

**COLORADO RIVER RECOVERY PROGRAM
FY-2010-2011 PROPOSED SCOPE OF WORK**

Project No.: 98b

Upper Yampa River northern pike management and monitoring

Lead Agency: U. S. Fish and Wildlife Service
Colorado River Fish Project

Submitted by: Aaron Webber and Dale Ryden
U.S. Fish and Wildlife
Colorado River Fish Project
1380 South 2350 West
Vernal, UT 84078

Phone: (435) 789-4078 ext. 21

FAX: (435) 789-4805

E-Mail: aaron_webber@fws.gov

Date: Revised March 17, 2011

Category

- Ongoing project
- Ongoing-revised project
- Requested project
- Unsolicited proposal

Expected Funding Source

- Annual funds
- Capital Funds
- Other

I. Title of Proposal: Upper Yampa River northern pike management and monitoring

II. Relationship to RIPRAP:

Green River Action Plan: Yampa and Little Snake rivers

- III.A.1.b(1) Remove and translocate northern pike and other sportfishes from Yampa River.
- III.A.1.b(2) Reduce northern pike reproduction in the Yampa River.
- III.A.1.d. Remove smallmouth bass.

III. Study Background/Rationale and Hypotheses

Northern pike *Esox lucius* is an exotic, predatory species that has become established in the Yampa River. Northern pike escaped from Elkhead Reservoir (a reservoir on Elkhead Creek, which is a tributary to the Yampa River near Craig, CO) where they

were originally stocked to provide sportfishing. Since escapement, they have established large, reproducing populations in the upper Yampa River (Nesler 1995, Personal communication with John Hawkins, CSU, and Richard Anderson, CDOW). The large populations likely provide a source for continual movement of northern pike into the lower Yampa River and further downstream into the Green River where they coexist with three endangered fishes — Colorado pikeminnow *Ptychocheilus lucius*, razorback sucker *Xyrauchen texanus*, and humpback chub *Gila cypha*. Large portions of the lower Yampa River are designated critical habitat for these species. Northern pike provide a significant predatory risk to these endangered fish, especially juveniles and small adults of Colorado pikeminnow and razorback sucker. Additionally, northern pike present a significant predatory risk to other native species in the basin (e.g., flannelmouth sucker *Catostomus latipinnis* and roundtail chub *G. robusta*) that have been considered for listing under the Endangered Species Act in the past (Martinez 1995; Nesler 1995). Northern pike were identified as presenting a significant risk to the endangered fishes by a majority of upper basin researchers in surveys conducted during the late 1980s (Hawkins and Nesler 1991).

The Recovery Program has established an active program to control nonnative fishes in the main rivers of the upper basin to assist in recovery of the endangered fishes found there. To date, the Recovery Program has initiated nonnative reduction efforts for channel catfish, northern pike, and smallmouth bass in the Yampa and Green rivers, and small cyprinids in the Colorado and Green River drainages. In some cases, such as the Yampa River, northern pike have been removed from the main channel and stocked into off-channel impoundments to provide fishing opportunity for local anglers.

Temporarily reducing the pike population through mechanical means appears to be a viable option for the rivers of the upper basin (Lentsch et al. 1996), although complete eradication is unlikely. A small, non-reproducing population of northern pike in the Gunnison River was reduced with relatively little effort applied at a time when pike were vulnerable (McAda 1997). Initial sampling efforts in the Yampa River suggest that substantial numbers of northern pike can be captured during spring when they enter shallow floodplain habitats for spawning (Nesler 1995; J. Hawkins, personal communication; USFWS unpublished data). Sampling in 2001-2004 yielded a total catch of 2453 northern pike.

The aquatic management plan for the Yampa River includes trapping northern pike in the river and transporting them to ponds in the Yampa Valley that qualify under the Nonnative Stocking Procedures (CDOW 1998). Preliminary efforts from 2001-2004 showed that large numbers of anglers were attracted to the ponds at Yampa SWA when northern pike were stocked there. Translocation of pike will reduce the numbers of northern pike in the Yampa River to benefit endangered fishes and still provide recreational opportunities for anglers.

IV. Study Goals, Objectives, End Product:

Goal

Improve survival of endangered fish in the Yampa and Green rivers.

Objectives

1. Reduce numbers of adult northern pike in the study reach.
2. Determine population size and structure of northern pike in the study reach and the subsequent changes in the population size and structure after translocation.
3. Monitor movement of northern pike into and out of the study area and within the study area. Movements will be monitored within year and between years.
4. Maintain public support for the recovery program by providing off-channel angling opportunity to Yampa Valley anglers with northern pike removed from the Yampa River.
5. Monitor the native fish community in the study area.
6. Monitor smallmouth bass in the study area.

End products: Annual reports due 11/10; presentation of results at annual non native fish workshop

V. Study area: Upper Yampa River (upstream from Craig, CO); river miles 139.7-177.5

VI. Study Methods/Approach:

The main channel of the Yampa River between Highway 40 Bridge upstream of Hayden, Colorado and the Highway 13 Bridge in Craig, CO will be electrofished using hard-bottom electrofishing boats. The river channel will be electrofished seven times between April and June. The entire study area will be divided into two-mile sections that will be sampled individually. On one sampling pass, in agreement with CDOW, all northern pike and smallmouth bass will be measured for total length, tagged with Floy tags, and released. On the next removal passes all northern pike and smallmouth bass will be measured for total length, tagged with Floy tags, and handled as the CDOW dictates.

