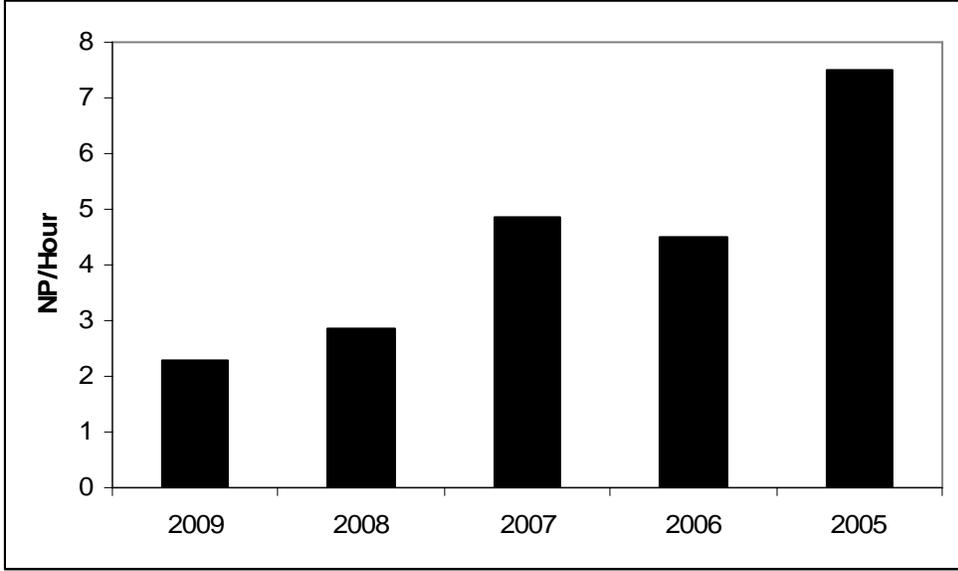


Figure 6. Overall northern pike catch rates by year for project 98b.