Any native fish captured will be identified to species, and length (TL) and weight will be recorded. Any gizzard shad captured will be recorded and preserved in a discreet manner. We will estimate the northern pike population in the study reach and evaluate its movement patterns and population structure. Incidental mortalities will be refrigerated (when possible) and turned over to the Colorado Division of Wildlife. The relocation effort of northern pike will be closely coordinated with CDOW personnel.

All capture and length data on northern pike, smallmouth bass, and other species collected during the sampling effort will be turned over to the Colorado Division of

Wildlife and added to the Recovery Program database. A brief summary report will be produced after sampling is completed and distributed through the Recovery Program's annual reporting process. In addition, results will be presented at the annual non native fish workshop.

VII. Task Description and Schedule

1. April through June: Electrofish the Yampa River between Hayden and Craig, CO (7 passes). All northern pike and smallmouth bass captured will be handled as determined by the CDOW.
2. October: Consolidate data and provide to CDOW and to the Recovery Program database.
3. Nov 2010 – Jan 2011: Prepare annual reports. Attend annual researchers meeting.

VIII. FY-2010 Deliverables: Annual Report 11/10

IX. FY2010 Budget:

SOW 98b FY2010

Task Activity	Cost
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Task 1

Preparatory Labor/Training	Cost
GS-11 Biologist (\$42.95/hr x 8 hrs/day x 15 days)	\$5,154.00
GS-8 Fisheries Tech (\$32.07/hr x 8 hrs/day x 15 days)	\$3,848.40
3 GS-5 Biological Techs (\$17.45/hr x 8 hrs/day x 15 days)	\$6,282.00

Subtotal	\$15,284.40
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Field Labor	Cost
GS-11 Biologist (\$42.95/hr x 8 hrs/day x 5 days/trip x 7 trips) + (\$42.95/hr x 2 hr OT/day x 5 days/trip x 7 trips)	\$15,032.50
GS-8 Fisheries Tech (\$32.07/hr x 8 hrs/day x 5 days/trip x 7 trips) + (\$48.11/hr x 2 hr ot/day x 5 days/trip x 7 trips)	\$12,347.30
3 GS-5 Biological Techs (\$17.45/hr x 8 hrs/day x 5 days/trip x 7 trips) + (\$26.18/hr x 2 hr ot/day x 5 days/trip x 7 trips)	\$20,155.80

Subtotal	\$47,535.60
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Travel, Per Diem, Equipment	Cost
(3 trucks/trip x 700 mi/truck x \$0.505/mi x 7 trips) Vernal to Craig round trip and on the river	\$7,424
Boat gas (8 gal gas/boat x \$3.50/gal x 3 boats/day x 5 days/trip x 7 trips)	\$2,940
Boat oil (2 qts. Oil/boat x \$4.50/qt x 3 boats/day x 5 days/trip x 7 trips)	\$945
Per diem (5 people/day x \$109.00/person x 5 days/trip x 7 trips)	\$19,075
GS-8 Fisheries Tech Maintenance work (\$32.07/hr x 8 hrs/day x 20 days)	\$5,131.20
Equipment and Maintenance (nets, repairs, fish tags, etc.)	\$9,629
Generator	\$5,141

Subtotal	\$50,285.20
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Tasks 2 and 3

	Cost
Data summary, Analysis, report preparation, project presentation	
GS-14 Project Leader (\$72.14/hr x 8 hrs/day x 39 days)	\$22,507.68
GS-11 Fisheries Biologist (\$42.95/hr x 8 hrs/day x 65 days)	\$22,334.00
GS-9 Admin Assist. (\$33.63/hr x 8 hrs/day x 14 days)	\$3,766.56
Supplies (Copies, disks, paper, etc.)	\$1,200
Per diem to travel for presentation (1 person/day x \$109/person x 2 days/trip x 3 trips)	\$654
Travel to give presentations and workshops and meetings (1 truck/trip x 275 mi/truck x \$0.505/mi x 3 trips)	\$417

Subtotal	\$50,879.24
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Total	\$163,984.44
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Summary: FY-2010 \$163,984.44

SOW 98b FY2011

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X. Reviewer: Dale Ryden, U.S. Fish and Wildlife Service

XI. References

CDOW (Colorado Division of Wildlife). 1998. Aquatic Wildlife Management Plan: Yampa River Basin. Aquatic Wildlife Section, Denver.

Hawkins, J. A., and T. P. Nesler. 1991. Nonnative fishes in the upper Colorado River basin: an issue paper. Final Report. Colorado State University Larval Fish Laboratory and Colorado Division of Wildlife, Fort Collins.

Lentsch, L. D., R. T. Muth, P. D. Thompson, B. G. Hoskins, and T. A. Crowl. 1996. Options for selective control of nonnative fishes in the upper Colorado River basin. Final Report to the Recovery Program for the Endangered Fishes of the Upper Colorado River. Publication 96-14, Utah Division of Wildlife Resources, Salt Lake City, Utah.

Martinez, P. J. 1995. Coldwater Reservoir Ecology. Colorado Division of Wildlife, Federal Aid in Fish and Wildlife Restoration Project F-242R-2, Job Final Report, Fort Collins.

McAda, C. W. 1997. Mechanical removal of northern pike from the Gunnison River, 1995–1996. Final Report to the Recovery Program for the Endangered Fishes of the Upper Colorado River, Project 58. U. S. Fish and Wildlife Service, Grand Junction, Colorado.

Nesler, T.P. 1995. Interactions between endangered fishes and introduced game fishes in the Yampa River, Colorado, 1987-1991. Final Report, Federal Aid Project SE-3. Colorado Division of Wildlife, Fort Collins.